Stock Market Reaction to Company Announcements in an Emerging Stock Market: The Case of Saudi Arabia

by

Sultan Mohammed A. Almajed

MBA (Finance), BSc (Accounting)

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Abstract

Announcement events are essential for investors and shareholders, enabling them to determine the viability of their investments. According to efficient market theory, stock prices in a semi-strong market factor in all material public information. Therefore, publicly issued financial announcements may influence demand for stocks and affect their prices. This thesis examines how announcements of annual earnings, top management changes and annual general meetings (AGMs) influence stock returns in Saudi Arabia. The thesis also explores stock price adjustment to these announcements to determine the efficiency of the stock market. Lastly, the thesis investigates whether different firm characteristics (size, government ownership and sector) are determinants of stock return reactions related to the announcements period.

The study examined 171 companies and 1,637 announcements between 2014 and 2018. An event study methodology was adopted to investigate the impact of announcements on stock returns. The Fama–French three-factor model served to compute the expected returns while the Generalized method of moments (GMM) estimation method was applied to deal with endogeneity and simultaneity biases. These arise when the explanatory variable is correlated with the residual disturbance term.

The results confirm that the Saudi stock market does not exhibit a semi-strong form of market efficiency because significant abnormal returns were observed on event periods. These returns imply that the market considers announcements of earnings, top management changes and AGMs to be useful. The stock market did not exhibit an efficient response to earnings announcements, suggesting a pause in the reaction to market information. Evidence of underreaction to good earnings news and overreaction to bad earnings news was observed, suggesting that the stock market is driven by the dominance of individual investors, with a lack of financial analysts. Top management change announcements led to significant negative abnormal returns, suggesting that investors continue to respond negatively, although there is no immediate response. Thus, the market is not working efficiently. Forced resignation news yielded significant positive abnormal returns on the event day, indicating that dismissal news enhances investor confidence. Retirement and voluntary departure announcements generated

negative abnormal returns on the event day, suggesting that investors are worried about the new successor and the company's future after the loss of the retiring or departing executive's experience. New appointment announcements yielded significant positive abnormal returns on the event day although there were significant negative abnormal returns on the succeeding days, suggesting the new appointee may not have inspired investor confidence. The results also indicated that the stock market responds significantly and quickly to AGM announcements, implying that these announcements contain useful information. The findings identified size in the top management changes period, government ownership in the annual earnings announcement period and sector in all three announcement event periods as the major determinants of stock price reaction. These determinants influenced stock market efficiency in the sample period.

The findings provide valuable information to market participants by clarifying the effects of announcement events on the emerging stock market and indicating whether firm factors influence stock market efficiency at times around announcements. This study lays a foundation for future research into listed companies' public announcements in other developing countries or for comparisons with more developed countries.

Declaration

"I, Sultan Almajed, declare that the PhD thesis entitled "*Stock Market Reaction to Company Announcements in an Emerging Stock Market: The Case of Saudi Arabia"* is no more than 80,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work".

"I have conducted my research in alignment with the Australian Code for the Responsible Conduct of Research and Victoria University's Higher Degree by Research Policy and Procedures".

Signature:  Date: 16/11/2020

Dedication

To my beloved parents.

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List of Abbreviations

AAR	Average Abnormal Return
AGM	Annual General Meeting
AMEX	American Stock Exchange
APT	Arbitrage Pricing Theory
AR	Abnormal Return
ASE	American Stock Exchange
ASX	Australian Stock Exchange
ATM	Automated Teller Machine
BE	Book value of Equity
CAAR	Cumulative Average Abnormal Return
CAPM	Capital Asset Pricing Model
CAR	Cumulative Abnormal Return
CEO	Chief Executive Officer
CGR	Corporate Governance Regulation
CMA	Capital Market Authority
CML	Capital Market Law
CRSD	Committee for the Resolution of Securities Disputes
DSE	Damascus Securities Exchange
EAR	Earnings Announcement Return
EMH	Efficient Market Hypothesis
EPS	Earnings Per Share
ESIS	Electronic Securities Information System
FDI	Foreign Direct Investment
FTSE Russell	Financial Times Stock Exchange
GCC	Gulf Cooperation Council
GDP	Gross domestic product
GICS	Global Industrial Classification Standard
GLCs	Government-Linked Companies
GMM	Generalized Method of Moment

GOSI	General Organization for Social Insurance
HML	High Minus Low
ICAPM	Intertemporal CAPM
IPO	Initial Public Offering
ISE	Istanbul Stock Exchange
IV	Instrumental Variable estimator
ME	Market value of Equity ratio
MSCI	Morgan Stanley Capital International
NWC	National Water Company
NYSE	New York Stock Exchange
OLS	Ordinary Least Squares
PEAD	Post-Earnings Announcement Drift
PIF	Public Investment Fund
POS	Point-of-Sale
PPA	Public Pensions Agency
QFI	Qualified Foreign Investor
REIT	Real Estate Investment Trust
RMB	Ren Min Bi (Chinese Yuan)
S&P DJ	Standard and Poor's Dow Jones
SAMA	Saudi Arabian Monetary Authority
SAR	Saudi Riyal
SMB	Small Minus Big
SMEs	Small and Medium-sized Enterprises
SNS	Share Negotiation System
SPAN	Saudi Payments Network
SSE	Stockholm Stock Exchange
SSRC	Saudi Share Registration Company
STC	Saudi Telecom Company
SUE	Standard Unexpected Earning
SW	Scholes and Williams adjustment methods
TASI	Tadawul All Share Index
UAE	United Arab Emirates
UK	United Kingdom

US	United States
VIF	Variance Inflation Factors

Chapter 1: Introduction

1.1 Background of the Study

The efficiency of the capital market is one of the most significant and widely contested topics in the field of finance. The quest to enhance capital market investment strategies depends on the secondary market price behaviour. Moreover, investors, regulators, financial analysts and speculators are market participants, and all are interested in the stock market behaviour described by their information to value shares or the efficiency of the market. Fama (1970) described the concept of market efficiency as a situation in which stock prices fully represent all of the relevant news/information available. Therefore, changes in stock prices are mainly based on changes in the information that can be used to value shares. The market efficiency theory remains popular and significant in the finance field. Market efficiency has been defined in different ways by other scholars such as Rubinstein (1975), Beaver (1981) and Black (1986), but Fama's (1970) definition has arguably been most widely accepted and adopted by scholars as a theoretical framework. In general, the accepted approach is that the flow of information is smooth and incorporated without any delay into the stock market.

In many economies, the process of efficient capital formation is centred on stock market activities. The efficiency of information and the operational efficiency of stock markets are considered determinants of market efficiency. The stock market is assumed to play a crucial role in channelling finite economic resources into productive operation. Numerous researchers have participated in the market efficiency debate; consequently, markets and stock prices have become one of the most widely researched areas in the history of finance. As a result, numerous stock market behaviours and techniques have been developed to determine the future direction of stock prices (see, for example, Abraham, Seyyed & Alsakran, 2002; Al-Mwalla & Karasneh, 2011; Armitage & Conner, 2001; Bae & Joo, 2021; Balaban & Kunter, 1997; Ball, 2009; Beaver et al., 2020; Beechey, Gruen & Vickery, 2000; Brown, 2011, 2020; Bundi & Wildi, 2019; Drew & Noland, 2000; Eraslan, 2013; Fama, 1970, 1980, 1995, 1995; Griffin, Kelly & Nardari, 2010; Raghuram, 2017; Sánchez-Granero, Balladares, Ramos-Requena & Trinidad-Segovia, 2020; Ţiţan, 2015). Fama's (1970) introduction of a formal market

efficiency model stimulated interest in studying the stock market and the share prices behaviour.

According to the efficient market hypothesis (EMH), which was initially proposed by Fama (1965), there are three types of market efficiency: a weak form, a semi-strong form and a strong form. In weak market efficiency, current stock prices factor in all past information. Changes in the price of a stock are random and therefore, no investment strategy can be applied to make abnormal profits. In the semi-strong efficiency, current stock prices adjust rapidly and correctly to the release of all available public information. Therefore, changes in stock prices in the market result in unexpected public information, and investors may not obtain above-average returns if they make investments based on such knowledge. Finally, in the strong form, insider trading is not rewarded because stock prices factor in all public and non-public information. In any case, market efficiency does not occur on its own, and depends mostly on the interpretational abilities of investors and how they apply price-sensitive information in their dealings. Thus, any major corporate announcement has the potential to affect stock prices in the market.

Various methods have been used to investigate information efficiency in different stock markets. Tung and Marsden (1998) examined numerous studies and found conflicting results concerning market efficiencies despite the notable significance that stock markets play in economic development. They confirmed that the lack of control in field studies explains the conflicting findings in these field studies. Moreover, the stock market investigation results are contentious; this can be attributed to researchers' unjustified preference for using stock market indices rather than individual stocks (Alexeev & Tapon, 2011). Moreover, it has been argued that the unreasonable dependence of financial economists on contentious models and an understanding of the EMH were the main reasons for the recent global financial crisis (Ball, 2009; Brown, 2011; Sabbaghi & Sabbaghi, 2018). Brown (2011) claimed that the inconsistency impact upon examining the EMH contributed to an inability to predict the growth and collapse of the stock price. Quirin, Berry and O'Brien (2000) linked the cause of the discrepancy to the fact that various industries and sectors are characterised by different features, such as unique accounting methods and policies that make it difficult for analysts, investors and researchers to extrapolate cross-sectional outcomes to particular

industries. Investment analysts tend to specialise in one industry or sector because systematic indices are difficult to identify and apply in individual sectors of the market.

Financial experts, regulators and researchers have endeavoured for many decades to improve investment decisions in capital markets. Earlier studies by academics such as Bae and Joo (2021), Beaver et al. (2020), Baker et al. (2019), Black (1986), Fama (1970), Johnson and So (2018), Rubinstein (1975) Sutejo and Utami (2020), and Siriopoulos (2021) have played a significant role in clarifying the behaviour of stock markets and improvements in investment decisions. Similarly, studies by Alexeev and Tapon (2011), Brown (2011, 2020), Quirin et al. (2000), Sewell (2012) and Ţiţan (2015) have sought to enhance current inferences and overcome some of the flaws associated with existing models.

Despite financial economists' conviction that the EMH determines stock market behaviour and has significant ramifications for financial theories and investment policies, the results of a great number of EMH validity studies have not produced an acceptable global consensus. There is still a lack of certainty among financial economists regarding whether the EMH holds true in the business world, particularly in emerging stock markets. Moreover, the emerging discipline of economic behaviour and finance has called the EMH into question, arguing that markets are not rational but rather driven by fear and greed (see, for instance, Sewell, 2012). Since the Great Depression of the 1930s, the global financial industry has experienced many more economic crises. This is a clear sign that there is still much work to be done to discover the best answers to solve stock market investment puzzles.

Information about a company's financial performance is essential for investors because it determines the value of stock prices and their potential future returns (Aharony & Swary, 1980; Brown, 2020; Qureshi, Abdullah, & Imdadullah, 2012; Sutejo & Utami, 2020). On a stock market, the stock prices act as a barometer of all internal and external factors that affect a business. Accordingly, stock prices are not only indicators of the value of a company but also represent the many economic and non-economic factors that may affect a particular business or sector (In'airat, 2018; Momani & Alsharari, 2012). A company's earnings usually indicate its profitability trend, thereby giving investors vital information regarding whether they should buy or sell a particular stock.

From this perspective, financial information acts as a yardstick in the capital market that assesses both the profitability and strength of a firm (Chen, Cheng, & Gao, 2005; Hussin, Ahmed, & Ying, 2010). Non-economic indicators, such as changes in management, always reflect the strategies adopted by a company (Setiawan, 2008). Because different strategies have varying effects on a business's performance, these factors inevitably affect stock prices.

In light of these arguments, this study examines how the Saudi stock market reacts to the information content of company public announcements of annual earnings, changes of top management and annual general meetings (AGMs). Moreover, it investigates how factors such as firm size, government ownership and sector of a company affect the stock market reaction to announcement periods. The sample of the study consists of 171 listed companies on the Tadawul All Share Index (TASI) of Saudi Arabia. An event study methodology is used to examine the impact of the information content of these announcements on stock returns. The Fama–French three-factor model is used to calculate the expected returns while a GMM regression analysis is used to identify the determinants of stock returns reaction during the announcement event period.

The findings of this study have implications for investors (both domestic and foreign), speculators, regulators and academics interested in the Saudi Arabian stock market. As far as investors are concerned, the government of Saudi Arabia has started to open up its capital market to investments from foreign parties as part of Vision 2030 (Saudi Arabia's Vision 2030, 2016). Therefore, the findings of this study will be of interest to them as well. One of the main objectives of Saudi Arabia's Vision 2030 is to raise the percentage of foreign direct investment from 3.8% to 5.7% of GDP. Moreover, an understanding of the changes of the Saudi stock market prices with respect to the announcements of annual earnings, changes of top management and AGMs will enable regulators to supervise the market more effectively, and investors to maximise returns and minimise losses. Additionally, the information derived from this study will provide investors with crucial insights into how they can profit from the Saudi stock market. According to Pritamani and Singal (2001), investors always have an opportunity to profit from inefficiencies in stock markets, especially those that are semi-strong form efficient. The results of this study lay a foundation for comparative research involving

more developed countries. Thus, the study could be used as a benchmark for future research. The results also provide ample guidance to researchers, serving as a reference point for future stock performance studies in emerging markets. Finally, this is a pioneering study that sets the foundation for future research into the performance of stocks on the Saudi Stock Exchange after major financial announcements.

1.2 Aims of the Study

This study examines companies' public announcements of annual earnings, changes of top management and AGMs and the effect of these announcements on share prices. The study also examines the efficiency of the Saudi stock market and explores the determinants of stock return reactions to these announcement periods to understand the behaviour of an emerging stock market—the Saudi stock market. The following five objectives are addressed in the study:

1. to examine how the information content of annual earnings announcements influences stock returns;

2. to examine how the information content of top management change announcements influences stock returns;

3. to examine how the information content of AGM announcements influences stock returns;

4. to examine the stock price adjustment to the information content of the announcements of annual earnings, top management changes and AGMs to determine whether or not the Saudi stock market is efficient in semi-strong form; and

5. to examine how the Saudi stock market reacts to the announcements of annual earnings, top management changes and AGMs to determine whether or not different firm characteristics (size, government ownership and sector) are determinants of stock price reactions to announcements of annual earnings, top management changes and AGMs.

1.3 Research Questions

To achieve the study objectives, the following three research questions are formulated:

1. How do announcements of annual earnings, top management changes and AGMs by Saudi Arabian listed companies influence stock returns?
2. Does the Saudi Arabian stock market respond efficiently to corporate announcements of annual earnings, top management changes and AGMs?
3. Are different firm characteristics (size, government ownership and sector) determinants of stock price reactions to announcements of annual earnings, top management changes and AGMs in the Saudi stock market?

1.4 Research Methodology

A quantitative method using an event study methodology was adopted in this study through the complementary use of secondary data. An event study is a powerful research tool that helps to evaluate whether there are any relationships between event fluctuations in stock prices by monitoring changes in stock prices and the emergence of abnormal returns. An exploratory study design is helpful when a study investigates the relationship between variables. Therefore, it is applied in this study to investigate the relationship between the share price of companies listed on the Saudi stock market as the dependent variable and three company public announcements on annual earnings, changes to top management and AGMs as well as firm factors as independent variables (see Figure 1.1). The Fama–French three-factor model is used to calculate the expected returns of stock prices.

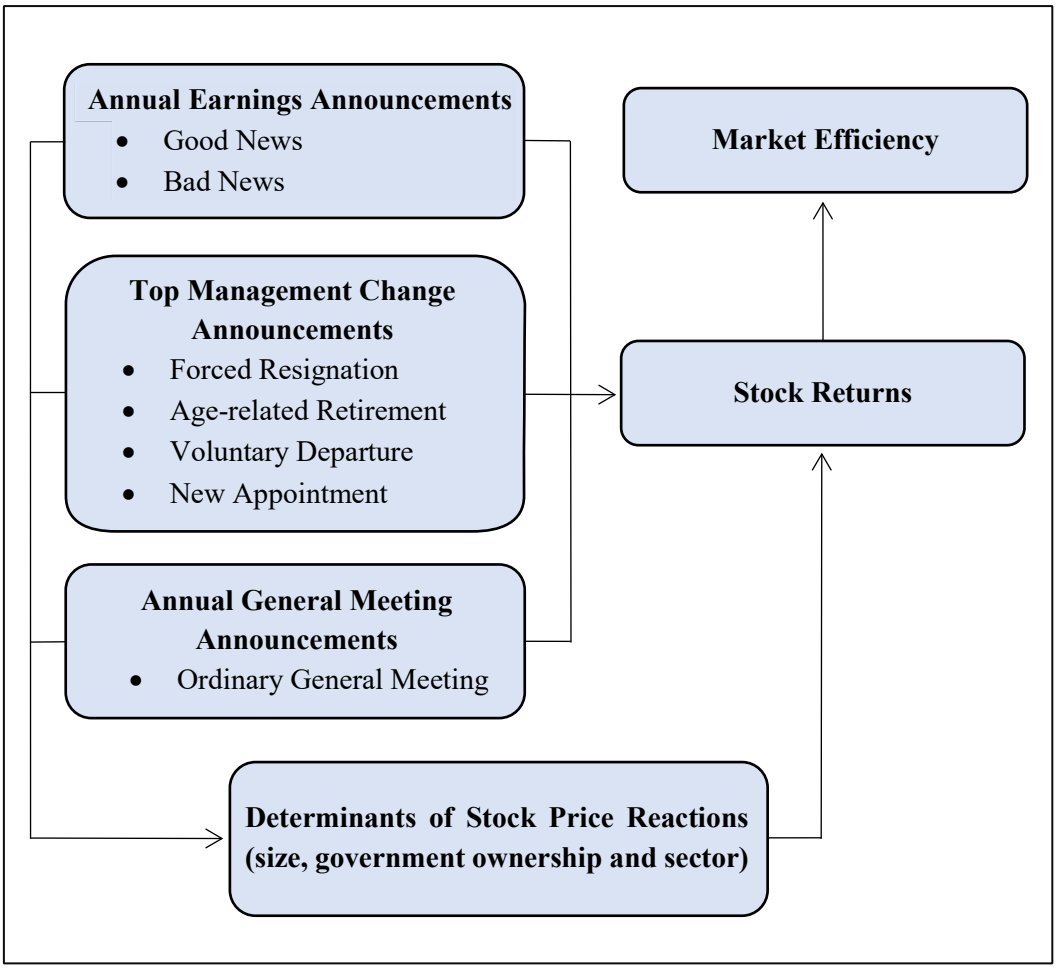

Figure 1.1: Conceptual Framework

Secondary data from the TASI is used in this study in the form of daily stock prices and companies' public announcement dates over a five-year period from January 2014 to December 2018. This period was chosen primarily because it represents the latest data following the introduction of reforms and programs as stipulated in Vision 2030. It also had to reflect the entry of foreign investors participating in the market, and the updated corporate governance regulations they had to follow. This was used to determine the sensitivity of stock prices to public announcements of annual earnings, top management changes and AGMs. The population in this study is particularly heterogeneous. The sample consists of 171 listed companies that have continuously traded and issued announcements on TASI over a five-year period from 2014 to 2018, including both years. The scope of availability of each company influences its selection; the companies included in the sample had to be listed, traded and must have announced annual earnings, top management changes and AGMs during the sample period.

1.5 Research Contribution

The development of the Saudi stock market and the globalisation of the world's financial markets are likely to make the TASI an important global and regional investment player. With the growing interest of investment managers in diversifying their equity portfolios internationally, particularly by directing their investment activities to emerging markets, it is becoming increasingly important to understand the behaviour of emerging market stock prices. The study findings contribute to the existing body of knowledge in this field.

Saudi Arabia's economy is based on the oil/petroleum industry which accounts for 33.84% of the Gross Domestic Product (GDP), helping to make it one of the 20 leading economies in the world (the country is a G20 member).[1] The second-largest oil reserves in the world are found in Saudi Arabia, which is the world's biggest exporter of oil. The Saudi economy started implementing a series of economic reforms and programs detailed in what is known as 'Vision 2030', which seeks to increase private sector involvement in the economy, and make the country more technologically and industrially modern. For instance, the government privatised the Saudi Arabian Oil Company (Aramco),[2] and announced and implemented plans to privatise many of its major industries and large state-run corporations, Saudi Arabia's stock market, which is currently the largest in the Muslim world, will enjoy much more relevance and influence as private ownership increases. In the region as a whole, and particularly in Saudi Arabia, there is little available literature on the subject. According to the literature, only Alzahrani (2010) investigated the stocks returns around quarterly earnings announcements using data for listed firms on the Saudi stock exchange. Alzahrani and Gregoriou (2010) examined stock returns, trading activities, asymmetric information, liquidity and volatility related to quarterly earnings announcements in the Saudi stock market, while Alzahrani and Skerratt (2010) studied the behaviour of the

[1] The Group of Twenty (G20), founded in 1999, is a global forum of 19 countries and European Union governments and central bank governors.

[2] The Saudi Arabian Oil Company (Aramco) is a national petroleum and natural gas company. It is one of the most profitable companies in the world, and is owned by the government of Saudi Arabia. Aramco posted its first public earnings announcement for the first time in 50 years, announcing a net profit of US$111 billion in 2018. In contrast, in 2018, Apple, the most profitable public company in the world, earned US$59.4 billion, a little over half of what Aramco achieved.

Saudi stock exchange in response to announcements of earnings. In their study, Syed and Bajwa (2018) examined the effect of earnings announcements on stock price reactions and efficiency in the Saudi stock market.

Furthermore, previous research on the Saudi stock market has employed a simplified version of the model to analyse the effects of public announcements on stock prices, and mostly concentrated on small samples of data evaluated prior to the implementation of current financial reforms. The entry of foreign investors to participate in the Saudi stock market, is guided by the updated corporate governance regulations for listed companies. Most of the literature has chosen only one to two years to explain the outcome but much is still unclear. To solve this problem, employing a longer period, as this study will, may help provide a more in-depth explanation, potentially leading to more accurate results. Investigated here is the impact of public company announcements on the stock returns after foreign investors entered the market, and updated corporate governance regulations. This thesis aims to fill the discrepancies in our knowledge by offering an academic perspective on how company public announcements may benefit Saudi stock market investors and promote its development, from the standpoint of investor protection.

One of the main contributions of this study is its analysis of company announcements and what these mean to the stock market after giving foreign investors, which are SWAP holders, foreign residents, qualified foreign investors (QFIs), foreign DPMs[3] and strategic investors, the right to invest in the Saudi stock market. The Saudi government has decided to re-examine the entire economy's direction and it should be noted that Vision 2030 was prompted by a decline in oil prices, which caused considerable fluctuations in revenues. As a result, numerous economic reforms were introduced by the Saudi government to stimulate foreign direct investment (FDI) and raise the rate from 3.8% to 5.7% of GDP (Saudi Arabia's Vision 2030, 2016). Moreover, the Saudi stock exchange regulator has improved its rules encouraging foreign investment and giving QFIs access to its market since 2015. The results of this thesis will provide useful data for evaluating the Saudi stock market, and will assist

[3] Foreign resident investment account in which the manager (Authorized Person) makes the buy/sell decisions for its client without referring to the account owner (based on to the agreed terms between them) (Tadawul, 2021).

both the government of Saudi Arabia and regulators of the stock market to assess whether it is resilient enough to reflect the Vision 2030 reforms. The findings could also be an indicator of the level of investor trust.

Investigating the impact of public company announcements on stock returns using the Fama–French three-factor model helps capture the abnormal returns using three factors: market risk premium, size, and book-to-market ratio. This process offers significantly more power for better explaining the impact than other models. However, several event studies are based on parametric test statistics, and one disadvantage of using the parametric test is that the distribution of probabilities of returns requires certain assumptions. In this study, we employ the Fama-French three-factor model and non-parametric test statistic that are significantly more powerful than the simple market model and the parametric t-test at generating abnormal returns and avoiding possible t-test errors, respectively. Moreover, this study differs from others in terms of its focus on company characteristics, and particularly in terms of its event study approach. Thus, this study aims to fill this knowledge gap by expanding the existing body of knowledge regarding the EMH. This is done by examining the impact of the information content of selected company announcement events on stock returns, with reference to the developing stock market of Saudi Arabia as the case study.

In 2017, the Saudi government revised its corporate governance regulations (CGRs) for companies listed on the stock market to improve responsibility, transparency/full disclosure, proper ethical behaviour and honest stewardship of investors' money (Capital Market Authority, 2017). A conducive environment for prospective investors types (Saudi, GCC and foreign investors) was desired for them to invest in the stock market. The new CGRs of 2017, which replace the CGRs of 2006 and 2009, carry important regulations and standards on the administration of companies listed on the stock market, also the board of directors' rights, shareholders' rights and general assembly, board committees, board members and shareholders' responsibilities and obligations, disclosures and fully disclosed business practices. This research investigates the impact of company announcements on stock returns after the Capital Market Authority (CMA) approved updated the CGRs for company.

Several empirical studies in numerous financial markets have investigated the validity of various types of EMH. Some of these studies have examined the semi-strong form of the EMH reaction to announcements of changes to the board of directors/executives on stock prices (Almadi, 2016; Bhana, 2016; Byrka-Kita, Czerwiński, & Preś-Perepeczko, 2017; Darko, Aribi, & Uzonwanne, 2016; Davidson, Xie, & Xu, 2004; Dedman & Lin, 2002; Denis & Denis, 1995; Denis, Denis & Sarin, 1997; Dherment-Ferere & Renneboog, 2000; Lubatkin, Chung, Rogers, & Owers, 1989). Moreover, a relatively small number of studies has investigated the impact of AGM announcements on stock returns (Banko et al., 2013; Blandón, Blasco, & Sabaté, 2012; Brickley, 1986; Martinez-Blasco, Garcia-Blandon, & Argiles-Bosch, 2015; Lawal, 2016, 2021; Olibe, 2002; Omidpour & Talebnia, 2016; Stankevičienė & Akelaitis, 2014; Wang & Hefner, 2014). Announcements concerning senior management changes and AGMs have not previously been examined in Saudi Arabia, especially after implementing a series of economic reforms and programs, allowing foreign investors to enter the market and updating corporate governance regulations. This study aims to fill this knowledge gap and contribute to existing literature by examining the efficiency of the Arab world's largest capital market as a case study. A key issue here is determining how the Saudi stock market, known as Tadawul, reacts to the information content of selected company announcements.

As previously mentioned, there is a paucity of empirical literature on the EMH and these selected announcements in the context of Saudi Arabia. Thus, the findings of this study of market efficiency will be of interest to academics, domestic and foreign investors, portfolio and investment managers, policymakers and those interested in emerging market capital-based research. The findings provide a better understanding of how such announcements affect the Saudi stock market, allowing market participants to realise several benefits. One of the benefits is to improve investors' education and knowledge of how to attain and use information and invest wisely in the market. Indeed, the lack of such information was the main reason of the stock market crash in Saudi Arabia at the start of 2006 (Baamir, 2008). Moreover, this study will help investors to establish profitable portfolios to achieve excess returns based on different anomaly characteristics of the EMH.

The Saudi stock market has become progressively more regulated. This study assesses the Saudi stock market to enhance the investment climate and global competitiveness to ensure the growth of this market and improve the trust of investors. It also identifies challenges to the effective implementation and application. Highlighting the issues in this region will help policymakers and professionals draw up efficient laws for the stock market and enhance current practices. This will in turn, address pressing obstacles to transparency and investor trust such as manipulation and market brokerage, disclosure problems and insider trading. This study provides a platform for future research into listed companies' public announcements in other developing countries and lays a foundation for comparisons with advanced countries.

1.6 Significance of the Study

This study will prove crucial for understanding whether the Saudi stock market is efficient in the semi-strong sense. This information will be of value for investors to determine whether they can make more returns by using announcements information when making trading decisions on the TASI. The primary reason for this study is clarified in light of the following:

Growing numbers of individuals will realise the importance of investing in the Saudi stock market, both for themselves as well as for their country. For instance, in Saudi Arabia, there is a lack of possible alternative investments, which is in contrast to the enormous monetary surpluses resulting from oil revenues. Following the initial public offering (IPO) announcement of the Saudi Telecom Company (STC) in late 2002, Saudi investors became interested in the local stock market. The STC's IPO was a component of a wider privatisation program intended to assist the Saudi economy to modernise and develop. The notable success of this listing encouraged Saudis to continue investing in the national market. In 2017, the Saudi economy started implementing a series of economic reforms and programs detailed in Saudi Vision 2030, which led to an increase in the number of investors in the stock market. The most important reforms covered: (i) the formation of an anti-corruption commission headed by the Crown Prince to enhance international and national investors' trust in the Saudi economy; and (ii) the electronic issuance of visas to foreign investors in a single day to promote foreign investment.

The need to understand the behaviour of emerging market stock prices stems from the imminent wholesale privatisation of state-owned or community-owned utilities throughout the region. In fact, Saudi Arabia privatised the Saudi Arabian Oil Company (Aramco) in 2019 and also announced and implemented plans to privatise many of its major economic industries such as the National Water Company among others. Domestic and foreign investors who will invest in these recently privatised companies will certainly need to become aware of the behaviour of the Saudi stock market and the impact of these companies' public announcements on their share prices. Moreover, stock market investors need to be confident in the market's efficiency and stability to gain trust in the market.

Saudi Arabia's stock market, Tadawul, is a rapidly growing part of the global economy. Empirical evidence indicates a low correlation with developed financial markets (Alshammari et al., 2020). Thus, the inclusion of Saudi Arabia's assets in an efficient portfolio of mean variance would significantly increase expected returns and reduce portfolio volatility. While significant steps have been made in the Saudi capital market development over the past few years, other changes are needed to make both domestic and foreign investors more attractive to the Saudi market. Saudi Arabia also needs to attract international investment to create a competitive investment, financial and regulatory environment that maximises its investment attraction potential. As the government of Saudi Arabia has started opening up access to foreign investors, the results of this thesis will be useful when deciding whether or not to invest in the Saudi stock market. Moreover, the findings will assist regulators in efforts to attract foreign investors by informing appropriate financial reforms in the market.

Additionally, this study will provide valuable information to investment managers and policymakers by clarifying the effects of these company announcements on the Saudi stock market, which could be used to establish optimal managerial strategies and public policies. The Saudi capital markets are the largest in the Gulf Cooperation Council (GCC) although they are relatively new. Further, the Saudi government has recently sought to improve the level of foreign portfolio investment. Therefore, the results of this study will make a valuable contribution to the decisions of investors and policymakers. Moreover, the study contributes to the current body of knowledge by

investigating the efficiency of the largest GCC capital market using the Fama–French three-factor model. The findings provide evidence of significant abnormal returns around the announcements of annual earnings, top management changes and invitations to AGMs by companies listed on the Saudi stock market.

This study will significantly contribute to the operations of investors, regulators and researchers in Saudi Arabia. In particular, the knowledge of how stocks on the TASI react to financial and non-financial announcements presents opportunities for individuals to profit from inefficiencies in the market. Investors in stock markets usually benefit from capital gains or dividends. Therefore, the ability to predict under-priced stocks provides investors with an opportunity to make capital gains by purchasing these stocks and selling them when their prices increase after an announcement is made. A semi-strong form of efficiency presents opportunities for individuals to profit from the release of information in the stock market. Therefore, knowledge of how the TASI will respond to financial and non-financial announcements will be beneficial to investors.

Additionally, this study will help individuals to better understand market trends in the Saudi stock market. Inefficiencies in share prices provide investors with an opportunity to make gains. In this regard, the study will enable academics to establish whether major financial and non-financial company announcements (annual earnings, top management changes and AGMs) influence investors' buying, selling or holding decisions for stocks. Lastly, consideration is given to whether changes in the price of stocks in response to these company announcements are negative or positive and the reasons for such changes.

1.7 Outline of the Study

The thesis is organised in such a way that the subject emerges progressively. Starting from background information on the Saudi Arabian stock market, the study moves towards the empirical findings and a discussion of the impact of announcements on stock returns, accompanied by tables and figures. The six chapters of the thesis are summarised below.

Chapter 1 presents the background information of the study as well as the research aims and research questions. It then provides a brief outline of the research methodology, followed by the study's contribution and significance.

Chapter 2 describes the importance of stock markets for economic development, reviews the history of the Saudi stock market, Tadawul, from 1935 to the present, and describes the regulatory structure of the Saudi stock market (main market and the parallel market). The chapter concludes by reclassifying the Saudi stock market along with Saudi Vision 2030 and the process of opening up to foreign investment.

Chapter 3 presents a comprehensive literature review in six parts. The first part provides the background of the event study. The second part presents a brief history of the EMH and its impact on capital market research. Specifically, the theoretical foundations of EMH are outlined, notably, its three levels (weak, semi-strong and strong). The validity of the theory is examined by considering some of the anomalous evidence documented in the literature. The chapter also discusses the implications of the EMH for conducting event studies. The third part focuses on the information content of earnings announcements, their impact on share prices and the drift of stock prices after such announcements. The fourth part considers the information content of announcements on top management changes and associated firm performance as well as market reaction to such announcements. The fifth part considers the information content of AGM announcements, including their importance in the Saudi context as well as their effect on share prices. Lastly, the sixth part discusses the determinants of stock price reactions to firm characteristics related to the announcement period.

Chapters 4 deals with the research methodology and methods, describing the procedures followed to apply the quantitative methods. The first section explains the secondary data used in this study. The second section describes the event study methodology approach, alongside the parametric and non-parametric tests to ensure the validity of the analysis.

Chapter 5 presents the empirical results of the event study, analysing and discussing the main findings.

Chapter 6 concludes the thesis, drawing conclusions on the key findings and summarising the study. Recommendations are then made for future research.

1.8 Conclusion

This chapter laid the foundations for the thesis. It presented the research background, the research aims, research questions and research methods as well as the study contribution and significance. It also provided an overview of the structure of the thesis. Thus, the chapter explained how the study examines the efficiency of the Saudi stock market in the semi-strong form of the EMH by analysing three company the announcements and their impact on stock returns. The chapter also explored the determinants of stock returns reaction to the selected company announcements. The findings of this study will contribute to the growing body of research in the field of stock market efficiency in relation to developing stock markets such as that of Saudi Arabia. At a time of growing interest among investment managers in diversifying their equity portfolios internationally, it may also help to make the TASI an important global and regional investment platform.

The next chapter reviews the background information on the Saudi Arabian stock market.

Chapter 2: Background Information on the Saudi Arabian Stock Market

2.1 Introduction

The Kingdom of Saudi Arabia is one of the major countries in the Middle East and the largest state in Western Asia. Covering 830,000 square miles, it is the fifth-biggest country in Asia. In mid-2020, Saudi Arabia had a population of over 34 million (General Authority for Statistics, 2020). The country is surrounded by eight other Arab nations (Jordan, Iraq, Kuwait, Bahrain, Qatar, United Arab Emirates, Oman and Yemen) and has coastlines on both the Arabic Gulf and the Red Sea. The economy of Saudi Arabia is oil-based, with the oil industry accounting for 33.84% of gross domestic product (GDP), helping to make it one of the 20 leading economies in the world (the country is a G20 member). The second-largest oil reserves in the world are kept in Saudi Arabia, which is the world's biggest exporter of oil. These factors have helped Saudi Arabia to become one of the world's fastest-growing economies.

The Kingdom of Saudi Arabia was established in September 1932 by King Abdulaziz Al Saud. Oil production began six years later, and Saudi Arabia took its first step towards modernisation. The country immediately introduced a five-year development plan to modernise the economy to gradually diversify away from its over-reliance on oil, which included a larger role for the private sector to engage in economic activities.

Over the past 45 years, with notable financial stability, Saudi Arabia has been able to follow nine five-year plans. The country currently accounts for more than a quarter of total Arab and GCC countries' GDP at 0.28% and 38% respectively (International Monetary Fund, 2019). Saudi Arabia also achieved the biggest improvement in the world's most competitive economies rankings, moving up two places since the 2019 ranking to 24th place in 2020 (Institute for Management Development, 2020). Moreover, the country also recorded the highest worldwide rating for education investment and has made solid progress with both business and public finance.

This chapter presents the Saudi economy and the corporate governance development of Saudi Arabia. The chapter also presents the background information on the Saudi stock market, Tadawul, including the history of its formation and growth, its current position and future prospects. It shows how various changes in the market (including management and transparency) have influenced, and intend to influence, its development. The background also describes the impact of the development of Tadawul on the Saudi economy, highlighting the most significant events from its creation until the present. This background information will help to understand the value of a stock market to an economy, companies and investors and therefore, the impact that any change would have on share prices. This includes significant company announcements such as earnings, top management changes and shareholders' AGMs, which are discussed in the following chapter. The regulatory structure of the Saudi stock market, its reclassification to secondary emerging market status, activities of share trading and the Saudi Vision 2030 are also presented in this chapter.

2.2 Overview of the Saudi Economy

Saudi Arabia is now part of the G20, it is the world's largest oil producer, and its economy ranks in the top 20 in the world (IMF, 2019). The country's economy still greatly relies on oil exports and the government controls most of the industrial activities. Saudi Arabia contains the fifth-largest established natural gas reserves (300 trillion cubic feet) and is the second-largest producer of petroleum and other liquids. One of the biggest advantages of the country's oil reserves is that they are close to the earth's surface. As such, extraction costs for these products are relatively cheap, thus increasing profit margins and much-needed revenues. Moreover, the petroleum sector accounts for approximately 70% of government budget revenues, 40% of GDP, and 80% of export income (IMF, 2019). Consequently, Saudi Arabia plays a significant role in shaping the global economy. However, because natural resources-based revenue, such as oil, dictate what will be the national income, the Saudi economy is vulnerable to fluctuations – often wild ones - in oil prices.

The government now wants the economy to have more private sector growth in order to provide an alternative to the oil industry. Until recently, Saudi Arabia recorded a trade surplus caused by oil/petroleum shipments. As a result, other business sectors are

generally manipulated by the actions and policies of the government which favoured the oil industry. The government has benefited considerably from the industry but is now seeking to introduce other industries, even going so far as taxing oil exports at a higher rate.

It appears that a significant percentage of the oil in the country is produced by private sector companies (Andrews & Playfoot, 2015). Oil prices continue to fluctuate over time. In some cases, there may occur a shock to the oil market which usually results in a sudden price change or a crash. One of the possible causes could be the nature of the quota regime because it influences the OPEC agreements. The agreements regulate oil prices because a demand shock may hit the oil market, thus leading to fluctuations in prices. In the long run, output only changes when accompanied by a moderate price shift. However, research has demonstrated that the Saudi economy lacks an incentive for stabilising the crude oil market against positive or negative shocks (Andrews & Playfoot, 2015). Given this, it is likely that inflation may arise at any time.

In the world's advanced economies, GDP growth is determined by a rise in production and inputs (Anghelache et al., 2015). In contrast, in Saudi Arabia, changes in oil prices are an important aspect of determining the success or failure of its production. If the country fails to account for the extent of import and export activities, it is likely to face a decline in per capita income. Most GDP is driven by the private sector, which is primarily associated with oil and service industries. In such cases, inflation is likely to eventuate. When the oil price rises above the historical average, it causes inflation because it gets pushed by domestic demand and rising expenses. Primarily, they are brought about by the supply of money and import price values. In the early years of the twenty-first century, the oil price escalated to abnormal levels, which caused the government to intervene to address budget surpluses, decide to develop infrastructure, control government-related salaries and boost expenditure on training and education. All of the above factors require the best management in any economy.

The expansion of the Saudi economy in 2019 was attributable to the strong performance of the non-oil sector. This growth occurred despite a significant drop in oil sector output, owing to Saudi Arabia's commitment to the OPEC agreement which sought to ensure oil market stability. The Saudi economy has benefitted from the government's

recent economic and financial reforms package implemented in recent years to meet the goals of the Saudi Vision 2030. In fact, the domestic economy demonstrated flexibility and a capacity to absorb oil price fluctuation (economic shocks). This flexibility is attributable to continuing government spending on development and assistance initiatives aligned with Vision 2030, which has neutralised the impact of such shocks. The government passed numerous resolutions during 2019, which have been followed up in efforts to improve economic efficiency, diversify its production base by increasing the role of the private sector in the country, and review regularly the Vision 2030 goals. Through those resolutions, Saudi Arabia aims to make large economic development leaps, but also implement sustainable solutions, and get more Saudi citizens into employment, especially in the private sector.

According to GDP at constant prices data, the GDP increased by 0.33% in 2019 to US$703.95 billion, compared to 2.43% in 2018 (Table 2.1). The 3.65% decrease in the oil sector's GDP to US$292.32 billion was attributed to the slowdown in growth (Table 2.2). The GDP of the non-oil sector, on the other hand, increased by 3.31% to US$407.28 billion. Also, the GDP of the non-oil private sector rose by 3.78% to US$286.33 billion, while the GDP of the non-oil government sector increased by 2.20% to US$120.95 billion.

Table 2.1: Selected Economic Indicators

Economic Indicators	2013	2014	2015	2016	2017	2018	2019
Estimated population (million)	29.99	30.77	30.9	31.8	32.6	33.4	34.2
GDP at current prices (billion US$)	744.34	753.83	654.27	644.93	688.59	782.48	792.96
GDP at constant prices (billion US$) (2010=100)	339.81	649.57	678.72	690.08	684.96	700.13	703.95
Non-oil GDP deflator	113.03	117.03	124.0	125.8	126.1	130.7	132.7
Inflation rate (consumer prices)	3.52	2.68	2.2	2.1	-0.8	2.5	-2.1
Aggregate money supply M3 (billion US$)	412.04	461.16	472.88	476.64	477.63	490.99	529.36
Daily average of oil production (million barrels)	9.64	9.71	10.2	10.46	9.96	10.32	9.81
Average price of Arabian Light oil (US$)*	106.53	97.18	49.9	40.96	52.59	70.59	64.96
Riyal's effective exchange rate (2010=100)	102.35	105.35	118.5	123.2	118.2	116.5	113.2
Currency in circulation to total money supply ratio	9.27	8.89	9.5	9.5	9.6	9.8	9.5
Deposits to money supply ratio	90.73	91.11	90.5	90.5	90.4	90.2	90.5
Net foreign assets of domestic banks (billion US$)	36.34	42.49	60.13	38.85	39.44	33.49	18.8
Interest rates on Saudi riyal deposits (3 months)**	0.95	0.94	0.9	2.1	1.8	2.5	2.6
Bank capital adequacy ratio (Basel II)	17.87	17.88	18.1	19.5	20.4	20.3	19.3
Actual government revenues (billion US$)	308.36	278.5	164.24	138.51	184.4	238.59	247.15
Oil revenues (billion US$)	276.01	243.56	119.04	88.99	116.24	161.97	158.51
Actual government expenditures (billion US$)	260.27	295.97	260.83	221.47	248.0	274.77	282.51
Budget deficit (billion US$)	48.09	-17.48	-96.59	-82.96	-63.6	-36.19	-35.36
Budget deficit to GDP ratio	6.46	-2.32	-14.8	-12.9	-9.2	-4.6	-4.5
Commodity Exports (billion US$)***	375.87	342.43	203.55	183.57	221.84	294.37	261.52
Commodity imports CIF (billion US$)	168.15	173.83	174.67	140.16	134.52	137.07	144.35
Current account surplus to GDP ratio	18.20	9.78	-8.7	-3.7	1.5	9.2	6.3
Current account (billion US$)	135.44	73.76	-56.72	-23.84	10.45	72.35	49.84
Tadawul All Share Index (TASI) (1985=1,000)	8,535.60	8,333.30	6,911.8	7,210.4	7,226.3	7,826.7	8,389.2
Public debt to GDP ratio	2.15	1.57	5.87	13.1	17.2	19.1	22.8

* OPEC numbers

** Interbank rates offered (SAIBOR).

*** Including oil and oil-non exports.

Sources: Saudi Arabian Monetary Authority (2015-2020) 50-56th Annual Report.

Table 2.2: GDP by Institutional Sector at Constant Prices

Sector		Value (US$ Billion)						Share in Total (%)						Annual Change (%)					
		2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
1	Oil Sector	278.32	292.99	303.55	294.18	303.37	292.32	42.85	43.2	44.0	42.9	43.2	41.5	2.09	5.27	3.60	-3.09	3.13	-3.65
2	Non-oil Sector	368.31	380.11	380.97	385.77	394.25	407.28	56.70	56.0	55.2	56.3	56.2	57.9	4.86	3.20	0.23	1.26	2.20	3.31
	2.1. Private Sector	257.74	266.53	266.73	270.72	275.90	286.33	39.68	39.3	38.7	39.5	39.3	40.7	5.38	3.41	0.07	1.50	1.91	3.78
	2.2. Government Sector	110.57	113.58	114.24	115.05	118.34	120.95	17.02	16.7	16.6	16.8	16.9	17.2	3.67	2.72	0.58	0.71	2.86	2.20
3	GDP Excluding Import Duties	646.63	673.10	684.51	679.95	697.62	699.59	99.55	99.2	99.2	99.3	99.4	99.4	3.65	4.09	1.70	-0.67	2.60	0.28
4	Import Duties	5.32	5.63	5.55	5.00	4.01	4.36	0.82	0.80	0.80	0.70	0.60	0.60	4.10	5.79	-1.40	-9.99	-19.89	8.77
GDP		649.57	678.72	690.08	684.96	700.13	703.95	100.0	100.0	100.0	100.0	100.0	100.0	3.70	4.11	1.67	-0.74	2.43	0.33

Sources: Saudi Arabian Monetary Authority (2015-2020) 50-56th Annual Report.

2.3 Importance and History of the Stock Market

The significance of the capital market lies in its role as a system for the collection and guidance of private and public savings towards multiple channels of investment in economic development. Studies of modern applied economics have confirmed that the development of the capital market and economic growth rates are closely related to each other. Botev, Égert and Jawadi (2019), Gurley and Shaw (1955), Guru and Yadav (2019) and Yang (2019) confirm that a fundamental aspect of the economic growth process is the financial market. Moreover, Ahmed (2016), Assefa and Mollick (2017), El Menyari (2019) and Levine and Zervos (1999) demonstrate a positive connection between the development of the stock market and long-term economic growth. Nonetheless, as demonstrated by global financial crises, the lack of appropriate policies in the financial sector and an advanced financial system can generate disastrous results. Therefore, this sub-section presents the significance of the stock market to economies, firms and investors.

The stock market performs various functions, all of which are vital to the economic development of a nation. Among these functions is improving the growth rate of investment in the domestic economy. In general, the stock market operates to encourage the investment of savings and in particular, operates to encourage small investors to save. Those who are unable to initiate investment projects for reasons such as low savings or lack of knowledge and feasible investment opportunities, prefer to purchase securities with their money. This leads to an improvement in the investment growth rate, increasing the employment rate and consequently, enhancing economic growth.

The stock market contributes to the financing of economic and social development projects in the country by providing the funds necessary for government investment projects. The stock market presents a significant funding tool for the fiscal deficit and liquidity management. In terms of financial markets, these tools enable investors to move smoothly without losing the securities' market value (from share to cash and from share to another).

From another perspective, the stock market supports economic development by allowing individuals to become part of successful investments and companies. Those

people with limited capital and limited investment ideas can use their limited finances to purchase shares and enjoy the profits generated by successful companies. Therefore, the stock market enables a more equal distribution of resources, resulting in more uniform and diversified economic growth. The stock market also creates a conducive environment for companies to go public beyond the country's boundaries and attract investors from overseas.

Through stock markets, companies gain more trust from investors. Therefore, the market enables companies to attract more investors, which helps them to pursue profitable opportunities and therefore results in economic growth. Increased company profits benefit the economy of a nation by increasing the money raised through taxation and building up newer investments, thereby generating new sources of revenue. News of growth in the stock market attracts not only the attention of national but also international investors. The more the stock market of a nation grows, the more likely this is to contribute to economic growth through a growth in investments. Moreover, the stock market can enhance the economy and thereby enhance living standards.

The capital market provides a tool for assessing firms and investment projects; it acts as an indirect supervisory authority, evaluating the effectiveness of firms and projects trading their securities on the market. Moreover, it offers a variety of financial instruments that provide investors with broader opportunities to choose in different areas of investment. This reduces the inefficiency of research and investment selection for individual savers. Moreover, the inflation rates in the domestic economy can be reduced by the stock market by attracting individual and institutional savings, thereby absorbing excess liquidity and guiding those savings to investment rather than consumption. As the stock market is increasingly interdependent with the outside world, it can also benefit from worldwide economic and financial developments.

The significance of the stock market for firms lies in the fact that firms possess a separate legal personality from capital personal owners. Companies carry out production, advertising, investment and financing operations under the company's name, not on behalf of the partners. Regardless of continued relationships with existing shareholders, the company can remain personally independent so that shareholders

withdrawing their capital does not mean the company will stop. Moreover, the debt owed by the company to others is not binding on the shareholders.

One of the most significant factors for investors in the stock market is the facility for trading in their shareholdings. It constitutes a transfer of ownership of these transactions from the hands of the equity investor to other investors, without influencing or creating confusion about the company's continuity. It also guarantees that the shares of joint-stock companies can trade freely and quickly. Shareholders have the ease of transferring stocks to liquidity requirements rather of expecting the firm to buy back the shares, which attracts investors (Davies, 2020, p. 17). Through stock markets, investors can obtain information about a particular firm that is performing well in the stock market in which they invest.

A financial market exists when individuals start to invest their savings. There comes a phase when investment projects need funding over and above that which can be obtained using immediately available savings. At that point, large-scale investment is required. This has led individuals to use their savings to participate in profitable investments to grow their savings, increase revenue and thereby enhance their living standards. The concept of the financial market is based on the theory of Adam Smith[4] who stated that the division of work is primarily dependent on market size. When market size and quantity of production are closely related, this connection is shown in financial development and per capita earnings (Balassa, 2011, p. 105).

Capital market development has traditionally been correlated with the economy and industrial growth, as mentioned earlier. A powerful movement towards financial instruments has been generated by the increasing number of listed companies as well as governments' enthusiasm for borrowing, leading to the establishment of the stock market. The first stock market in the Arab world emerged in the Egyptian city of Alexandria[5] in 1883. The Cairo stock market was established in 1890. Then stock exchanges were established in other Arab countries such as Jordan, Lebanon, Morocco, Sudan and Tunisia in the first half of the nineteenth century. The establishment of these

[4] Adam Smith FRSA (17 July 1790) was a Scottish morals scholar, political economy pioneer and leading figure in the Scottish Enlightenment.
[5] Alexandria is Egypt's second-largest city and main economic centre. It became an important global shipping centre and one of the world's leading trading centres.

stock markets had a significant impact on relations with European countries. Capital markets in the GCC were not identified until the sizeable correction in the oil price in 1973, which increased funding recourses.

2.4 History of the Saudi Stock Market

Despite its short history, Tadawul, the Saudi stock market, has grown at an exceptional rate to the extent that Morgan Stanley Capital International (MSCI) recognised it as an emerging market in 2018 (Tadawul, 2018a). Today, it is the largest stock market among the Arab-speaking nations. Its growth occurred in three main phases, from 1930 to the present. This section presents the three phases to help understand the elements that contributed to its growth.

2.4.1 Initial Stage (1930–1983)

The Kingdom of Saudi Arabia saw the start of an informal stock market in the mid-1930s when the first Arab Automobile Company joint-stock company was listed (SAMA, 1997). The period between 1935 and 1982 saw the emergence of the initial stages of the stock market. However, there was slow growth because of the failure and reluctance of the government and regulatory bodies to mobilise capital market growth. During the 1950s, the number of listed companies grew to four, with 9.3 million shares in circulation valued at US$251 million. By the mid-1960s, there were 17 listed companies with a share capital of US$788 million, with 29.9 million shares in circulation, mainly in the cement and electricity sectors of the economy (SAMA, 1997).

The year 1954 saw the first genuine joint-stock company, the Arabian Cement Company, go public, and by 1975, the number of joint-stock companies on the Saudi stock market had risen to 14 (Capital Market Authority, 2018). At this stage, the stock market in Saudi Arabia was unable to keep pace with international competition and was in urgent needed of investment and changes. Attempts to improve the market proved largely ineffective; it was comparatively immature and somewhat basic. There were several likely reasons for this (Moliver & Abbondante, 1980).

One of the reasons for the slow growth, despite almost 50 years of operation, was the lack of government input and belief in the stock market as a source of finance. Saudi

Arabia had grown rich because of its natural resources such as oil, so the government had sufficient funds, allowing it to even offer interest-free loans to the public (Abdeen & Shook, 1984; Ramady, 2010). These ample funds prevented the stock market from developing and as a result, the market experienced slow growth. Another reason for the slow growth was Saudi Arabia's economic growth, which was still in its infancy. There was no experience or financial maturity to support such a sophisticated market (Abdeen & Shook, 1984; Moliver & Abbondante, 1980). The government focused on building infrastructure to raise living standards, which again adversely affected the stock market's concentration. Although this direction was reasonable and logical, it resulted in the stock market stagnating and losing ground to its foreign counterparts.

Another reason for its sluggish growth was a lack of foundations and order (regulatory structure) (Moliver & Abbondante, 1980). There were no well-defined bodies to regulate the market; the ones that were available (the Saudi Arabian Monetary Agency, the Ministry of Commerce and the Ministry of Finance and National Economy) were state-owned and therefore lacked efficiency. A lack of efficient regulations led to uncertified brokers who were responsible for insecurity in share ownership. Thus, this proved challenging, preventing the stock market from expanding and growing. The board members were also selfish and held large stakes, with all actions in the market designed to benefit themselves. During the early 1980s, there was limited investment in the Saudi stock market because of a lack of regulation when the oil price increased, leading to a rise in both trading and market capitalisation (Abdeen & Shook, 1984).

The Saudi stock market remained unofficial until the 1980s when an ambitious program and comprehensive reforms were implemented by the government to enhance its operation and effectiveness as part of the country's economic development plan (Ramady, 2010). The move by the government to privatise state-owned businesses contributed to the expansion of the stock market, with 38 companies listed in 1983.

2.4.2 Established Stage (1984–2003)

The phase between 1984 and 2003 marked the establishment of the stock market, with the government agreeing to become more involved and help to ensure its success. The reason for focusing on the stock market was to diversify the income generated from oil

exports and raise the living standards of citizens. For many years, the government relied on oil exports for income. However, in the 1970s, the government focused on making the economy less reliant on exporting oil. It developed five-year economic development plans with each focusing on different sectors of the economy, starting from 1970 (Ministry of Economy and Planning, 1970). Along with these stages, there was the development of the stock market, which began in 1983, when the sector was organised and modernised.

In 1984, the daily task of regulating the stock market was entrusted to the Saudi Arabian Monetary Authority (SAMA), while the current trading system was discontinued by the Saudi government. Moreover, all dealings in stocks were restricted to stock trading through 12 commercial banks to enhance the regulatory structure of trading (Al-Dukheil, 2002; Ramady, 2010). The Saudi Share Registration Company (SSRC) was established in 1984 by royal decree and was to be supported by the commercial banks under SAMA supervision. The SSRC was responsible for handling shareholders' documents and share certificates as well as offering transaction support services and automatically transferring and registering ownership after transactions. It marked the start of a fresh era for setting up an electronic share trading regulation system. SAMA also developed a mechanism to run the stock market by adopting the Share Negotiation System (SNS) and the Electronic Securities Information System (ESIS) in 1985 and 1990, respectively.

The original ESIS title was changed to the Tadawul All Share Index (TASI) in 2001. Tadawul is a new system that was launched by SAMA for share trading, settlement and clearing, providing an effective, precise and short trading cycle and rapid settlement (Ramady, 2010). Further, it operates slightly differently because the newly named resource added a T + 0 (transaction guarantee for the same day). Digital trading became a significant component of the Saudi stock market for the first time. Indeed, it dominated the TASI because it is designed to manage large quantities of internet activity. A much more advanced deposit structure and more effective trade instructions were also incorporated into the updated index.

However, a significant move occurred in this period of 1983 to 2003; the government strengthened the stock market regulatory body with the appointment of the SAMA, the

Ministry of Commerce and the Ministry of Finance and National Economy (Capital Market Authority, 2003; Niblock, 2015). Each body was assigned a particular obligation, with SAMA having the task of overseeing the stock market's daily activities and ensuring it operated effectively. Managing stock market growth and expansion was the responsibility of the Ministry of Finance and National Economy. Finally, the Ministry of Commerce addressed joint-stock companies' IPOs and regulations (Al-Dukheil, 2002; Ramady, 2010). The introduction of the three bodies to form the main regulatory body resulted in substantial changes and improvements within the market, including the adoption of new technology.

Despite these changes and the growth witnessed, the market still faced challenges. This was because the three bodies were not properly coordinated, pursuing their own interests (Al-Dukheil, 2002; Ramady, 2010). This absence of a unified legislative body was a significant aspect since the association of three bodies was not as effective as expected. The government formed the regulatory bodies and owned the most substantial number of shares, leaving very little liquidity on the stock exchange for free activities, which slowed down growth.

Moreover, data sharing was limited because listed companies were not forced to share financial information, leading to questions of transparency and liability in the market (Niblock & Malik, 2007; Ramady, 2010). The listed joint-stock companies were asked to voluntarily disclose their yearly (or annual) earnings. Therefore, companies disclosed only the very slightest amount of data, especially with regard to their profits. As a consequence, widespread insider trading occurred with high-level traders affecting the market through the pursuit of their own interests. This added to the overall imbalances in the market, making it even more urgent to implement more stringent controls by the government.

The analysis of the second phase showed that economic growth required a more controlled stock market. This reflected the importance of stock markets for the economic development of a nation. Another observation was that weak regulation and a lack of communication with the public led to the slow growth of the stock market. Making information available to the public affects the stock market because it helps to

build public trust. The type of management also played a role in determining the growth of the Saudi stock market.

2.4.3 Modernisation Phase (2003–Present)

The modernisation stage resulted from the previous need for an independent body that would bring transparency to the stock market and help propel growth. Initially, the government focused on broadening the stock market and giving it more strength to facilitate economic growth. However, from 2003 the government started focusing on a more in-depth regulated and transparent stock market to move the economy to the next level. Under the Capital Market Law (CML), the Capital Market Authority (CMA) was established in 2003 through Royal Decree No. M/30. The CMA is a governmental body that is directly connected to the Prime Minister, with financial and administrative independence (Capital Market Authority, 2014). It supervises the organisation and development of the financial market and issues rules, regulations and instructions to implement the provisions of the CML.[6] This marked the start of a new stage of development for the Saudi stock market.

In 2007, the Saudi Stock Exchange (Tadawul) came into existence through the approval of the Council of Ministers. It is the sole body with authority in the Kingdom to facilitate a securities exchange. It is responsible for supervising and dealing with financial operations through Saudi-based investment tools. In 2007, investor approval was granted to the GCC to increase the amount of stock market activity (Tadawul, 2007). In 2008, the Saudi stock market's industrial elements were reshaped to create a system that was significantly more efficient than the earlier definitions that formed the basis for updating to the TASI. This gave the stock market as a whole a more straightforward representation so that investors could make informed, sensible trading choices.

[6] According to Royal Decree No. (M/30) of 2/6/1424H – corresponding to 31/7/2003, the Capital Market Law was enacted to establish a transparent, fair and controlled market that is in accordance with present trends in other global economic markets. Articles on Capital Market Law are developed to regulate and develop the capital market, regulate securities issuance and oversee its operations, and supervise the approved individuals licensed by the CMA. It also protects investors and residents against illegal activities.

The CMA has also implemented several new supervisory laws intended to ensure that the distribution of data is fair and that disclosures are made honestly. It seeks to ensure that all investors can communicate information honestly and openly. In this respect, companies with IPOs must supply precise data on securities issuers. Moreover, there are several important trade constraints pertaining to companies' boards of directors to participate in the stock market. Similarly, data concerning the block holders of listed companies that have more than 5% of the issued shares must be available to avoid misbalancing by insider trading.[7]

In 2015, the CMA issued rules governing the investment of QFIs in listed companies (Capital Market Authority, 2015). Under the QFI program, only QFIs would be permitted to invest in the market. The QFIs must not be individuals but institutions, such as banks, brokerage companies, insurance companies, government agencies and affiliated institutions and investment funds. In 2018, the CMA revised the rules governing QFIs in Saudi Arabia to facilitate eligibility requirements for QFIs, their financial institutions, foreign portfolio managers and investment funds. It also expanded the scope of qualified institutional investors (Capital Market Authority, 2018).[8] In 2019, the CMA allowed foreign companies to be listed on the Saudi stock exchnage (Tadawul, 2020). There are three types of investors who participate in the Saudi stock market: (i) Saudi investors; (ii) GCC investors; and (iii) foreign investors. The Saudi investor types are classified into individuals and institutions. Saudi individuals have been classified under 4 categories (retail, high net worth investors (HNWIs), individual professional investors (IPIs) and individual DPMs), while the Saudi institutions have been classified under 4 categories (corporates, mutual funds, government related entities (GREs) and institutional DPMs). GCC investor types are classified into individuals, institutions and GCC DPMs. Lastly, the foreign investor types are organised into SWAP holders, foreign residents and others, QFIs, foreign DPMs and strategic investors. Table 2.3 presents the definitions and descriptions of these investor types in the Saudi stock market.

[7] Gulf base (2013). History of the Saudi Stock Market. Available at: http://www.gulfbase.com/gcc/index/1?t=3.

[8] These enhancements to the QFI program can be viewed on the CMA website: https://cma.org.sa/en/RulesRegulations/Regulations/Documents/QFI_18_en.pdf

These developments were in line with Vision 2030, which aims to open the market up to the world for economic growth. The opening up process will increase the funds available for companies in Saudi Arabia that need finance to support their activities. Following the opening up process, the country's economy will grow further as a result of increasing investments.

The QFI framework 'rules' were issued in 2015, modified in 2016 and updated according to the changes announced in 2018. A positive impact on the stock market as a result of these revised rules and also the Tadawul's inclusion in the emerging market indices was witnessed through the increasing number of foreign investors and foreign cash flows (Tadawul, 2020). The number of QFIs rose to more than 2,300 as the end of 2020, compared with 1,800 in 2019, and QFI ownership value in the capital market reached US$70 million compared with US$32 million in the year 2019 (Tadawul, 2020). This modernisation of the QFI program was the latest in a series of measures implemented to improve access, efficiency, transparency and governance.

This modernisation phase further suggests that stock market growth leads to economic development, which is the reason why the Saudi government facilitated transparency to meet its target of developing the economy. After a change of management and increased use of technology to disseminate information to the public, the number of investors grew, particularly foreign investors. This shows that management as well as communications to the public have an impact on the stock market position.

Table 2.3: Saudi Stock Market Ownership Definitions by Nationality and Investor Type

Nationality	Investor Type	Description
Saudi	Individuals	Saudi Individuals have been classified under 4 categories as defined below:
	- Retail	Retail investors are Saudi individuals, excluding IPIs (see below) and HNWIs.
	- High Net Worth Investors (HNWIs)	HNWIs are Saudi individuals who have had an average portfolio size of SAR 1m (and above) for the preceding 12 months, excluding IPIs (see below).
	- Individual Professional Investors (IPIs)	IPIs are Saudi individuals who have had an average portfolio size of SAR 50m (and above) for the preceding 12 months and a portfolio turnover ratio of not more than 4 times annually
	- Individual DPMs	Saudi individual investment account in which the manager (Authorized Person) makes the buy/sell decisions for its client without referring to the account owner (based on to the agreed terms between them).
	Institutions	Saudi Institutions have been classified under 4 categories as defined below:
	- Corporates	Saudi company with a commercial registration permitting its investment in the stock market.
	- Mutual Funds	A mutual fund managed by an Authorized Person and licensed by the CMA.
	- Government Related Entities (GREs)	A Government entity or a supranational authority recognized by the CMA.
	- Institutional DPMs	Saudi institutional investment account in which the manager (Authorized Person) makes the buy/sell decisions for its client without referring to the account owner (based on to the agreed terms between them).
GCC	Individuals	GCC natural person
	Institutions	GCC legal person with a commercial registration certificate (corporate or mutual fund), in addition to GCC government entities.
	GCC DPMs	GCC investment account (institutional or individual) in which the manager (Authorized Person) makes the buy/sell decisions for its client without referring to the account owner (based on to the agreed terms between them).
Foreign	SWAP Holders	Authorized Person with the permission to enter into SWAP agreements to transfer the economic benefits of its ownership of shares in Saudi companies listed on the Saudi Stock Exchange to its non-resident foreign clients.
	Foreign Residents & Others	Investors with a valid residency permit (Iqama) and others (excluding SWAP, QFIs, DPM & Strategic Investors).
	QFIs	Qualified Foreign Institutional investors registered with the CMA in accordance with the QFI Rules, to invest in shares listed on the Saudi Stock Exchange.
	Foreign DPMs	Foreign resident investment account in which the manager (Authorized Person) makes the buy/sell decisions for its client without referring to the account owner (based on to the agreed terms between them).
	Strategic Investors	A foreign legal entity that aims to own a strategic shareholding in listed companies.

Sources: Saudi stock exchange (Tadawul) (2021) Monthly Trading and Ownership by Nationality Report 31-05-2021, Definitions.

2.5 The Development of Corporate Governance

The concept of corporate governance addresses financial crises and corporate or administrative corruption in the business world. Emerging markets lack institutions such as long-established financial and legal infrastructure to deal with corporate governance problems (Algoere & Ali, 2019; Ali, 2020; Alotaibi, 2015; AlSagr, Belkhaoui & Aldosari, 2018). Corporate governance procedures are particularly important in all economies.

Before 2006, Saudi Arabia had no specific corporate governance rules. CMA was just established in 2003, and it took three years for it to issue a corporate governance regulation (CGR) (Algoere & Ali, 2019). In February 2006, the Saudi stock market witnessed an unexpected and sudden massive crash driven by confusion in the market underlying economic factors (Lerner, Leamon & Dew, 2017). Subsequently, the CMA was forced to establish new corporate governance rules to protect shareholders and other stakeholders. The 2006 CGR was revised in 2009.

In 2017, Saudi Arabia revised its CGRs for companies listed on the stock exchange to address the deficiencies in previous regulations and to promote responsibility, transparency, ethical behaviour and good stewardship of investors' capital (Capital Market Authority, 2017).[9] A conducive environment is sought for prospective investors types (Saudi, GCC and foreign investors) to invest in the stock market, and so make Vision 2030 a viable policy. The new CGRs of 2017, which replace those of 2006 and 2009, incorporate important regulations and standards on the administration of companies listed on the stock exchange. Covered here are issues concerning board of directors' rights, shareholders' rights and general assembly, board committees, board members and shareholders' responsibilities, obligations, disclosures and what they need to be aware of.

The following sections highlight the features of the new government regulations on corporate governance.

[9] For more details, see Capital Market Authority (2017) Corporate Governance Regulations. Retrieved from https://cma.org.sa/en/RulesRegulations/Regulations/Pages/default.aspx

2.5.1 Shareholder Rights

As a revision of the existing rights under the previous CGRs of 2006 or 2009, the CGRs of 2017 provide extensive and new provisions regarding shareholder rights. These rights include, for example: (i) fairness and equality among shareholders (Article 4); (ii) all shares' rights will be guaranteed to the shareholder (Article 5); (iii) access to clear and accurate information and communications with the company and shareholders (Articles 6 & 7); (iv) rights to elect the board members (Articles 8); (v) clear policy for the distribution of dividends to shareholders (Article 9); and (vi) rights to attend and vote in general shareholder meetings (Articles 10-15).

2.5.2 Board of Directors

Part 3, Article 16 to 41 of the CGRs of 2017 include specific rules and principles regulating the board of directors, chairman and executive management, including composition, appointment, conditions of membership, termination, responsibilities, competencies, duties, meeting, training, support and assessment. Under Article 17 of the CGRs of 2017, the company must inform the authority about the board members' name and their membership description within five business days of the commencement of the board member or the date of their appointment, whichever is earlier. Any other changes that may affect their membership should be reported within five business days, which are not specified in the previous corporate governance regulations. Article 18 of the CGRs of 2017 requires a board member to the professional and requisite experience, knowledge, skills, and independence to carry out his or her tasks effectively.

The CGRs of 2017 offer examples of issues compromising the board's independence under Article 20. The board is obligated to annually evaluate each member's independence and ensure there are no relationships or circumstances that might affect or compromise this independence. Holding the position of chairman board of director and any other executive position in the company at the same time is prohibited. It includes the positions of managing director, CEO, and general manager, even if the company's bylaws permit it (Article 24 of the CGRs of 2017). Furthermore, it is prohibited for a company to appoint a CEO as chairman of the board for the first year

following the end of his/her employment to further ensure the board's independence (Article 28). Article 29 of the CGRs of 2017 states that each board member must adhere to the values of honesty, truthfulness, loyalty and concerns for the company and its shareholders, putting their interests ahead of his or her own.

2.5.3 Conflicts of Interest

The scope of the conflict of interest policy was increased by the CGRs of 2017 beyond the board members to include the senior management or any other employee of the company engaging with other stakeholders and the company. Whereas in the CGRs of 2006 and 2009, the scope of the conflict of interest policy is only restricted to the board members. Article 43 of the CGRs of 2017 asserts: "The Board shall develop an explicit and written policy to deal with actual and potential conflicts of interest situations which may affect the performance of Board members, the Executive Management or any other employees of the Company when dealing with the Company or other Stakeholders." A company is mandated to adopt policies and procedures for related party transactions, conflict situations, individuals in conflict, a board member's appointment and dismissal, and acceptance of gifts (Article 42-49 of the CGRs for 2017).

2.5.4 Company Committees

The earlier CGRs of 2006 or 2009 categorised nomination and remuneration as one committee; there were no explicit rules on committee composition, formation, policy or meetings. With the implementation of 2017 CGRs, nomination and remuneration have become separate committees, and Articles 50 to 72 contain rules relating to committees membership and meetings, composition and competencies among others, as well as the board members' ability to create special committees based on the company's requirements. These are typically the audit committee, remuneration committee, nominating committee, and risk management committee.

Regarding the composition of the audit committee article, Article 54 of the CGRs of 2017 states there should be at least three members on it, no more than five; one of them must have financial and accounting expertise and at least one independent director. The latter must be the chairman of the audit committee and members of the executive board

cannot have membership of the audit committee. Moreover, Article 54 (c) of the CGRs of 2017 states that:

> The Company's General Assembly shall, upon a recommendation of the Board, issue a regulation for the audit committee which shall include the rules and procedures for the activities and duties of the committee, the rules for selecting its members, the means of their nomination, the term of their membership, their remunerations, and the mechanism of appointing temporary members in case a seat in the committee becomes vacant.

Another significant improvement brought about by the CGRs for 2017 was that an audit committee will create arrangements permitting the company's staff to comment in confidence on any financial or other report errors or inaccuracies (Article 58).

In terms of forming a remuneration and nomination committee, Articles 60 and 64 of the CGRs of 2017, respectively, state that the company's board of directors, by resolution, will establish a committee to be known as the "remuneration committee" and "nomination committee". The remuneration and nomination committee's members will not be executive directors, although at least one person must be an independent director. The company's general assembly adopts regulations for both the remuneration and nomination committees, including procedural matters, tasks, meetings, regulations for appointing its members and the membership's terms, based on the board's recommendation (Articles 60-62 and 64-66, respectively).

Concerning establishing a risk management committee article, Article 70 of the CGRs of 2017 states that the company's board of directors should, by resolution, constitute a committee to be known as the "risk management committee." The chairman and the majority of the board will not be executive directors. Members of the risk management committee must have a good comprehension of risk management and finance issues.

2.5.5 Stakeholders

There was no explicit Article devoted to the board of directors' interaction with stakeholders in the CGRs of 2006. Articles 83 and 84 of the CGRs devised in 2017 mandate listed companies' board of directors to create detailed and documented policies on their dealings with various stakeholders, including employees and the incentives

they receive in order protect and defend their rights. These detailed and documented policies must outline how to protect their relevant rights, maintain information confidentially, handle objections about professional behaviour, contribute to the community, treat workers fairly, and deal with non-compliance with these processes and policies. Moreover, companies' employee incentive programmes and pay-outs must be documented. According to Article 85 of the CGRs of 2017, social obligations, professional and ethical corporate standards, employees' pension programmes and social activities should be made available.

2.5.6 General Disclosures and Transparency

Another significant change in the CGRs set in 2017 is that a company is required to disclose and provide current and necessary information to stakeholders (Article 89). The board of directors must uphold information disclosure standards, publish a consistent board report alongside the audit committee's report (Article 90). The remuneration packages paid to board members and executive managers should be reported following the standard template in the regulations to avoid abuse of authority as stated in Article (93). All minutes, records, reports and other materials must be kept by a company for at least ten years. In the event of a lawsuit, claim, or investigation involving such reports, the company must keep them until the completion of the ongoing lawsuit, claim or investigation (Article 96).

Article 13 of the CGRs established in 2017 indicates that the general assembly meeting's date, place, and agenda must be released at least twenty-one days before the meeting date. The invitation must be published on the stock market's and company's website, and a daily newspaper distributed in the region where the company's head office is located. The company retains the option of convening the general and special shareholders' meeting utilising modern technology.

2.6 Regulatory Structure of the Saudi Stock Market

2.6.1 Capital Market Law

The CML, as described in the previous section, emerged in 2003 to make the capital market more transparent by giving it order and structure. It is the umbrella law that

defines the primary principles of the market as well as forming its foundations. The CML represents a significant qualitative step in Saudi capital market history. It serves to identify operational, supervisory and regulatory institutions and structures and determines the functions and powers of the institutions within the capital market. Another role is to disclose and spread information to the secondary and primary markets. The CML creates transparency in the market by preventing rumours and the exploitation of information. It also makes provision for penal sanction orders to ensure justice in the market and defines the functions and roles of any new financial institutions, whether operational, regulatory or supervisory. The CML performs these roles through several bodies, including the CMA, the stock market and a security dispute body, discussed later.

The CML consists of 10 chapters containing 67 articles of regulations (Capital Market Authority, 2003). Each chapter focuses on one aspect of the financial market. In Chapter 2: Capital Market Authority, the capital market protects against fraud through the prohibition of counterfeit trades that aim to affect securities' prices by transferring the ownership of securities. The law also prevents any agreement that has not been announced, based on inside information that is accessible to some individuals but not to the general public. In Chapter 7: Disclosure, the law ensures transparency by prescribing that sources of securities cannot provide financial securities before the provision of prospectors and therefore, gain approval to and from the commission. Chapter 8: Manipulation and Insider Trading, deals with fraud and insider trading, which is banned in the Saudi market. The last chapter, Sanctions and Penalties for Violations, defines the sanctions for securities infringements and the crimes and penalties involved. Through the various bodies and laws, the CML has enabled transparency and good leadership within the stock market, thereby contributing to its growth.

2.6.2 Capital Market Authority

The CMA is a market oversight and regulatory body that was established under the CML in 2003, ultimately contributing to the growth and development of the Tadawul (Capital Market Authority, 2003). The CMA is a body with independent finances and administration, reporting to the President of Saudi Arabia's Council of Ministers. It

handles the supervisory and control roles under the CML authority. The mandate of the CMA under the CML includes developing and regulating the financial market and promoting the appropriate standards and practices for all entities engaged in securities; ensuring transparency, fairness, and efficiency in securities transactions; protecting securities investors from any form of fraud; monitoring and regulating security issuance and other under trading dealings; creating measures to minimise risk in securities transactions; monitoring institutions to ensure complete information disclosure on issuers and securities; and monitoring and controlling the transactions of all institutions under the body. Through the CMA, transparency and information availability have improved, thereby contributing to the growth of the Tadawul.

2.6.3 Saudi Arabian Monetary Authority

SAMA is another body that provides the mandate of the CML, enabling the Tadawul to gain a control structure and improve transparency. The authority served as the central bank of Saudi Arabia and was established by royal decree in 1952 to strengthen the country's financial institutions (Ramady, 2010, p. 75). Since its creation, SAMA's mandate has expanded to include investing Saudi Arabia's resources; regulating disbursements in the national budget; issuing banknotes; mentoring and giving authority to money changers and the country's commercial banks; and bringing together payments and receipts from the government.

SAMA has been the legislative body of the Saudi capital market since 1984, based on a mandate drawn from the CML. It regulates the operational and other general rules within the market. Moreover, it is responsible for creating the rules and regulations for supervising and controlling share trading and any other activity within the Saudi stock market. Since its creation and authorisation to assume the regulatory role under the CML, SAMA has contributed to the development of the financial system through initiatives such as the creation of an automated system. The authority has also created the Saudi Payments Network or MADA (formerly SPAN), a system of payments within the country, expanding it internationally.[10] Through its operations, SAMA has helped

[10] MADA is SPAN's new identity, reflecting Saudi Arabia's innovative generation of electronic payments. It seeks to improve automated teller machines (ATMs) and point-of-sale (POS) growth with unparalleled levels of efficiency, speed, safety and acceptance. MADA links all ATMs and POS

to modernise the Tadawul, leading to greater transparency and availability of information as well as better management, which were previously barriers to its development.

2.6.4 Committee for the Resolution of Securities Disputes

The Committee for the Resolution of Securities Disputes (CRSD) is another body working under the CML, which has contributed to growth in the Saudi stock market by ensuring that laws and decisions are appropriate. The body functions as a court that settles disputes regarding CMA law and its role in regulations. The CRSD handles disputes in areas such as the consideration of complaints related to actions and decisions of the CMA and the Saudi stock market. It also assesses lawsuits that arise between investors concerning the CML and its rules relating to private and public actions and regulations within the exchange market and the CMA. Lastly, it considers lawsuits that the CMA files concerning CML violations.[11]

The CRSD, through the Saudi CML, has powers to carry out investigations and make legal decisions. Some of these powers include imposing sanctions and awarding damages. The body has helped build public trust in the Saudi stock market because of its ability to secure justice in cases of rights violations, such as access to information. The CML provides that any individual investor carrying out business within the Tadawul has the right and can file a lawsuit against another investor or entity, including the CMA. Individuals can also file a lawsuit against those who violate the CML. Such provisions and the CRSD have led to many investors utilising the stock market, which has continued to grow as a result.

2.6.5 Saudi Stock Exchange (Tadawul)

A joint-stock company was founded in 2007 under the name 'Saudi Stock Market (Tadawul)'. The Tadawul is the stock exchange which trades between 10:00 a.m. and 3:00 p.m. (one session), Sunday through to Thursday and is supervised by the CMA. The Saudi stock market has grown since its modernisation in 2007 to have two forms

terminals provided in the country by local banks to a central payment switch that in turn routes the financial transactions between the bank of a merchant and the bank of the issuer of the card.

[11] The CRSD can be viewed at: https://crsd.org.sa/en/resolutionscommittee/Pages/default.aspx

of the market: the main market and the parallel market (Nomu). The growth and support of economic development prompted management to initiate a new industrial classification of companies to further enhance transparency, thereby contributing to progress. Growth was realised after the CMA established structures that allowed proper management, transparency and the free flow of information to the public. Stock market growth has led to economic development within the country (Tadawul, 2003). The primary market deals with large entities and investors with a minimum market capitalisation of US$80 million, compared with that of the parallel market with a minimum of US$2.6 million (Tadawul, 2018b). Tadawul established the parallel market after experiencing the benefits of the stock market. It therefore recognised the need to expand it further through the inclusion of other small investors.

2.6.5.1 Main Market

The Tadawul primary market had a total of 203 registered companies as at 2020, despite its short history. This growth has resulted from the Saudi government's support for the financial market, to diversify the national economy away from oil exports and embrace economic development. Since the establishment of the CML in 2007, the market had experienced continued growth in the number of registered companies, which rose from 126 in 2008 to 203 in 2020 (see Table 2.4) (Tadawul, 2020). The market has also experienced an upward trend in total capitalisation over the same period, rising from US$246,541 million to US$2,427,149.33million, a 985% increase in 12 years (Tadawul, 2020). Despite the negative annual changes in the total number of transactions in six individual years, the market capitalisation has only declined twice within the 12 years, thereby indicating the strength of the market in terms of investment. This unique high growth rate can be attributed to the transparency of the market, which allows individuals to access valuable information about proceedings. Moreover, proper management structures and strict rules and regulations have enabled the market to grow at a steady rate.

Table 2.5 presents the main market value traded and ownership breakdown - by nationality and investor type.

Table 2.4: Summary of Some of the Main Market Indicators of Saudi Arabia 2008–2020

Year	No. of Listed Companies	No. of Investors Registered in Tadawul	Total Market Capitalisation		Total No. of Shares Traded		Total Value of Shares Traded		Total No. of Transactions		TASI	
			(US$ Million)	Annual Change (%)	(Million Shares)	Annual Change (%)	(US$ Million)	Annual Change (%)	(Thousand)	Annual Change (%)	(Points)	Annual Change (%)
2008	126	3,954,132	246,541.33	N/A	61,732.78	N/A	523,452.00	N/A	52,135.93	N/A	4,802.99	N/A
2009	135	3,997,556	318,802.67	29.31	57,811.93	-6.35	337,069.60	-35.61	36,458.33	-30.07	6,121.76	27.46
2010	146	4,045,793	353,437.33	10.86	34,052.20	-41.10	202449.07	-39.94	19,536.14	-46.42	6,620.75	8.15
2011	150	4,099,527	338,890.67	-4.12	48,406.34	42.15	293,022.93	44.74	25,546.93	30.77	6,417.73	-3.07
2012	158	4,221,355	373,424.00	10.19	78,198.78	61.55	514,484.80	75.58	42,105.05	64.81	6,801.22	5.98
2013	163	4,335,739	467,429.33	25.17	50,974.63	-34.81	365,244.00	-29.01	28,967.69	-31.20	8,535.60	25.50
2014	166	4,462,067	483,437.33	3.42	66,560.86	30.58	572,402.93	56.72	35,761.09	23.45	8,333.30	-2.37
2015	171	4,555,446	421,082.67	-12.90	63,773.03	-4.19	442,832.53	-22.64	30,444.20	-14.87	6,911.76	-17.06
2016	176	4,616,540	448,520.00	6.52	64,488.46	1.12	308,529.87	-30.33	27,273.66	-10.41	7,210.43	4.32
2017	179	4,675,535	450,560.00	0.45	43,299.66	-32.86	223,006.67	-27.72	21,895.28	-19.72	7,226.32	0.22
2018	190	4,741,870	495,720.00	10.02	37,820.16	-12.65	232,231.73	4.14	25,011.89	14.23	7,826.73	8.31
2019	199	5,485,716	2,406,784.00	385.51	33,055.25	-13.13	232,231.92	1.06	28,395,79	13.53	8,389.23	7.19
2020	203	5,596,266	2,427,149.33	0.85	79,323.73	134.29	556,746.55	137.21	76,686,329	170.06	8,689.53	3.58

Source: Saudi stock exchange (Tadawul) Annual Report, various issues. The Saudi Arabian Riyal is effectively pegged to the US Dollar at a value of US$1 = SAR3.75.

Table 2.5: Main Market - Value Traded and Ownership Breakdown - By Nationality and Investor Type

Nationality	Investor Type	Holding Value (US$ Million)	Ownership*	
			Issued (%)	Free Float (%)
Saudi	Individuals:			
	Retail	37,039.53	1.44%	8.68%
	HNWIs	61,284.54	2.38%	14.19%
	IPIs	98,168.39	3.81%	16.66%
	Individual DPMs	1,845.33	0.07%	0.43%
	Sub Total (Individuals)	198,337.79	7.70%	39.97%
	Institutions:			
	Corporates	208,803.85	8.11%	22.30%
	Mutual Funds	67,457.53	2.62%	10.98%
	GRE's	1,996,245.27	77.53%	6.36%
	Institution DPMs	20,013.81	0.78%	4.69%
	Sub Total (Institutions)	2,292,520.46	89.04%	44.32%
	Total Saudi Investors	2,490,858.26	96.74%	84.29%
GCC	Individuals	857.41	0.03%	0.20%
	Institutions	12,630.49	0.49%	2.06%
	GCC DPMs	81.67	0.00%	0.02%
	Total GCC Investors	13,569.58	0.53%	2.28%
Foreign	SWAP Holders	568.32	0.02%	0.13%
	Foreign Residents & Others	2,036.24	0.08%	0.36%
	QFIs	55,093.65	2.14%	12.94%
	Foreign DPMs	5.21	0.00%	0.00%
	Strategic Investors	12,697.99	0.49%	0.00%
	Total Foreign Investors	70,401.42	2.73%	13.43%
Grand Total		2,574,829.25	100%	100%

Sources: Saudi stock exchange (Tadawul) (2021). Main Market - Monthly Stock Market Ownership and Trading Activity Report.
*As of 31 May 2021.

2.6.5.2 Nomu Parallel Market

The Saudi parallel market (Nomu) is an alternative stock market with less restrictive listing requirements compared with the main market. It serves as a platform for firms to become public. Investment activities in this market are limited to qualified investors by the law of the CMA. The Nomu parallel market offers various funding resources for qualified small and medium-sized enterprises (SMEs) that have not previously qualified for listing on the main market. These companies can raise their market value and improve their activities by being listed, thereby contributing to their development and sustainability.

A Nomu parallel market listing requires a minimum capitalisation of US$2.6 million, and the minimum number of public shareholders required is 50. Moreover, at least 20% of the shares must be listed. The Nomu parallel market had a total of 4 listed companies as at 2020, down from 5 in 2019 (see Table 2.6). The total market capitalisation in 2020 and 2019 was US$3,248 million and US$677.33 million, respectively.

The Nomu parallel market was considered an extra step towards Saudi capital market development, in alignment with the Kingdom's Vision 2030 strategy goals and objectives. It serves as a driver of economic growth and a driver of both quality domestic and international investment while maintaining governance standards to ensure the observance of investment best practice. Nomu is a new investment opportunity for a large number of enterprises, including SMEs. These companies play a significant role in promoting the domestic economy. The Nomu contributes to economic development because its listing requirements are more flexible than those of the main market. Table 2.7 presents the Nomu - parallel market value traded and ownership breakdown - by nationality and investor type.

Table 2.6: Saudi Stock Market Indicators (Nomu - Parallel Market) 2017–2020

Year	No. of Listed Companies	Total No. of Shares Traded		Total Value of Shares Traded		Total Market Capitalisation		Total No. of Transactions		Nomu	
		(Million Shares)	Annual Change (%)	(Million US$)	Annual Change (%)	(Million US$)	Annual Change (%)	(Thousand)	Annual Change (%)	(Points)	Annual Change (%)
2017	9	70.64	N/A	481.59	N/A	601.37	N/A	78.77	N/A	3,140.01	N/A
2018	10	24.07	-65.93	109.99	-77.16	619.87	3.08	42.15	-46.49	2,520.73	-19.72
2019	5	80.94	207.91	607.95	452.70	677.33	9.48	138.494	228.57	7,179.16	158.43
2020	4	108.64	34.23	1,897.06	212.04	3,248	379.53	287.493	107.59	26,245.46	265.58

Source: Saudi stock exchange (Tadawul), Annual Report, various issues. The Saudi Arabian Riyal is effectively pegged to US Dollar at a value of US$1 = SAR3.75.

Table 2.7: Nomu - Parallel Market - Value Traded and Ownership Breakdown - By Nationality and Investor Type

Nationality	Investor Type	Holding Value (US$ Million)	Ownership*	
			Issued (%)	Free Float (%)
Saudi	Individuals	1,984.20	61.74%	49.56%
	Corporates	1,184.61	36.86%	47.14%
	Institutions	18.72	0.58%	0.75%
	Total Saudi Investors	3,187.53	99.18%	97.45%
GCC	Individuals	1.06	0.03%	0.10%
	Institutions	10.61	0.33%	1.02%
	Total GCC Investors	11.67	0.36%	1.12%
Foreign	SWAP Holders	0.00	0.00%	0.00%
	Foreign Residents	2.82	0.09%	0.27%
	QFIs	11.99	0.37%	1.16%
	Total Foreign Investors	14.81	0.46%	1.43%
Grand Total		3,214.01	100.00%	100.00%

Sources: Saudi stock exchange (Tadawul) (2021). Nomu - Parallel Market - Monthly Stock Market Ownership and Trading Activity Report.
*As of 31 May 2021.

2.6.6 New Industry Classification

The Tadawul continues to support the financial market, with the latest development being a reclassification of companies following the Global Industrial Classification Standard (GICS).[12] The new classification, which started in January 2017, led to the assignment of companies to the sectors to which they belong in terms of their main activities (SAMA, 2018). Through the GICS, companies are now assigned to one of 20 sectors rather than the previous 16 (Tadawul, 2017). The move was meant to accommodate the new industries emerging in the Saudi economy. Through the new classifications, it is easier to compare Tadawul with other equity markets globally. Moreover, the classification enables investors, both local and foreign, to better assess the Tadawul and consider investing. The move increases transparency because companies have to give credible and reliable data. Moreover, there is likely to be an increased number of investors because of the availability of adequate information, thereby promoting trust across the market.

The growth in the stock market and its support of economic development has motivated the CMA to come up with a new classification to enable greater economic development. One of the lessons learned from the new classification is that transparency through the adequate sharing of information leads to stock market growth. The Tadawul's move towards the new classification was intended to increase transparency among listed companies after learning from the previous developments suggesting that transparency facilitates market growth. Another lesson is that the stock market enables economic growth. The need to develop the stock market further through the new classification of industries was intended to support economic growth after learning from previous developments that the Tadawul supports the nation's development.

[12] The Global Industry Classification Standard (GICS) was created jointly in 1999 by two entities: (i) Standard and Poor's (S&P), the world's most comprehensive, universal resource for indices, data and research, and a major worldwide financial market indicator provider; and (ii) MSCI, a leading autonomous provider of worldwide indicators, products and services related to benchmarks. The GICS methodology seeks to enable financial professionals around the world to improve investment research and asset management processes. It has been universally recognisable for investment studies, portfolio management and asset allocation as an industry analysis framework. The structure of GICS consists of 11 Sectors (Level 1), 24 Industry Groups (Level 2), 69 Industries (Level 3), and 158 Sub-Industries (Level 4).

2.7 Stock Market Reclassification

The Saudi stock market has further demonstrated its development and entered another phase that will see it grow further through its inclusion in the emerging market index. The Tadawul (2018b), through its annual statistical, financial indicators report, announced that both MSCI and Standard and Poor's Dow Jones (S&P's DJ) had included it in their emerging markets categories.[13] The report also indicated that the Financial Times Stock Exchange (FTSE Russell) had included the Tadawul in its secondary emerging markets list (Tadawul, 2018b). The MSCI, S&P DJ and FTSE Russell are among the major groups across the world that provide global equity indexes. Initially, the Saudi stock market was a standalone market that only provided indices within its market without comparison to other global markets. This means that the Tadawul will be able to make known its performance in the equity market globally or among the few nations earmarked as emerging markets.

Recognition of the Tadawul by the three global index rating groups is an indication that the market has grown to a level that allows it to compete with other better-performing markets such as China, Korea and Russia. Its listing further shows that the various developmental efforts by the Saudi government— especially since 2007, starting with the creation of the CML and other implementing authorities such as the CMA, SAMA and CRSD—have proved successful. Through the listing, the Tadawul is now in a better position to attract foreign investment. There will be greater transparency within the market because most of the companies' information will be publicly available. Moreover, apart from the performance within the country, investors will be able to see how the Tadawul compares to other global emerging markets, thereby rewarding good performance with the prospect of greater investment. Further, the listing publicises the Saudi stock market to the world and helps show how quickly it has developed, potentially attracting additional investors. Therefore, the Tadawul's listing on the emerging market list is further evidence of how stock market transparency can lead to additional investors and thus, enhanced economic growth.

[13] MSCI announced the results of the 2019 annual market classification review, which can be viewed at https://www.msci.com/market-classification

2.8 Share Trading Activities on the Saudi Stock Market

In 2018, the Saudi stock market had 190 listed companies with an aggregate capital of US$495,720 million (Tadawul, 2018b). Table 2.8 presents the Saudi stock market activities by sector during 2018, and specifically, the market capitalisation, number and value of shares traded and the number of transactions. Table 2.8 also shows that the banking industry leads the way in terms of size, accounting for 33.32% of market capitalisation. There are 12 banks listed on the stock market. The materials sector ranks next, accounting for 32.08% of market capitalisation, while the energy sector (in which the government remains the largest investor) ranked eighth with a market capitalisation of just 1.74%. The media and entertainment; pharma, biotech and life science; and consumer durables and apparel sectors have the lowest market capitalisations (0.37%, 0.19% and 0.15% respectively). When the 'number of companies' is analysed for the sectors, a different ranking emerges. The materials sector (with 42 companies) and the insurance sector (with 33 companies) emerge as the largest. An analysis of Table 2.8 shows that there are more private companies compared with public ones on the list. This is an indication that private investors have been able to join the market—unlike before, when they did not have trust in the leadership. The government has minimised its influence in the stock market, which had previously deterred private parties from acquiring shares. The industrial distribution of companies reveals growth in the Saudi economy, which is attributed to government efforts to encourage private investors, primarily through the stock market. Prior the formation of the stock market, there were very few industries in the economy, and the government-owned energy sector dominated the market. The figures in Table 2.8 show that many industries and companies (especially private ones) are joining the stock market. This is confirmation of the influence of leadership in the market and its impact on economic development.

Table 2.8: Saudi Stock Market Activity by Sector during 2018

Sectors	No. of Companies	Market Capitalisation		Rank	No. of Shares Traded		Value of Shares Traded		No. of Transactions	
		Million US$	Ratio to Total (%)		Shares	Ratio to Total (%)	Million US$	Ratio to Total (%)	Transactions	Ratio to Total (%)
Banks	12	165,160	33.32	1	8,394,299,150	22.2	59,110.84	25.45	2,791,476	11.16
Materials	42	159,014.85	32.08	2	9,048,168,807	23.92	72,929.12	31.4	5,864,004	23.44
Telecommunication Services	4	53,719.15	10.84	3	1,794,413,921	4.74	6,964.80	3	933,942	3.73
Real Estate Management and Development	10	20,354	4.11	4	8,104,574,010	21.43	26,378.93	11.36	2,786,752	11.14
Food and Beverages	12	19,476	3.93	5	753,377,065	1.99	6,939.30	2.99	1,211,203	4.84
Utilities	2	17,381.93	3.51	6	364,740,042	0.96	1,905.20	0.82	240,574	0.96
Insurance	33	9,666.09	1.95	7	2,860,291,750	7.56	16,763.30	7.22	3,643,689	14.57
Energy	4	8,624.62	1.74	8	949,824,523	2.51	7,209.89	3.1	886,292	3.54
Diversified Financials	4	8,302.95	1.67	9	312,385,084	0.83	1,184.74	0.51	304,103	1.22
Retailing	6	7,997.90	1.61	10	533,570,516	1.41	4,438.81	1.91	730,262	2.92
Health Care Equipment and Services	6	5,756	1.16	11	314,886,657	0.83	3,712.11	1.6	523,646	2.09
Consumer Services	8	3,969.41	0.8	12	670,171,215	1.77	4,489.40	1.93	759,846	3.04
Real Estate Investment Traded Funds (REITs)	16	3,313	0.67	13	717,880,813	1.9	1,900.28	0.82	590,885	2.36
Transport	5	3,054.40	0.62	14	464,073,298	1.23	2,801.26	1.21	460,909	1.84
Capital Goods	12	2,317.04	0.47	15	1,323,125,290	3.5	7,003.18	3.02	1,571,721	6.28
Commercial and Professional Services	2	2,030.08	0.41	16	234,672,454	0.62	1,745.42	0.75	282,175	1.13
Food and Staples Retailing	4	2,027.39	0.41	17	282,165,792	0.75	1,902.87	0.82	406,063	1.62
Media and Entertainment	2	1,855.50	0.37	18	173,813,916	0.46	2,828.53	1.22	505,088	2.02
Pharma, Biotech and Life Science	1	941	0.19	19	30,861,726	0.08	254.82	0.11	44,773	0.18
Consumer Durables and Apparel	5	759.65	0.15	20	492,859,277	1.3	1,769.12	0.76	474,482	1.9
Total	190	495,720.07	100	-	37,820,155,306	100	232,231.92	100	25,011,885	100

Sources: Saudi stock exchange, Tadawul, Annual statistics and financial indicators report on the performance of the Saudi Stock Exchange company, 2018.

2.9 Saudi Arabia's Vision 2030

In 2016, Saudi Arabia's Crown Prince Mohammed bin Salman published a plan to transform the national economy (Saudi Arabia's Vision 2030, 2016). This plan, known as Vision 2030, has several objectives. One of the main objectives is to reduce Saudi Arabia's reliance on oil revenue and to diversify the economy. Realising these objectives will involve massive infrastructure projects playing a crucial role.

Through the continued economic growth benefits of the Tadawul, the Saudi Arabian government has focused on the stock market as one of the pillars to further support its Vision 2030. According to the Financial Sector Development Program (one of the 12 Vision 2030 programs), the government stresses the need to develop the capital market, which it hopes will stimulate economic growth. The program specifically aims to make the capital market more advanced, opening it up to the world to allow greater funding opportunities. Through this approach, the government hopes that the capital market will diversify investment instruments and opportunities for all investors and financial market participants.

The program to develop the capital market has started, and the gains are already apparent. The stock market introduced the Nomu parallel market to accommodate SMEs that the main market could not previously accommodate. As of 2018, the Nomu had 10 companies listed with an aggregate market capitalisation of US$619.87 million (Tadawul, 2018b). Moreover, the Saudi stock market changed its classification to GICS to increase its transparency and compete globally. Through its classification and growth, three leading global index groups (MSCI, S&P DJ and FTSE Russell) have classified the Saudi market as an emerging one, which will enable it to compete more effectively globally and attract more foreign investors. Vision 2030's focus on the Tadawul to stimulate economic growth is an indication of how the stock market can benefit a nation to solicit development even beyond its borders.

2.10 Conclusion

This chapter described the financial environment in Saudi Arabia. An unofficial stock market existed in Saudi Arabia until 1984, when the government recognised the need for official laws. These modifications in market statues have resulted in tremendous

development in both the value of traded shares and the number of shares traded. Consequently, we can examine the market response to the information content of the announcements of annual earnings, top management changes and AGMs in Chapter 5 with some degree of confidence as to their significance.

This chapter highlighted several important aspects that have contributed to the growth of the Tadawul since 1935, to have 190 listed companies in 2018. One of these was the focus on economic growth. To diversify the economy, the Saudi government focused on developing its stock market, a strategy that has yielded positive results in terms of economic growth. Unlike previously, the Saudi economy has more industries listing, which has helped the stock market to acquire a broader global industry classification. Another aspect is transparency, which the government has continued to promote on the Tadawul through its Vision 2030. Transparency has effectively enabled the Tadawul to enter the modernisation stage and develop further.

Individual investors are now an important stockholder group within the Saudi stock market because the reform plan for Vision 2030 seeks to boost foreign investment to 5.7% of the country's GDP. The Saudi stock market demonstrates many of the features of an emerging stock market: rapid growth in the 1990s, a comparatively small number of companies and emphasis on private shareholders.

Lastly, with regards to effective management of the Tadawul, the development of the CML with the creation of bodies such as the CMA has contributed to market growth. Transparency involves the release of information to the public and exemplary leadership, both of which have a significant positive impact on the stock market and are likely to affect share prices. The following chapter discusses stock market efficiency, the EMH, its theory and implication. Moreover, the relevant literature in the fields of the announcements of annual earnings, top management changes and AGMs and the stock price reactions is presented. The chapter then reviews the determinants of stock price reactions based on a firm's characteristics around the announcement event period.

Chapter 3: Literature Review and Hypothesis Development

3.1 Introduction

This chapter presents a detailed review of stock market efficiency. It provides the basic logic behind the event study analysis with the technical requirements that are needed for the approach to be implemented, centring on the well-known EMH. In particular, the chapter discusses the EMH's theoretical foundations and its three levels (weak, semi-strong and strong) and introduces the findings of key EMH empirical studies.

The chapter then examines previous comprehensive studies and relevant publications on stock market reaction to company public announcements of annual earnings, top management changes and AGMs in emerging and developed stock markets relevant to this study's objectives and questions. The chapter highlights the impact of the information content of these announcements on stock returns. Moreover, extensive empirical studies are assessed in an attempt to determine the various elements that offer explanations of the announcements of annual earnings, top management changes and AGMs, the impact on stock prices and the associated factors.

The chapter is divided as follows: Section 3.2 presents background information of stock market efficiency, its history, theoretical foundations of the EMH and its three levels. It also discusses their implications for conducting event studies. Section 3.3 examines the literature on the impact of annual earnings announcements on stock returns. Section 3.4 provides the literature on stock price reactions around top management change announcements while Section 3.5 discusses the literature on stock price reactions around AGM announcements. Section 3.6 presents the determinants of stock price reactions to firm characteristics while Section 3.7 provides the research hypotheses developed from the literature review. Section 3.8 concludes the chapter.

3.2 Stock Market Efficiency

The definitions provided in this section shed light on the evolution and understanding of the key terms used by financial economists. Different researchers use different terms to try to explain the hypothesis as best as they can (see, for instance, Clarke, Jandik, & Mandelker, 2001; Dimson & Mussavian, 2000; Fama, 1970). Moreover, the terms used

in the hypothesis present a challenge to many scholars who have tried to grasp the central idea of the theory. The evolution of the terms plays a significant role in shaping individuals' views and perceptions of the matter. Some of the significant terms explained in this section include efficiency, EMH and random walk theory.

The efficiency concept is fundamental to finance and has been studied by academics and economics for several years. The EMH is an important field of research in specialised literature. The term 'efficiency' in the EMH is described as a situation in which individuals investing in the capital market cannot receive abnormal returns from their investment to beat the market exchange system (Brown, 2020; Fama, 1965, 1970; Ţiţan, 2015). The only way to outperform the system is to expose more assets to risk in pursuit of generating higher profits.

The study of market efficiency has dominated finance for close to 50 years, since the 1970s. However, even among financial economists, there is a surprising lack of certainty regarding whether the EMH holds in the business world (Sewell, 2012; Ţiţan, 2015). The main aim of the hypothesis is to establish whether its primary idea holds any significant weight in the finance world regarding the concept that market prices rationally and instantly incorporate all information (Lo, 2004; Sewell, 2012). Notably, the validity of this hypothesis has been called into question by the emerging behavioural economics and finance discipline, which argues that markets are not sensible but are instead motivated by greed and fear (Sewell, 2012). Moreover, although the EMH is theoretically simple, it has proven to be extremely hard to test and provide an accurate result. This is because there is no consensus among financial economists on any of the three different types of EMH. The fact that models do not validate EMH is because they are biased and can generate incorrect results (Ţiţan, 2015).

3.2.1 Efficient Market Hypothesis

Efficiency is the ability of the stock market to provide non-abnormal returns to investors correctly, insofar as a collection of information can help determine expected future profits from the same investment (Fama, 1970). Kliger and Gurevich (2014, p. 5) state that the news available about the market should produce a quick and appropriate response and because news refers by definition to unexpected information, so in effect future market prices are unpredictable. The inability of traders to regularly

'beat' the market, that is to say, systematically create excess returns through trading, is consequently an indication of market efficiency.

The foundations of the EMH theory were originally established in the seminal papers of Cootner (1964) and Samuelson (1965), but Fama (1965) developed the theory. The EMH is a type of investment concept whereby share prices reflect the required information on generation. According to the EMH, the stock market is heavily reliant on information as the main dictator of changing prices (Ţiţan, 2015). The EMH also states that financial markets are efficient. In accordance with the theory, the term "market efficiency" refers to how effectively current prices represent all available, relevant information about the underlying assets' actual value (Fama, 1991, 1998). Under these conditions, it is challenging to generate abnormal profits because information causes the prices of stocks to rise and fall with each passing second.

The EMH is known as one of the fundamental building blocks of modern financial economics over the past few decades. Researchers and practitioners now interpret the logic behind it as intuitive because of the profound influence of the EMH on financial theory. In summary, it implies the following: as investors aim to benefit from market trading, they take advantage of any useful information, allowing market prices to represent all the relevant information at any given time.

According to this logic, news coming to the market must inevitably lead to immediate and reasonable market response, and the future behaviour of market prices is unexpected since the news, by definition, refers to an unpredictable component of information. As a consequence, the inability of traders to consistently ‘beat’ the market—that is, to produce systematic excess profits by trading—is a sign of an efficient market.

These theoretical considerations contributed to the first formulation of the random walk theory of Louis Bachelier in 1900. The principle of ‘random walk’ holds that prices move randomly in an efficient market; this prevents any chance of using available information to produce sustainable additional trade profits.

Random Walk Theory

The random walk character of stock prices has been analysed by an impressive body of literature. This theory holds that it is not possible to predict future price developments. Ţiţan (2015) mentions that increasing prices on a particular day do not automatically indicate an additional increase or reduction on the following day. As a result, prices are considered to have no memory. The definition for this term is the same as the definition given under the EMH. The term is sometimes used in place of EMH, as Clarke et al. (2001) explain in the introduction to their study. The term refers to a series of observations that are consistent with the results obtained from market efficiency (Dimson & Mussavian, 2000).

The discussion above terms helps to clarify certain activities explained in the study. Nonetheless, the efficient stock market has several definitions to explain the phenomena witnessed in stock exchanges. The first definition comes from Dimson and Mussavian (2000, p. 959), who describe efficiency as 'a market in which relevant information is impounded into the prices of financial assets'. In contrast, Clarke et al. (2001) describe the efficient market as a proposition that the prices experienced in the stock market provide valuable information about any firm without provisions for any excess profit earning.

3.2.2 Brief History of the Efficient Market Hypothesis

The history of the EMH goes back to 1960 when it was first formulated by Paul Samuelson and Eugene Fama. A brief account of its transformation shows the steps it underwent in its evolution (Fama, Fisher, Jensen, & Roll, 1969). A historical perspective also provides a more thorough understanding of the fundamentals of the hypothesis. The concept was first formulated in the social world by Girolamo Cardano in 1564, who introduced the notion of gambling in the economy. The same concept still holds, despite evolving over the years and being applied to the stock market, which later shaped the efficient market concept (Sewell, 2011).

The theory went through many preliminary methods that paved the way for its introduction into the business world. At first, in 1888, Brownian motion had to be introduced in the world of science to explain the idea of random movement (Sewell, 2011). Meanwhile, in 1889, George Gibson was the first to recognise that efficient market systems existed in the stock market. However, the concept did not

immediately become widespread, as it is today, despite Gibson clearly documenting the theory, making it easy to understand. Other scientists such as Alfred Marshall built on Albert Einstein's work, with the ultimate aim of revealing more about phenomena. In 1890, Alfred Marshall acknowledged the fluctuating stock market and its implications for the economy of any area in his book, *Principles of Economics*[14] (Sewell, 2011).

Some scholars assert that the French mathematician, Louis Bachelier, established and developed the concept of market efficiency in the early 1900s. Comprehensive information about the effect of product prices and their impact on the stock market was presented in his dissertation entitled *The Theory of Speculation* (Fama, 1970; Sewell, 2011). The anticipation was not baseless because earlier works had revealed that the idea was useful, especially when it came to anticipating the returns that investors expected from certain investments. In his work, Bachelier acknowledged that the information contained in stock data showed the past and future implications of random data (Sewell, 2011). However, the work did not receive any real accreditation because most of it was side-lined by the development of random walk theory.

In 1923, John Maynard Keynes observed that the stock market only rewarded individuals for risking their investments and not for knowing the direction in which stock would flow. This explanation essentially sums up the EMH. Cowles (1944) stated that investing experts do not outperform the market. Any professional forecaster would not have the ability to properly predict price volatility in an ideal futures market (Working, 1949). In 1965, Fama became the first individual to use the words 'market efficiency'. The random walk theory exists on the basis that a series of fluctuations is independent. The independence of stock market data prompted further studies on the model, indicating that there is a direct correlation between the predictability of the data to come and the randomness with which the information is incorporated into the stock market (Fama, 1995). Over time, economists started using the term to refer to market efficiency (Dimson & Mussavian, 2000). This move was prompted by the fact that the data analysed in the random walk model was directly related to market efficiency. The data behaved

[14] For more details on this, see A. Marshall (1890), *Principles of Economics*. London: Macmillan.

similarly to market efficiency records; if market prices fell, the data also fell in the same proportion, and vice versa.

In 1967, Fama was a notable scientific figure who brought to life market efficiency. The publication of his research lent the topic greater significance. Individuals began observing market phenomena from a different perspective. Fama's paper listed his ideas, tests and notes on the matter, revealing that most of the random walk theory had a weak correlation with the data, and that the other data were linked to the same. Sewell's (2011) concludes that although some parts were weakly correlated, random walk theory was directly linked to stock market efficiency.

3.2.3 Theory of the Efficient Market Hypothesis

Paul Samuelson and Eugene Fama are credited with developing the EMH. In two independent papers released in 1965, they responded to empirical research confirming that stock pricing had a random character. The random price variations were interpreted by Samuelson and Fama as the result of rationality. The EMH has two distinct senses. Fama (1965) describes the EMH as a competitive market in that prices converge to fundamental value, describing fluctuation of a random character. According to Samuelson (1965), rivalry among investors can explain the randomness of price variation and unpredictability, regardless of the fundamental value. Random fluctuation is reduced to a deterministic relationship by Fama; Samuelson considers the fluctuation randomness to be a phenomenon. Both analyses raise questions that are useful but different.

This argument is a widely applied concept in business settings. As Brown (2020), Sewell (2012) and Ţiţan (2015) maintain, the EMH has been at the centre of debate since the 1970s yet financial economists still lack certainty regarding whether the EMH holds true in the business world. Even after decades of research and hundreds of articles, researchers are still unable to agree whether or not markets are efficient (Ying, Yousaf, Akhtar & Rasheed, 2019). Among all the social science topics studied and discussed over the years, this concept has proved the most controversial. Fama, one of the early pioneers of the EMH, developed data, statistics and empirical evidence in early 1970 to support the claim, leading to different conclusions that did not support the theories (Schwert, 2003). The controversies surrounding the topic make it extremely

difficult to provide a study of the theory without risking criticism from other researchers who have also focused on the same concept.

The intellectual dominance of the EMH is not accepted as universal in the 21st century. Many economists believe that stock prices are partly predictable and that a new era of the debate has started; stock returns can be forecasted and sustained. It is recognised that a new generation of economists has started to think that there are some aspects of behaviour and psychology that make it possible to predict stock prices. Lo and MacKinlay (1990) discovered that various successive transfers in the same direction allowed them to dismiss the assumption that stock prices could be represented as true random walks. Many predictable patterns in stock return were observed and disappeared after some time; these patterns in stock return were a component of the published economic and financial literature. Two possible explanations for these stock return patterns were described by Schwert (2002). One reason was considered by academic researchers who study large volumes of data. The researchers concentrated on the outcomes that questioned the perceived knowledge; they focused on a particular technique or a specific sample to achieve important findings to challenge the EMH. Consequently, it was likely that practitioners would immediately understand and use these predictable patterns, thus rendering them unprofitable.

Three primary efficiencies exist in theory. Each of the facets contains a specific role and data attached to it. Therefore, it is easy to develop an analysis of the primary findings from the research conducted on the stock market. Efficiency is a term that elaborates a market that contains information sets from the price of the assets (Sewell, 2012). The key term here is ‘information’. Efficiency acts as an information hub for investors, entrepreneurs and other interested stakeholders (Grossman & Stiglitz, 1980). The main aim of the theory is to predict expected changes clearly and distinctively in the stock market based on the randomness of information collected from capital market prices (Alexander, 1961). The three divisions of efficiency, which are briefly discussed in the next sub-section, present individuals with datasets that are aligned in order of their superiority, as indicated by their naming system, which is also briefly addressed in the following sub-section. Strong form efficiency is the most extensive set that exists. This set is closely followed by the semi-strong form and finally, weak efficiency comes last (Fama & French, 1992). Information about the sets makes it possible to develop

tests that confirm the existence of the theory. Many researchers argue that there is an approved, standardised empirical test that proves that EMH is lacking (Fama, 1980). Scientists have developed numerous tests, all of which are in some way different. The only similarity that exists between them is that it is impossible to test for the EMH without testing the market and the preferences of investors (Sewell, 2011). The volatility of the results demonstrates that information is costly and cannot correctly predict the expected outcome of the market.

Clarke et al. (2001) elaborate on the usefulness of the EMH as a forecasting method for markets. The success of the theory depends on the intake of information from within the system. Knowledge increases the accuracy of the tested information and yields better results from the forecast. The doctrine holds that efficient markets do not provide the most significant profits as expected. Clarke et al. (2001) define efficiency by linking it to the arrival of new information that causes adjustments to prices without bias. The competition that exists among multiple investors causes the market to become efficient because all individuals are primarily focused on the retrieval of information that gives guidance about rising and falling stock prices. The rush to acquire information significantly reduces the possibility of investors making any profit in the stock market system. The competition yields equilibrium between the data and the actual changes in securities. The success of the hypothesis depends on the presentation of all available information at any given time. The provision of information makes it easy to make a correct analysis and consequently, the best decision when investing. However, the researchers criticise the concept of an efficient market being non-existent. Most implications are based on typical examples of high-profile investors who managed to cheat the system and make abnormal profits from the stock market. Although the list is small, the evidence discredits the myth that it is difficult for an investor to make significant profits from the stock market.

The second myth that is also dispelled is that information from the various sets cannot aid analysis of the stock market. This claim suggests that analysts lack any specific task in the stock exchange, but in a real sense, their input is invaluable and leads to the dependence of most investors on the analysis made by them. Lastly, information drastically affects prices on the capital market—individuals associate market efficiency with regular prices that are fixed at one point without any significant movement. The

myth is affected by the fact that investors assume that an efficient stock market is one that provides the opportunity for them to make profits (Timmermann & Granger, 2004). However, this is not the case: a fluctuating market price is the perfect indicator of an efficient market. The introduction of new information on a continual basis ensures that the price will change. Information is set to change the outlook of the price because with the submission of further information comes new analysis, thus causing a shift in prices in the stock market.

Beechey et al. (2000) associate the EMH with the price behaviour of asset markets. The empirical research of these authors shows that the theory is significantly correct. There are small autocorrelations experienced in the data collected from different periods. However, the autocorrelation comes from short horizons such as weekly, monthly or daily returns. The empirical evidence confirms that the random walk theory is significantly present in the stock market. However, the analysis shows that over long periods such as three years and above, there is a fragile reversion. The incorporation speed of information on the stock market also changes how prices fluctuate. The quick introduction of information leads to faster fluctuations in prices, but the opposite also holds true at slower speeds.

Malkiel (2003) stresses the real importance of the EMH by stating that both technical and fundamental analysis does not yield the same results as the random walk theory. Nonetheless, the work tries to explain some of the non-random behaviours that take place in the stock market. Psychologically, individuals have certain behavioural reactions to information. Individuals are more likely to react to information about a rise in stock markets rather than a fall in prices. Pattern prediction seems a simple task when provided with the above observation. However, the form is a difficult task because it requires the incorporation of both economic and statistical methods. The randomness of the market makes the best option to rely on the EMH as the primary method of predicting the market. The aim is to establish whether any patterns exist between stock market prices and random walk theory. The study found that in short periods a significant correlation existed between the two datasets. In contrast, long-term correlation shows that there is a negative correlation. The reversal of the outcome was also found to potentially correctly predict future market prices.

Efficiency is a term that explains the behaviour experienced in capital markets whereby investors do not have a chance of reaping abnormal profits from their investments (Ţiţan, 2015). Most tests have targeted the development of a standardised testing methodology for all three forms of efficiency. The anomalies in the analysis of the three EMH forms confirm that these three forms exist because of chance, created by fluctuating outcomes in the capital market. A particular issue with anomalous returns is that they are not statistically reliable from time to time. Even if they were considered reliable, these non-random effects are insignificant. They cannot be taken advantage of in the real world because the benefits would be outweighed by the associated transaction costs (Ying et al., 2019). The empirical results reported in Ţiţan's (2015) paper were similar to those reported by early financial economists (Beechey et al., 2000; Clarke et al., 2001; Fama, 1970, 1980; Fama & French, 1992; Malkiel, 2003).

Ball (2009) strongly disagrees with the notion that the EMH has disastrous effects on the economy of any nation. The statement is made because the efficiency theory has multiple limitations that work against it. Ball (2009, p. 6) states: 'I interpret as saying just this: competition among market participants causes the return from using the information to be commensurate with its cost.' The statements help to merge two insights, that profits and information are linked to each other. Increased profits in the market lead to increased barriers to entry for new entrants. Information also carries a significant influence over the direction of stock market prices. Bernard and Thomas (1990) contend that the EMH brings to light the effect of public announcements of financial statements. The statements carry vital information that influences stock market prices. Public announcements of results change the efficiency of the market in a good or bad way.

The primary aim of developing behavioural finance was to establish a method for analysing how individuals thought at specific times in the market instead of relying on economic equations and formulas to predict the expected behaviour of the consumer (Shiller, 2003). The developments led to the creation of feedback models as tools for expressing the efficiency of the market. The theory in behavioural finance claims that an increase in speculative prices leads to an anticipated increase in stock market prices. The anticipation is based on information from speculative markets. This behaviour leads to the creation of a bubble of anticipation (Shiller, 2003). The behaviour of

individuals changes as market prices shift, showing that the introduction of information causes a change in the behaviour of the market and of individuals.

Armitage and Conner (2001) suggest that individuals are controlled by certain constructs to act in a particular manner. The perceived behavioural constructs are also experienced in the economy. Decisions concerning the stock exchange are affected by the constructs of revenue, price, previous patterns and any additional information. The addition of information causes individuals to act or not to act when purchasing or selling stock in the capital markets. The theory is linked to the efficiency of the market because the perceived behavioural constructs have the same influence on individuals as the effect of information on the fluctuations of the market and the amount of profit received.

3.2.4 Three Types of Efficient Market Hypothesis

The EMH achieved enormous popularity during the 1980s (Shiller, 2003). Fama (1965) stated that there was significant support for the EMH and that it would only be ignored if it were to be empirically tested on a large scale. Harry Roberts' work in 1967 moved in a new direction, dividing market efficiency into weak and strong forms. Fama (1970) later expanded this division further, adding a semi-strong form.

The EMH predicts that the market prices at any given point in time should incorporate the different kinds of information that influence the value of stocks (Fama, 1970). Financial researchers have distinguished between three levels of the EMH. By considering this division, information flow and its effect on stock prices and market efficiency was split into three forms: weak, semi-strong and strong forms of EMH (see Figure 3.1). The EMH helps to determine the investment opportunity that offers a high return on the amount invested using a pure investment that presents considerable risk.

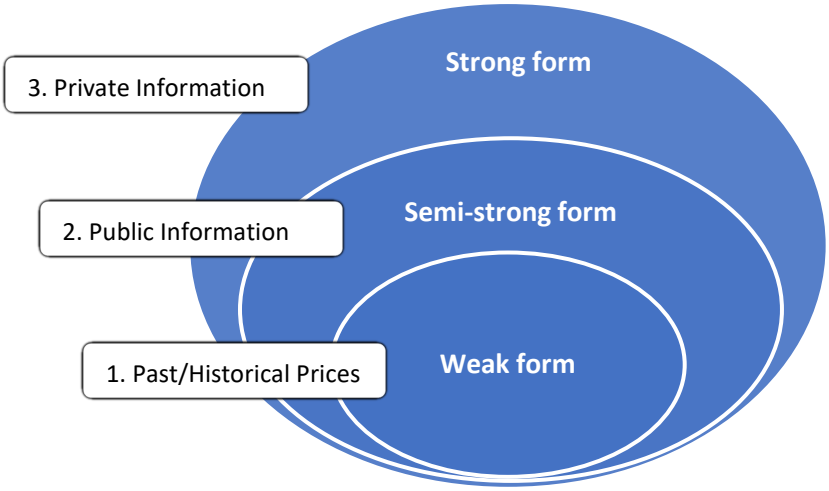

Figure 3.1: The Three Types of Market Efficiency

3.2.4.1 Weak Form of Market Efficiency

The weak form of market efficiency indicates that the previous price information determines current stock market prices and no technical assessment can be used to help investors make suitable decisions (Fama, 1970; 1991). The weak form further claims that prices wholly mirror the information that has somehow been incorporated into the sequencing of past prices. Therefore, weak form efficiency means that no human being is at any point able to distinguish mispriced securities and 'beat' the market through analysis of past values (Fama, 1991). The entire basis of weak form efficiency is also known as random walk theory, positing that future securities are random and not subject to past events (Malkiel, 2003).

The use of weak form efficiency relates to the randomness in stock prices, acting as an impossibility in unearthing price patterns and in any way exploiting price movements (Malkiel, 2003). Weak form efficiency is notable for how daily stocks experience price fluctuations and are independent of each other on an entirely notable level. The weak form of efficiency assumes that price momentum does not exist in current prices (Malkiel, 2003). Additionally, the weak form seems to echo that past earnings that are deemed social and common knowledge in no way predict the current or future earnings growth of the market.

Nevertheless, many fiscal analysts endeavour to generate benefits through the analysis and study of what this hypothesis deems valueless. Using past share price data and the volume of data traded is called technical analysis. The weak form efficiency hypothesis

does not consider it to be accurate, and asserts clearly that even the most fundamental analysis can at times be flawed. The weak form seems to reflect the fact that it is complicated to beat or outperform the market on a short-term basis (Clarke et al., 2001).

The application of this hypothesis is that there is no need to use financial advisers or portfolio managers. This is because the experience they have about past dealings in the market in no way affects investments made today and a random pick of any investment or portfolio can yield the same returns as the financial manager (Dimson & Mussavian, 2000).

Random walk theory infers that the more effective a marketplace, the more random the structure of price variations (Fama, 1965). A random walk is defined by the detail that price changes are autonomous of each other (Malkiel, 2003). From this argument, one can then deduce that weak form efficiency is centred on a certainty that all present information is mirrored in current stock values and therefore, historical statistics that have been analysed have no affiliation with current market values (Clarke et al., 2001).

3.2.4.2 Semi-Strong Form of Market Efficiency

The semi-strong form of market efficiency theory holds that because all information is made available to the public and can be used to forecast future stock prices, investors are unable to use technical and fundamental evaluation to achieve higher market returns. The semi-strong form of efficiency posits that the present price in the market entirely incorporates past prices, in addition to data reported within the enterprise's financial statements, declared income and dividends, announced merger procedures, the fiscal status of competitors, and any anticipations regarding macroeconomic features (Fama, 1970). The hypothesis argues that public facts used should not be of a fiscal nature; it emphasises the information providing insight into how the company will act or react towards certain matters (Dimson & Mussavian, 2000).

The hypothesis clearly asserts that an investor should not in any way be able to gain or earn profits based on the use of information that is public and known to everyone (Dimson & Mussavian, 2000). This assumption outweighs that of the weak form of efficiency by going a step further. It offers an argument that neither fundamental analysis nor technical analysis, disapproved by the weak form, explains or seems to explain the context of material non-public information that can be used for the creation

of financial gains in the market (Clarke et al., 2001). The fact that an investor should in no way be able to gain or earn profits based on the use of information in the public domain assumes greater resilience than the weak form of efficiency.

Semi-strong efficiency posits that the market level requires the presence of market analysis, which is not just the presence of financial economists who can analyse and interpret financial information, but who can also be macroeconomists and analyse public information all at once to understand the product and inputs in the market. The semi-strong hypothesis raises concerns regarding the length of time needed to grow and nurture the skills needed and the effort required to so (Stein, 1989). Moreover, this information that is for public use would have to be followed, analysed and updated continuously, which would prove tiresome.

The semi-strong hypothesis, of all the levels of the hypotheses, is the one that financial researchers have found to have overwhelming empirical evidence in its favour and to some extent, offer the best fit in the analysis of market prices (Clarke et al., 2001). Studies on the semi-strong form of the EMH can be observed as speed tests in the fine-tuning of prices to fresh facts (Malkiel, 2003). Research has indicated that in the semi-strong form of the EMH, public information is important in shaping market prices and the use of past events within the market as a guide. The semi-strong form displays a new form of efficiency that has developed from the old form of efficiency.

3.2.4.3 Strong Form of Market Efficiency

The strong form of the EMH posits that the present value wholly includes all of the obtainable facts, both private and public (Fama, 1970). It hypothesises that all of the information that exists is in some way accounted for within the stock price; the belief is that even insider private information cannot give a person an advantage. The major variance concerning the semi-strong and strong efficiency forms of the hypotheses is that in the strong form, no person should at any systematic point be capable of generating profits even if the facts being used as the basis for trading are not publicly disclosed at the time (Fama, 1970).

This argument emphasises the strong form of the EMH whereby a corporation's administration, which can be termed as the insiders, is not able to gain any information from within the company that could allow it to generate financial gains. This is even if

the administration did not at any point publicly announce this information and no profit acquisition is possible (Fama, 1970). Similarly, it is argued that the members of a research department of any company could not profit in the market from any discovery that they have made (Malkiel, 2003). The strong form hypothesis argues most vigorously that no information, whether public or insider, will benefit any investor in terms of financial gain in the stock market. This is because the EMH holds that all statistics are somehow invalid and do not affect the fluctuations (Dimson & Mussavian, 2000).

3.2.5 Implications for Stock Market Efficiency

In recent times, developing economies have been faced with a similar hypothesis. The development of market efficiency can lead to multiple outcomes in the behaviour of investors within the country. Efficiency is built upon the pillars of the movement of information and the transaction of prices (Griffin et al., 2010). The action is the same anticipated behaviour that is present in developing countries. The emerging economies of new up-and-coming countries have a better chance of dealing with the efficiency of markets.

Analysis of developing countries shows that emerging economies know how to handle information when it is allocated to them. The advanced economies have not yet matured to an extent where they are affected by the passage of information in efficient markets. It is straightforward to create a bubble in the market because of the investors' actions after receiving information. The emerging economies are better composed and are better at handling information. Analysis has shown that small economies fare better than the established economies of large countries (Griffin et al., 2010).

Further, analysis of the empirical research shows that anomalies exist in the research findings (Schwert, 2003). The anomalies present an opposite overview of the expected results. The difference introduces inefficiency into the market, as observed in market-pricing. The prices show that the trend is not as abnormal as the theory states. The use of statistical methods shows that trends were observed on specific days, indicating that the random walk theory is not completely true. For instance, it is observed that prices tend to go up during the first month of the year. The trend is also similar on the first

day of the week. These anomalies show that the randomness of efficiency is not completely transparent (Schwert, 2003).

The theory has established that multiple trends exist within the theory (Jensen, 1978). It also shows that the stock market is full of trends that economists have learned to take advantage of through manipulation. Many capital market averages are related to each other, thereby making it extremely simple to predict the expected returns from a specific investment (Jensen, 1978). The three-factor model developed by Fama and French elaborates more on investments and stock returns (LeRoy, 1989). Patterns are drawn from the prices of stocks, returns, cash flows, sales growth, sales and growth variables. The pattern from the trends helps to create forecasting methods that are sometimes accurate and provide dimensions that help create investment portfolios (Fama & French, 1996). However, the information presented in the research has no scope for the behaviour of investors. It is impossible for investors to be shielded from the application of the anomalies. Their decision-making skills are directly linked to the patterns observed in the investments.

3.3 Annual Earnings Announcements and Stock Price Reactions

One of the main features of a truly effective market is that prices reflect all available information. Recent studies concentrate on the market effectiveness degree assessed by the adjustment speed of stock price to the newly available information. An earnings announcement is an important component in influencing stock returns by investors. Good or bad news in earnings announcements plays an essential role in improving or reducing stock returns around earnings announcements. The existence of efficient markets is an important consideration in determining investor behaviour towards information releases (Chapman, 2018; Hong & Linh, 2020; Morse, 1981; Triady & Koesrindartoto, 2013). However, markets that contain aspects of information asymmetry face the challenge of immediate information transfer. Therefore, mispricing is always likely to occur, creating an incentive for investors to take positions in the market to profit from existing information inefficiencies. However, in situations where expected news is likely to provide incentives for acquiring or disposing of assets, earnings expectations have a significant role to play.

In this chapter, extensive empirical studies are assessed to determine the various elements that explain earnings announcements, their impact on stock prices and the associated factors. The chapter is organised according to different themes and sub-headings to highlight the separation of duties for more accessible analysis of each aspect alongside post-earnings announcement drift (PEAD), characteristics of earnings announcements, explaining stock price drift, the role of financial intermediaries in the financial stock market and proxies of market expectations.

3.3.1 Earnings Announcement Characteristics

Firm earnings announcements have basic features. The announcements are usually official public statements that indicate the profitability of a company over a specific period. Most organisations provide annual earnings announcements, whereas some offer them quarterly. Because the announcement of earnings includes official statements of company returns, the period leading up to the announcement is usually filled with speculation among investors. Moreover, the resulting earnings represent the company outcome, and so the quality of earnings plays a significant role in making investor investment decisions.

Companies that operate in competitive industries often time when it is best to announce their earnings. According to Doyle and Magilke (2009), most earnings announcements happen after equity analysts have conducted earnings estimates. Equity analysts and financial analysts provide estimates of earnings a few weeks or days before a company announces its earnings. However, at times analyst estimates may be far removed from the real earnings of a company. Therefore, in the days closest to the earnings announcement, equity and financial analysts increase or reduce their estimates. Such increments and reductions in estimates affect share prices as a result of speculative trading.

Doyle and Magilke (2009) examined the factors that affect the timing decision for releasing earnings announcements. Prior studies have shown that companies that release earnings announcements after the market closes often contain bad news. However, using firm-level tests, Doyle and Magilke (2009) found that there was no evidence that managers opportunistically released earnings announcements after the market had closed. Their study shows that managers who release news earnings after

the market closes seek to disseminate information to a broader audience. Doyle and Magilke (2009) conclude that managers seek to release their company's earnings announcements at a time when the market can best assimilate the information. Such a time is when the market has closed. Moreover, they find that the location of a company's headquarters, the company's size, the number of analysts and the type of industry in which the company operates are also considered when determining what time is best to announce its earnings.

Earnings announcements are therefore explained by several theories. They are relevant for the purpose for which they are prepared. The announcements also convey full and accurate information about the position, progress and performance of a firm. Therefore, they are not biased to any inconsistencies in the industry or geared towards the needs of certain stakeholders. They are also provided at the right time, with no delays, to preserve market efficiently. Further, earnings announcements have general acceptability and understanding because they are based on generally accepted accounting principles. Hence, most earnings announcements fulfil legal requirements in terms of content and disclosure methods.

3.3.2 Post-Earnings Announcement Drift and Anticipation of News

The announcements of earnings have long been correlated with sluggish price formation, ordinarily known as PEAD (Ali et al., 2020; Fink, 2021; Martineau, 2020). The PEAD phenomenon is one of the pioneering and robust return anomalies, mostly because of the naïveté or irrationality of an investor (Bernard & Thomas, 1989, 1990; C. R. Chen, Wuh Lin, & Sauer, 1997; Hirshleifer, Lim, & Teoh, 2009; Liang & Zhang, 2020).

Hirshleifer, Myers, Myers and Teoh (2008) examined whether investors play a role in the creation of PEAD. They sought to establish how investors undertook trades based on the response to extreme quarterly earnings surprises. They also sought to explain the association between investors' trading decisions and abnormal returns. The findings revealed a lack of individual investors' or group of investors' influence on PEAD. The findings thus confirmed that only individual investors played a significant role in buying in the event of bad or good news around earnings announcement days. Therefore, individual investors do not seem to have any significant impact on the

occurrence of PEAD (Hirshleifer et al., 2002). This contention is supported by Trueman, Wong and Zhang (2003) who found no evidence of explanatory capacity on the existence of stock price run-ups in the days prior to earnings announcements, whereby prices experience a reversal several days after an announcement event. The authors conclude that the shifts in price returns are mainly brought about by price pressure.

Feng and Hu (2014) conducted an empirical review investigating the influence of investor behaviour based on a sample of earnings announcements. The study focused on the Chinese market for the period 2005 to 2010 for A-share firms on the Shanghai and Shenzhen stock market. Panel data regressions were used to correct heteroskedasticity and autocorrelation. The findings provided strong support of the hypothesis that China pays limited attention to investor behaviour. The study also established that there is a weaker reaction to earnings surprises in comparison to PEAD in situations where many firms release earnings announcements on the same day (Feng & Hu, 2014). The authors further contend that the occurrences are mainly a result of behavioural bias. Indeed, cognitive constraints hinder investors from processing multiple pieces of information simultaneously; thus, they end up allocating their attention selectively. Consequently, limited investor attention has serious implications for the immediate underreaction to earnings announcements. The outcome is abnormal mispricing caused by existing accounting information in the public domain. Ultimately, there is a market adjustment brought about by PEAD. These findings are consistent with those of Hirshleifer et al. (2009), who argue that the influence of investor behaviour is affected by limited attention in the Chinese market. Moreover, they contend that investors react to post-earnings news more strongly than to immediate changes in the price of stocks.

Brown (1978) investigated changes to earnings, stock prices and efficiency in the market subsequent to earnings announcement for the year. Using a standard residual paradigm combined with price differencing intervals daily, the researcher examined the market adjustments to information about earnings per share (EPS). A two-step criterion was used to select securities that reflected unusual reports of EPS through the use of a naïve forecast model alongside a sophisticated forecast model for quarterly reports. The findings from the sample revealed significant effects on stock prices following the

announcement of unusual EPS. The study also revealed no instantaneous price adjustment following the announcements, thereby indicating that there is PEAD. Moreover, there is a possibility for investors to earn abnormal returns from the forecast models used (Brown, 1978).

Cao and Narayanamoorthy (2012) investigated PEAD, earnings volatility and frictions in trading. The findings indicated that the consequence of low ex-ante earnings volatility is increased PEAD. These findings correspond to earnings announcements results from previous empirical studies (Dichev & Tang, 2009). The study defined PEAD as a function of the magnitude and the persistence of an earnings surprise. In particular, the study sought to determine the effects of the persistence of earnings surprises as opposed to their magnitude. Therefore, the study adopted a unique description of the anomalous PEAD under review by concentrating on the relationship between trading frictions and abnormal returns. Another key finding was that firms with lower volatility of earnings often record higher abnormal returns and lower trading frictions. Based on the conclusion that higher abnormal returns lead to lower trading frictions, the authors contend that firms with large trading frictions do not always portray PEAD returns as a consequence of earnings volatility.

Foster, Olsen and Shevlin (1984) examined the explanations for PEAD. The findings revealed that systematic security returns drifts exist as subsets of the models for earnings expectations. Therefore, they contend that earnings expectations models based on variables coding, firm size and the sign and magnitude of earnings explain the variance in PEAD. In particular, the earnings sign and magnitude independently explain 81% of the variation while firm size explains 61% (Foster et al., 1984). The study thus established that PEAD was highly persistent during the period 1974–1981. Therefore, the study considered the properties expectations model through time series analysis and an earnings expectations model from security returns. Thus, the study concluded that the security returns expectations model does not portray the presence of systematic PEAD behaviour.

Empirical research indicates that the announcement of annual results might have the effect of generating heavy trading that does not necessarily lead to changes in stock prices, and vice versa (Bamber & Cheon, 1995; Beaver, 1968; Chapman, 2018; Johnson & So, 2018; Johnson & Zhao, 2012; Morse, 1981; Triady & Koesrindartoto, 2013;

Zhang & Gregoriou, 2020). Beaver (1968) found that in the US stock market, there is always an increase in securities trading activity and price volatility during the period surrounding earnings announcements. Morse (1981) confirmed that significant price changes and excess trading volume eventuated on the day before and on the day of the earnings announcements. Bamber and Cheon (1995) contend that there is minimal empirical evidence to explain the extent of market reactions to annual reports announcements. Therefore, in their study, they sought to investigate the generation of differential prices and reactions in terms of volumes as a result of earnings announcements and to investigate whether reactions were explained by the specific characteristics of the announcements. The findings indicated a positive relationship between the volume and price reactions. However, almost a quarter of the announcements led to the generation of volume and price reactions of diverse relative magnitudes (Bamber & Cheon, 1995). These findings are compatible with other empirical evidence, stating that the volume of trading is likely to increase in relation to the price if earnings announcements generate beliefs differentially among investors (Lev & Ohlson, 1982; Pope & Inyangete, 1992).

In a study of the movement in inside spreads around announcements of corporate earnings by the United Kingdom (UK) firms from 1986 to 1994, Acker, Stalker and Tonks (2002) were motivated by the arguments of the market microstructure and the attempt to establish the effects of quoted spreads on inside spreads. The difference between the asking price and bid price of a security is its quoted spread whereas an inside spread is the highest bid and lowest ask quoted by competing parties at a particular point in time. The researchers also found that the major determinants of spreads included trade volumes and the variability of returns. Therefore, they concluded that based on the inventory control model, there is a negative relationship between spreads and volumes. The researchers also found in times of unusually high trading volumes, using asymmetric information as a proxy results in significant positive correlation with spread size through a prediction based on the adverse selection model. Indeed, the researchers established that there is a reduction in spreads, whereas volumes and return variability increase on announcement days (Acker et al., 2002). The study also established that return variability, excess and trading volumes affect inside spreads. Therefore, the announcement day effects correspond to the inventory control and asymmetric information models associated with the bid-ask spread.

Annual earnings announcements have diverse implications for market behaviour, which might shift in different directions. The anticipation of earnings announcements, the actual announcement day and the post-earnings announcement days have certain trends in investor market behaviour. Johnson and So (2018) shows that the trading cost on negative news in comparison to positive news shifts prior to announcements of earnings. This argument is supported by evidence that information asymmetry arises from the reduction of exposure risk by financial intermediaries through the asymmetrical provision of liquidity (Johnson & So, 2018; Zhang & Gregoriou, 2020). Consequently, asymmetry leads to an upward trajectory of prices before earnings announcements, which reverses after the announcement. The outcome is the creation of short-window returns based on earnings announcements while also exposing an element of risk to the market. Moreover, the findings of Johnson and So (2018) attempted to explain the existence of asymmetric reactions to earnings announcements.

In the review in the next section, particular attention is paid to the characteristics of earnings announcements, the anticipation of news and PEAD, the causes of drifts in stock prices after earnings announcements, the roles played by financial analysts in intermediation, the market expectation proxy and the determinants of stock price reactions to firm age, size, government ownership and sector.

3.3.3 Drift of Stock Prices After Earnings Announcements

There have been diverse studies dedicated to PEAD over the years; hence, a wealth of empirical literature exists on the topic (see, for example, Ball & Brown, 1968; Bernard & Thomas, 1989; De Bondt & Thaler, 1985; Foster et al., 1984; Martineau, 2020; Zhang & Gregoriou, 2020). Ball and Brown (1968) were the first to notice that even after earnings announcements, the cumulative abnormal returns were continually being driven up for the ‘good news’ companies and down for the ‘bad news’ companies. Among the numerous researchers to follow this line of investigation were Foster et al. (1984), who estimated that approximately 25% of annualised abnormal returns occur in stock over the 60 trading days following an announcement of earnings.

There has not been a clear-cut explanation for the underreaction to earnings announcements. Two main hypotheses have been proposed on the stock price shifts following earnings announcements. The first explanation is derived from the rational

behaviour of investors. In contrast, the other explanation is based on the behavioural school of thought emphasising investors' irrationality in decision-making processes. In the context of rationality and market efficiency, stock price drifts following earnings announcements are brought about by the inaccuracy of measurement tools used by analysts when checking for drifts in stock markets (Alzahrani & Skerratt, 2010). Researchers might be inaccurate when measuring returns, measuring risk or when using an incorrect methodology. Moreover, there is the possibility that stock prices drift after earnings announcements because of transaction costs and the premium of rational risk (Hirshleifer et al., 2009; Y. Ke & Zhang, 2020; Zhang & Gregoriou, 2020). Consequently, the rational explanation contends that price drifts go a long way to providing compensation for the risks that often accompany earnings announcements (Alzahrani & Skerratt, 2010; Foster et al., 1984; Garfinkel & Sokobin, 2006).

Challenges have been encountered in providing an adequate and comprehensive explanation for the existence of price drifts following earnings announcements. However, explanations have focused on market efficiency and its influence on investor behaviour (Alwathnani, Dubofsky, & Al-Zoubi, 2017; Zhang & Gregoriou, 2020). According to behavioural finance, investors' irrationality brings about several biases (especially cognitive), leading to abnormal return patterns in the market. Humans portray certain attributes such as fear, greed, overconfidence and judgement errors, which discredit the assumptions of rational behaviour and efficient markets. Investors' overreact or underreact to earnings announcements, leading to drifts in earnings post announcements. Indeed, investors tend to underreact when earnings news is released; thus, they fail to recognise patterns of serial correlations, especially with earnings announcements made quarterly (Alzahrani & Skerratt, 2010).

The main source of PEAD has been attributed to investor irrationality and market inefficiencies. Unique explanations from different markets have been offered. Cai, Lin, Wei and Xu (2020) investigated how institutional investors influence PEAD in the Chinese securities market. Their findings reveal that institutional holdings in the Chinese stock market are positively associated with PEAD, especially when institutional investors are heavily influenced by earnings news. Moreover, in the absence of short-selling activities, the Chinese stock market is comparable to the Saudi stock market (Truong, 2011). At the end of 2019, the capitalisation of the Saudi and

Chinese stock markets is approximately 303% and 59% of their country's GDP, respectively (World Bank, 2019). Retail investors dominate both markets, thus they offer the perfect environment to study investor behaviour and reaction to information (Alzahrani & Skerratt, 2010; Truong, 2011).

Moreover, Eom, Hahn and Sohn (2019) examined the daily trading activity of individual market participants during earnings announcements on the Korean stock market. Their findings reveal that individual investors prefer to trade in the reverse direction to earnings surprises. This obstructs a full price response to news about earnings, resulting in underreaction and PEAD. Baker, Ni, Saadi and Zhu (2019) used a large sample covering the period 1996–2015 to investigate competitive earnings news and the resulting drifts in post-announcement earnings. Their findings reveal a positive correlation between the announced returns of peer firms on the same day and announcements of peers in the whole industry. The implication is that there is a significant advantage of information transfer in the announcement of earnings of firms in the same industry on the same day. Therefore, such an occurrence results in returns drift driven by analysts' forecasts. The outcomes are thus consistent with the existence of information transfer within the industry. Moreover, the study establishes that there are effects of economic conditions and the rival firms' size on the magnitude and nature of links between the announced returns of the firm and industry components of earnings surprises (Baker et al., 2019). The study also provides documentation of evidence to support the consistency analyses based on analysts' forecasts on earnings drifts driven by investors' limitations and biases.

3.3.4 Role of the Financial Analyst as Financial Intermediary

A financial analyst is a professional who analyses and interprets financial data to forecast future trends in certain economic and financial fields. Because financial analysts have more expertise than investors, they play a crucial role in interpreting stock market data, gathering and processing firm information and distributing it to both institutions and investors. They are able to collect, process, aggregate and disseminate information from several sources to predict future earnings and stock prices.

Stock recommendations and earnings forecasts are among the vital pieces of information provided by the financial analysts. Research by analysts helps to value the

market; investors and institutions pay a large quantity of money each year to purchase vendors' earnings forecasts and recommendations for stocks. Ivković and Jegadeesh (2004) noted that two sources could be attributed to the value of financial analysts' stock recommendations and earnings forecasts. First, analysts may be capable of analysing the relevance public information value. For instance, analysts may be able to interpret earnings and other financial data to determine the long-term implications. Second, analysts may also be in a position to collect a wide range of data that may not be readily available to investors and institutions and process that data efficiently.

Moreover, there are normally high increments in the number of recommendations and predictions a few weeks before annual earnings announcements whenever there are positive earnings in the stock market but fewer recommendations when there are losses (Ivković & Jegadeesh, 2004). Therefore, financial analysts disseminate more positive stock price information than negative stock price information. Hence, investors should not blindly trust the forecasts provided by financial analysts because they may either overreact or underact to financial information. Several studies have sought to establish the importance of financial analysts for earnings and stock price predictions, as discussed below.

The review of diverse empirical literature to establish the role played by analysts in determining reactions to market prices revealed that many analysts issue forecasts during the announcement of earnings and that these forecasts were regarded as analysts' interpretations of the news of earnings announcements (Ivković & Jegadeesh, 2004; Kim & Verrecchia, 1991a; Beaver, McNichols & Wang, 2020; Song, 2013; Stickel, 1989). Chen et al. (1997) claim that there is more information available to investors for a stock followed by many financial analysts, thus providing higher-quality information. Consequently, there is a substantial reduction in earnings surprises. An increase in the quality and quantity of information leads to faster stock price adjustments, resulting in a clearer drift in post-earnings announcements (Chambers, & Penman, 1984; Chen et al., 1997). There is also evidence that cross-sectional analyses linked to information flows and stock information lead to variations in stock return volatility and excess returns. Consequently, traditional variables such as firm size, lag of earnings reporting, and earnings surprises perform poorly (Chen et al., 1997).

Battalio and Mendenhall (2005) assessed the earnings expectations size of the investor trade and the anomalous nature of the returns in the period around earnings announcements. The study provided evidence of the nature of investors in the use and consumption of diverse sets of information. From the study, it is evident that when investors are undertaking large trades, they primarily respond to analysts' forecasts, compared with smaller trades that use less sophisticated signals often underestimating the effects of earnings news on expected levels of earnings (Battalio & Mendenhall, 2005). The study thus uses analysts' forecasts to improve return predictability around announcements of earnings, further indicating the importance of analysts in investment intermediation.

Another study provides empirical evidence of the relevance of analysts in investment decisions among investors. While assessing the characteristics of earnings and analysts, Ahmed, Song and Stevens (2009) reveal the existence of differential interpretations following earnings announcements. The study offers empirical evidence on the factors that determine various interpretations of earnings announcements. The findings revealed that there is a reduction in the proxies used to establish the quality of earnings as well as the quality of information before the earnings announcement using Kandel and Pearson's (1995) measures of forecast on differential interpretation. Therefore, it concerns the nature of earnings announcements that might bring about conflicts among investors and analysts. Owing to the fact that investor disagreement is the main cause of the increased cost of capital, high investment risks and the deviation of stock returns away from fundamental values, the study emphasises the importance of information quality (brought about by analysts) in improving the efficiency of capital markets (Ahmed et al., 2009).

Song (2013) established that there is an increase in market sensitivity to the reactions to earnings announcements in periods where there are also analysts' forecasts. Moreover, the study found that there was sensitivity in stock returns based on the number of analysts' forecasts. Consequently, analysts play an important role in interpreting and disseminating information related to announcements of earnings.

Beaver et al. (2020) addressed the role of management guidance, financial analyst forecasts and line item disclosures of financial statement (balance sheet and income statement) in the noticeable market reaction increased to earnings news. The results

affirm that management guidance, analyst forecasts and line item disclosures of financial statement are more commonly combined with earnings announcements and that each of these simultaneous disclosures is correlated with increasing earnings announcements information content over time. Moreover, the financial statement line item disclosures have significant analytical power for the responses of stock price and volume trading at earnings announcement dates. This explaining capability is gradual in terms of management guidance and analyst forecasts, demonstrating the value of information in financial statements as well as information in earnings.

3.3.5 Market Expectation Proxy (Earnings Surprise)

There is an impact on the extent to which earnings are associated with returns, as implied by the use of accurate market expectations proxy, in determining unexpected earnings. Studies of market reactions often ascertain standard unexpected earnings (SUEs) (see, for example, Brown, 1993; Foster, 1977). The SUEs are thus determined by subtracting actual earnings from expected earnings and using variance as a standardisation variable. The importance of an unexpected variable is to offer an explanatory variable during the regression analysis to help understand the reaction of the market in a specific manner. In assessing the unexpected earnings or surprise elements of earnings, various proxies have been used in the literature. For instance, most studies in the empirical literature used analysts' forecasts (Kothari, 2001) while others adapted for the time series nature of earnings (Brown, 1993; Buchheit & Kohlbeck, 2002; Foster, 1977).

The oldest proxy used in many studies is time series, whereby researchers typically consider quarterly and annual reports. Buchheit and Kohlbeck (2002) analyse the reaction of prices to earnings announcements using time series data of 23 years (1975–1997). The results indicate that there has typically been an increase in the reaction of price to the announcement of earnings over time. The time series proxy has thus mostly delved into two forms of portfolios: those of firms with earnings greater than predicted and those of firms indicating earnings below the predicted level (Alzahrani & Skerratt, 2010).

Analysts' forecasts are the modern-day proxy that is used in most recent studies, alongside the unexpected earnings proxy. Based on the perspectives of many

researchers, the forecasts of analysts provide a proxy for market expectations, as opposed to forecasts obtained from time series models (Alzahrani & Skerratt, 2010). In determining consensus forecasts, researchers take analysts' forecasts as the average expected earnings in the market. Although widely used in modern research, questions have been raised about analysts' forecasts regarding weaknesses such as incentive bias and underreaction. Analysts' forecasts are often regarded as being too optimistic. This is because some forecasts are developed by analysts who may favour the sell-side of the market through their connections with investment banks; they may also be in business relationships with the specified firms under analysis. Therefore, the bias and optimism of the analysts' forecasts have continuously cast doubt on their relevance for the assessment of price reactions and trading volumes among investors (Alzahrani & Skerratt, 2010; Brown, 1993; O'Brien, 1988).

Recently, researchers introduced a new proxy to the measurement of market expectations around earnings announcements. Earnings announcement returns (EARs) have become an essential proxy for the assessment of market expectations in the Saudi stock market, especially because of the unavailability of analysts (Alzahrani & Skerratt, 2010). EARs assume that the most effective way to measure the market response is through the assessment of the actual manner in which the market responds to earnings announcement news. The EAR proxy is based on investor rationality as well as market efficiency. The failure of the market to react fully to all information in an earnings announcement leads to PEAD.

Alzahrani (2010) investigated the stocks returns on the Saudi stock market around earnings announcements using data for all listed firms. The study sought to identify the existence of inefficiencies in the Saudi stock market, especially around earnings event days, and to determine whether or not it was possible to predict future stock returns through the use of prevailing returns. Using an event study to document the drift of prices and later examining the predictability of returns through cross-sectional regression, the study established that earnings announcements provide highly informative information based on volume and price reactions by examining the predictability of returns and volumes of trading for quarterly announcements for 2001–2009. The findings also established that the return on an earnings announcement

is a crucial predictor of future drifts in the stock market up to four weeks. Lastly, the study established the relevance of trade volumes in providing future stock returns.

3.3.6 Market Reaction to Earnings Announcements

The literature review is rich in studies on stock price reactions to earnings announcements. In 1965, Fama and French formed a seminal theory on stock market efficiency. They used the Fama–French three-factor model to propose that book-to-market ratio, size and excess market return may affect the measurement of stock returns. Several years later, in 1968, Ball and Brown conducted a pioneering study using empirical evidence to determine whether there is a relationship between the annual expected and unexpected income changes of firms after earnings announcements. The authors found an increase in stock prices after profit announcements and a reduction in stock prices when losses were announced. The benefits of these pioneer theories were that they set the pace for subsequent research into how annual stock announcements affect firms (Thomson, 2007), establishing a basis for more literature about annual stock announcements. However, a gap in the literature persists concerning whether the findings are true for every type of firm, size of the firm, sector in which the firm operates or the location of the firm. This study uses findings from major theories to lay the foundation of the thesis.

Empirical evidence shows that trading volume, liquidity and returns around earnings announcements experience asymmetrical influences from frictions in financial intermediaries (Johnson & So, 2018). Huang (2004), in his empirical review of the reactions of Chinese stock prices to earnings announcements during 2002, established that there are stronger reactions to negative news by B shares (intended for foreign investors: foreign currency) in comparison to A shares (intended for domestic investors: Chinese currency ‘renminbi RMB’). These results are consistent with the previous experimental results of Su (2003). The fact that earnings announcements can result in excess returns is explained by the fact that there is market segmentation in China because of the difficulties in converting the national currency. Excess returns are also brought about by the changes of investors in terms of structure (Huang, 2004). Further, this study highlighted the importance of improving disclosure and transparency among the Chinese listed firms to overcome the excess return phenomenon during the period around earnings announcements.

Syed and Bajwa (2018) examined the effect of earnings announcements on stock price reactions and efficiency in the Saudi stock market. They applied the market model to gauge reactions to expected returns and explain abnormal returns around earnings announcements. The findings revealed that the Saudi market did not demonstrate a semi-strong EMH. The study also demonstrated that the efficiency of the Saudi market is evident from the prevalence of excess abnormal returns as well as post-announcement drift on earnings announcement days. Consequently, the Saudi stock market portrays a behaviour that evokes much concern, especially regarding the EMH. Therefore, it is the practice of all major stakeholders to follow earnings announcements closely in the Saudi stock market to assess the reaction of the market in terms of prices and volumes around announcement dates (Syed & Bajwa, 2018). Following on from the recent opening up of the Saudi market to foreign investors, there is likely to be increased capital flows into Saudi capital markets, which will eventually transform investors' behaviour. Therefore, the current absence of foreign investors in the Saudi market is an indication of the true behaviour of Saudi investors' behaviour.

In contrast, the results for cumulative abnormal returns and abnormal returns regarding earnings announcements revealing bad news indicated that cumulative abnormal returns were stable at the beginning of the event test (Syed & Bajwa, 2018). However, four days before the earnings announcement, they began to decrease until the fifth day after the announcement event. Further, Alzahrani and Skerratt (2010) examined the behaviour of the Saudi Stock Exchange in response to announcements of earnings to examine market efficiency. The results of this study indicated that in the first five days, the Saudi stock market appears to underreact to positive news and these reactions lead to an increase in the following weeks, thereby indicating the presence of PEAD. At the same time, in the first five days, the market seems to overreact to negative news, changes its direction and records an upward PEAD (Alzahrani & Skerratt, 2010).

Alzahrani and Gregoriou (2010) investigated stock returns, trading activities, asymmetric information, liquidity and volatility related to quarterly earnings announcements for all listed firms on the Saudi stock market from 2002 to 2009. The findings revealed that earnings announcements produce extremely informative content. Before the announcement of earnings, large investors in the stock market are more advanced and engaged in better-informed trading, while smaller investors are more

reactive to the news. Moreover, cumulative abnormal returns are found to be positively correlated with asymmetric information and trading activity 15 trading days before the announcement of earnings. Further, liquidity is negatively related to trading volume and stock return volatility (Alzahrani & Gregoriou, 2010).

Bamber, Barron and Stevens (2011) affirmed that all capital markets react to announcements about earnings. In fact, such reports help the managers of a firm to create the most significant means of communication with external investors (Pevzner, Xie, & Xin, 2015). Moreover, almost every nation in the world (including Saudi Arabia) has passed regulations requiring every corporation to publish both annual and seasonal financial statements, including its balance sheets, income statements and cash flow. Mlonzi, Kruger and Nthoesane (2011) found that such data allow investors to forecast the future performance of a company as well as the value of its equity from its previous achievements. Therefore, there is a positive correlation between stock price movements and earnings announcements even after adjusting for contemporaneous revenues (Aharony & Swary, 1980; Barber, De George, Lehavy & Trueman, 2013; Qureshi et al., 2012) but the direction in which the stock moves depends both on how the participants understand and respond to the given information and the efficiency of the disclosure mechanisms.

Earnings reports are normally provided annually, semi-annually or quarterly. During the period, a firm is required to publish all of its financial statements to fulfil its legal obligations and promote the activities of investors (Ball & Brown, 1968; Barber et al., 2013; Mlonzi et al., 2011). Managers use such data to make appropriate decisions while external parties use the information to benefit their investments, finances and the appraisal of their portfolios (Angelovska, 2017; Corrado & Jordan, 2002, p. 565). Moreover, Aharony and Swary (1980) confirmed that individuals who use financial statements consider earnings to be an indicator of the value of an organisation. In this regard, data about the earnings of a company can influence the willingness of investors to purchase.

Nevertheless, some studies claim that it is difficult to forecast the returns of a company consistently. For instance, Sehgal and Bijoy (2015) affirmed that in the capital markets, there are frequent anomalies between the actual earnings realised and predicted incomes. In the US stock market, there is always an increase in trading activity and the

price volatility of securities during the period surrounding earnings announcements (Beaver, 1968). High volatility in stock prices indicates the difficulty experienced by investors when predicting the true value of their securities. Supporting this observation, Bernard and Thomas (1990) opined that PEAD is caused by the method that researchers use to estimate earnings surprises.

Chen et al. (2005) found that firms in mainland China make early announcements to surprise the market, which results in high volumes and high price reactions. This behaviour can be partly explained by the fact that subsequent announcements are usually more predictable, thereby resulting in low volumes and price reactions. In an attempt to find the cause of difficulties in forecasting earnings, Ahmed et al. (2009) affirmed that there is no particular reason for the variation. The researchers used logistic regression and forecast data covering the period 1983–2004. Despite the difficulty in identifying specific reasons for variations between forecasted and actual earnings, the researchers noted that these differences are reduced in the presence of earnings characteristics that are similar to actual earnings. The firm characteristic that is identical to the quality of pre-announcement disclosures also reduces these variations. Overall, Ahmed et al. (2009) suggested that the efficiency of the capital market can be enhanced if the quality of pre-announcement earnings information is improved.

Evidence of a divergent negative relationship between market returns and surprise earnings announcements that exist beyond the intermediate market announcement period was identified by Cready and Gurun (2010). Therefore, earnings information is an important determinant of the decision-making process of market participants, especially for the expected aggregate discount rate. Consequently, positive shocks are always associated with good news about earnings announcements. As a consequence, the study also found an association between the rates of treasury bonds and future inflation expectations that has a significant reliance on earnings news. Moreover, there is a tendency for market returns to transcend the earnings announcement period, thereby implying that market participants do not often process all of the future return implications brought about by the earnings announcements in a timely manner (Cready & Gurun, 2010).

Cao and Narayanamoorthy (2012) established that low volatility in forecasted earnings results in high PEAD. The low volatilities in the forecasts ultimately mean that

investors will have greater levels of a surprise when the actual earnings differ significantly from the forecasts. In support of this finding, Sehgal and Bijoy (2015) affirmed that the PEAD is affected by both the magnitude and the persistence of the earnings surprise. Therefore, forecasts that result in similar observations for earnings among various analysts can result in the greatest PEAD if these forecasts are later found to differ markedly from actual earnings.

In a study to investigate the relationship between four key factors associated with the response of the US securities markets to annual earnings announcements, Meek (1991) used a sample of non-US multinational firms as a study group and local US firms as the control group. The study examined four main factors: the magnitude of earnings change, the existence of concurrent dividend announcements, firm size and timeliness. The study group firms were based in the Philippines, the Netherlands, the UK, Japan and Israel. The findings from the study group revealed that timeliness and firm size were the significant explanatory variables. From the control group comprising local US firms, only size was a significant explanatory variable.

In a different study, Johnson and Zhao (2012) argued that the cross-sectional nature of the distribution of quarterly earnings has often been ignored. This is despite the fact that share prices and earnings announcements tend to move in the opposite direction. Moreover, Johnson and Zhao (2012) undertook an extension of an earlier study by Kinney, Burgstahler and Martin (2002) to provide evidence regarding the consequences, prevalence and determinants of contrarian stock reactions and returns to earnings announcements. In the extension study, they used the most recent consensus EPS estimates from brokers as the benchmark to determine a surprise earnings sign and magnitude. The study used recent consensus EPS from institutional brokers because most were accurate based on the latest economic conditions. The findings revealed that there were contrarian returns for up to 40% of the 230,000 quarterly earnings announcements assessed. The study also established that there were contrarian returns, though less prevalent, in situations of extreme earnings surprises, as evident in the quarters of years 1985–2005 (Johnson & Zhao, 2012). Contrarian returns were thus regarded as noise in the earnings surprise measurement and share price reactions to earnings announcements.

Williams (2015) investigated the implications of shocks on the determinants of stock market reactions to macro-uncertainty brought about by earnings announcements for specific firms. The study found that if there is an increase in macro-uncertainty, investors place greater weight on bad news. However, the weight of bad and good news seems to be similar in times of decreased macro-uncertainty (Conrad, Cornell, & Landsman, 2002; Williams, 2015). In particular, the findings revealed that certain situations enhance the pronouncement of the two events: firms with previous instances of macro-uncertainty in past returns, firms with low trading volumes of an abnormal nature during earnings announcements, firms that are minimally owned by institutional shareholders and firms that portray higher levels of information asymmetry (Williams, 2015). Consequently, the behaviour of investors is such that they are averse to ambiguity, especially those who are not highly sophisticated in their investment decisions.

Evidence from Euronext Paris on the stock price adjustment to earnings announcements, as proposed by Louhichi (2008), confirmed that investors react positively to good news and negatively to both bad news and the absence of any news. Louhichi (2008) also indicated that there is a dissipation of abnormal news within just 15 minutes and that there is a tendency for prices to converge to equilibrium faster in times of good news than bad news. The study also found that stock prices experience a reversal within 30 minutes of the reception of bad news in the market. Lastly, the study indicated a progressive increase in trade volumes after the earnings announcement and that these volumes are maintained following the attainment of an equilibrium price.

In support of the reaction to good news in earnings announcements, Gu and Xue (2007) provided an alternative explanation of the empirical underpinnings of analysts' overreactions to good news in earnings announcements. They contended that the analysts could be driven by rational behaviour as opposed to cognitive bias in the context of high levels of earnings uncertainties. Stock markets tend to portray extended forecast optimism when there are higher levels of earnings uncertainties (Easterwood & Nutt, 1999; Gu & Xue, 2007). It is therefore clear that analysts often portray extreme reactions to good news without considering their possible underreaction.

Chen et al. (1997) analysed the effect of earnings announcements on changes in stock returns. In contrast to prior studies that postulated that the direction of stock price

changes was brought about by the magnitude and direction of earnings surprises, the researchers attributed the surprises to the quantity and quality of the information. Conroy, Eades and Harris (2000) tested relative pricing effects on dividends and earnings based on simultaneous announcements from Japan. They conducted the study by taking advantage of the unique nature of how Japanese managers simultaneously announce annual earnings and dividends and then provide forecasts for earnings in subsequent years. Overall, the study found that there are significant effects on share prices from earnings surprises in the Japanese stock market, especially in situations where forecasts by managers for the subsequent year are not positive. For an overview, a summary of selected studies on the market reaction to earnings announcements is presented in Table 3.1.

Table 3.1: Summary of Selected Studies on the Market Reaction to Earnings Announcements

Author/s and Year	Sample and Data Studied	Variables Used	Analytical Approach	Conclusions
Morse (1981)	25 securities traded on the NYSE and the ASE (1973–1976)	Price changes and trading volume	Event study approach	Significant price changes and excess trading volume resulted in the day before and on the day of the earnings announcements.
Meek (1991)	Non-USA multinational firms as a study group (Philippines, Netherlands, UK, Japan and Israel) and local US firms as the control group (1968–1979)	Stock returns, magnitude of change in earnings, firm size, timeliness and concurrent dividend announcements.	Market model OLS regression	From the study group: timeliness and firm size were the significant explanatory variables. From the control group: only firm size was a significant explanatory variable.
Chen, Wuh & Sauer (1997)	2,800 listed firms on the US stock exchange (1990–1991)	Stock return volatility, excess returns, firm size and earnings surprises	Market adjusted return model	There is more information available to investors for a stock followed by many financial analysts. Consequently, there is a substantial reduction in earnings surprises. An increase in the quality and quantity of information leads to faster stock price adjustments, resulting in a clearer PEAD.
Christensen et al. (2004)	All publicly traded P&C insurers in the US (1989–1992)	ARs, firm size and size-adjusted returns	Cross sectional regression	Larger firms react more significantly positively to earnings announcements.
Huang (2004)	Chinese stock market (2002)	ARs	Mean adjusted return model	There are stronger reactions to negative news by B shares (intended for foreign investors) in comparison to A shares (intended for domestic investors).
Chan et al. (2005)	400 Australian listed companies (1995–2000)	ARs, firm size and dividends yield	Market adjusted return model OLS regression	Firm's size is a significant determinant of how its stock price reacts.
Gu & Xue (2007)	16,395 US firm-years (1990–1999)	Analysts' forecast dispersion firm size and trading volumes	Multivariate regression analysis	Analysts could be driven by rational behaviour as opposed to cognitive bias in the context of high levels of earnings uncertainties.
Louhichi (2008)	French stock markets. 117 earnings announcements (2001–2003)	Stock return, Stock price volatility and volume	Mean return model	Positive market reaction to good news and negative reaction to bad news.

Alzahrani (2010)	95 listed firms on the Saudi stock exchange and 1,667 quarterly earnings announcements in total (2001–2009)	Stock returns, trading activity and firm size	Event study approach Cross sectional regression	Earnings announcements provide highly informative information based on volume and price reactions by examining the predictability of returns and volumes of trading.
Alzahrani & Skerratt (2010)	89 listed firms on the Saudi stock exchange and 1,667 earnings announcements in total (2001–2007)	ARs, firm size and industry-level	Market adjusted model BHARs method	The Saudi stock market appears to underreact to positive news and leads to an increase in the following weeks. The market seems to overreact to negative news, changes its direction and records an upward PEAD. A firm's size is a significant determinant of how its stock price reacts.
Cready & Gurun (2010)	The USA stock market (January 3, 1973–June 21, 2006)	Stock returns and surprise quarterly earnings announcements	Event study approach	Negative relationship between market returns and surprise earnings announcements that exist beyond the intermediate market announcement period.
Najid & Rahman (2011)	47 GLCs and 47 non-GLCs companies listed on Bursa Malaysia (2001–2006)	Government ownerships and firm performance	Tobin's Q regressions model	Government ownerships of shares has a significantly positive relationship on firm performance.
Cao & Narayanamoorthy (2012)	161,425 firm quarter observations on the US stock market (1987–2008)	ARs, earnings volatility and trading frictions	Market adjusted model	The consequence of low ex-ante earnings volatility is increased PEAD. Firms with less volatility of earnings often record higher ARs and lower trading frictions.
Hou et al. (2012)	Chinese listed firms (2001–2008)	Share price informativeness and state ownership	Firm-specific return variation	Firms with more state ownership or restricted shares are positively associated with share price informativeness.
Johnson & Zhao (2012)	The USA stock market, 230,000 quarterly earnings announcements (1985–2005)	Earnings Surprise, size and BHAR	Fama-MacBeth approach	There were contrarian returns for up to 40% in situations of extreme earnings surprises.
Barber et al. (2013)	200,000 annual earnings announcements of 46 foreign countries (20-year period)	ARs	Fama-MacBeth approach	Significant positive abnormal returns during earnings announcement months.
Sare & Esumanba (2013)	Ghana stock exchange (1990–2010)	ARs, earnings volatility, dividends yield, firm age, institutional shareholding, market-to-book ratio, firm size, sector and investment opportunities	Market model OLS regression	CARs are positively associated with a firm's sector. Older firm experience stronger and positive investors' reaction than younger firms.

Song (2013)	115,761 firm quarter observations (1996–2010)	Stock returns and trading volume	Pooled cross-sectional regression model	An increase in market sensitivity to the reactions to earnings announcements was observed in periods where there are analysts' forecasts. There was sensitivity in stock returns based on the number of analysts' forecasts.
Triady & Koesrindartoto (2013)	Indonesia stock exchange, 20 sample stocks from LQ45 index with 257 earnings announcements (2007–2011)	ARs and volume transaction	Market adjusted model	Bad earnings announcement showed no ARs and a positive drift of CAR was observed after the announcement days. Different pattern in reacting to the earnings announcement is observed, foreign investors keep buying stocks with good earnings announcements whereas the domestic investor do the opposite one.
Feng & Hu (2014)	Listed A-share firms in China with 4,977 earnings announcements (2005–2010)	ARs, earning surprise, firm size and B/M	Panel data regressions, BHARs method	A weaker reaction to earnings surprises compared to PEAD in situations where many firms release earnings announcements on the same day.
Lim, How & Verhoeven (2014)	1,276 Malaysian firms (1996–2009)	Stock price, firm size, leverage, growth and corporate ownership (individuals/families, foreigners, financial institutions, state/government, and others)	Fixed-effects panel regressions model	Companies with governments as their biggest shareholders have a significantly shorter lag of earnings reporting and timely discovery of prices.
Sehgal & Bijoy (2015)	469 listed companies operating in India's stock market (2002–2011)	ARs	Market model OLS regression	Significant ARs are observed in the post-earnings announcements period implying that the Indian stock market is not semi-strong market efficiency.
Uddin (2015)	120 firms listed on the DFM and ADX (2006–2012)	Firm profitability, government shareholdings	Multiple regression models	Government ownership of shares has a negative effect on company performance.
Williams (2015)	The US stock market (1986– 2007)	Stock market reactions to macro-uncertainty brought about by earnings announcements	Fama-French three factors Momentum model	An increase in macro-uncertainty, investors place greater weight on bad news. However, the weight of bad and good news seems to be similar in times of decreased macro-uncertainty.
Chapman (2018)	stock market 149,708 firm-quarters (1999–2002)	ARs, trading volume, firm size and market-to-book ratio	Market adjusted model OLS regression	Earnings announcements provide positive returns and higher trading volumes.

Johnson & So (2018)	215,754 quarterly earnings announcements on the USA stock markets (1993–2012)	ARs, liquidity, trading volumes and order flows	Market model OLS regression	Cost associated with trading on negative news in comparison to positive news shifts prior to announcements of earnings. Investors submit larger order (buy) when receiving good news. ARs are positive in the pre-announcements period and negative in the post period.
Syed & Bajwa (2018)	115 listed firms on the Saudi stock exchange, Tadawul, with 1,601 quarterly earnings events (2009-2014)	ARs	Market model	The Saudi market did not demonstrate a semi-strong EMH. The efficiency of the Saudi market is evident from the prevalence of excess ARs as well as PAED.
Baker et al. (2019)	11,558 listed firms on the USA stock exchange and 203,858 firm-quarters in total (1996–2015)	Returns, industry-wide and firm-specific earnings surprises	Event study approach	A positive correlation between the announced returns of peer firms on the same day and announcements of peers in the whole industry.
Nalarreason, Sutrisno & Mardiati (2019)	Manufacturing companies listed on the Indonesia stock exchange (2013–2017)	Earnings management, leverage and firm size	Panel regression model Random effect model	A positive effect of leverage and firm size on the earnings management.
Hong & Linh (2020)	2,980 firm-year observations from 669 companies listed on Vietnam stock market (2013–2017)	Company earnings, type of auditors, revenue growth, asset size, ROE and financial leverage	Multivariate linear regression	The quality of earnings plays a significant role in making investor investment decisions.
Sutejo & Utami (2020)	Indonesia's stock exchange (2007–2019)	ARs	Market model	There were no significant ARs on the days before and after the earnings announcements.

3.4 Top Management Change Announcements and Stock Price Reactions

As previously mentioned, one of the primary characteristics of a truly efficient market is that the price reflects all of the information available. Recent research focuses on how rapidly stock prices change in response to newly available information, which is evaluated in terms of market efficiency. Senior management has an important effect on corporate results, which in recent years has grown both in terms of substance and perception and is more important than ever before (Bloom & Jackson, 2016; Kontesa, Lako & Wendy, 2020a, 2020b; Park, Boeker & Gomulya, 2020; Quigley & Hambrick, 2015; Quigley, Crossland, & Campbell, 2017). One of the most contentious debates among organisational scholars is how much impact CEOs have – and seen to have - on firm profitability and performance. With CEOs under growing scrutiny for their ever-growing salary and bonuses, there is considerable debate over their total contribution to business outcomes. While other research has attempted to compute the profitability and performance proportion of a firm attributed to the CEO, this study takes a different approach by examining how the information concerning senior management changes announcement influences the stock market, in order to determine how shareholders rate the importance of CEOs. Compared to CEOs who operated decades ago, shareholders now see CEOs as increasingly crucial drivers of firm profitability and performance, both positive and negative. Moreover, market reaction to top management changes has gradually gained traction over the last decade, underlining the need for more succession planning and support.

The influence of such announcements on firms' stock performance is often the subject of such investigations, with a particular emphasis on abnormal returns or the differences between actual and predicted stock performance of companies following top management change announcements. To determine abnormal returns, the expected returns are subtracted from the actual returns, which can be either negative or positive. Therefore, companies' information serves to indicate their future performance and profitability. As a result, the magnitude and direction of the impact of top management change announcements on stock returns are largely determined by how the market perceives such changes will affect the future direction and profitability of a company.

The senior management succession plan is one of the most important aspects of the life-cycle of a company.

Various changes can occur in the senior leadership of a publicly listed company. This research examines the distinct kinds of top management changes, including forced resignation, age-related retirement, voluntary departure and new appointment, to assess the effect on company share prices for each type of change. This categorisation is crucial to realise more accurate results regarding how each change affects stock prices. Each type of board change may convey more than one signal because individuals may find, for instance, that the resignation of a particular director projects that the future is or is not going to be positive based on the situation of the company at present. In contrast, the resignation of a director could play a significant role in the company's prospects and could potentially forecast bad surveillance or expectations of better quality that will increase shareholders' wealth.

Moreover, Worrell et al. (1993) indicated that the changes to the board of directors/executives frequently include two different events: the events of turnover and those of succession. Most of the empirical research on executive changes focuses either on turnover events (Nguyen, Hagendorff, & Eshraghi, 2015; Quigley et al., 2017; Worrell et al., 1993) or on succession events that determine the reaction of the market (He, Wan, & Zhou, 2014; Rhim, Peluchette, & Song, 2006). The study covered both turnover and succession events to examine further the variations among these events from the viewpoint of the investors.

Stock markets tend to react differently depending on the type of changes made to an organisation's senior managers. The turnover of board members or executives is an indication from the company that a change will be made to the management of that corporation (Almadi, 2016; Lubatkin et al., 1989). It also suggests that the organisation is seeking to apply new procedures and rules under the incoming executives or board members, which may improve the performance value of the firm. Understanding, planning and managing the succession of top management and their results is becoming increasingly crucial because of their strategic position (Finkelstein, Hambrick, & Cannella, 2009, pp. 165-226).

To date, no studies have investigated the impact of top management change announcements on company share prices in Saudi Arabia. One of the main contributions of this study is that it offers evidence on the effect on shareholder wealth for Saudi listed companies resulting from announcements of top management changes. Even though the study is limited to data from Saudi Arabia, it lays a foundation for comparative research in other developing countries with current and subsequent research as well as governments with a comparable regulatory structure for corporate governance. A management change is defined for the purposes of this study as a change in the management team consisting of the CEO, the president and the chairman.

In the following section, extensive empirical studies are assessed to determine the various elements that explain top management change announcements and their impact on stock prices and associated factors. This chapter is organised according to different themes and sub-headings to clarify the separation of duties to aid analysis of each aspect, along with the characteristics of the board of directors and company performance, agency theory and director quality, the impact of board changes on shareholder wealth and the effect of the information content of forced resignations, age-related retirement, voluntary departures and new appointments on company share prices with factors affecting the determination of abnormal returns on the stock price.

3.4.1 Board Characteristics and Firm Performance

Studies have shown that aspects of the board of directors affect the performance of firms. The CEO's key role is to monitor how the organisation takes strategic decisions, and to offer advice on the best approach. It follows that CEOs' background, time, incentives and other factors determine their ability to monitor. Lin, Pope and Young (2003) compare the characteristics of different boards of directors to determine the different ways in which they affect a firm's performance. Some CEOs are more likely than others to make decisions that enhance shareholder value (Bhagat & Bolton, 2008). From one perspective, independent directors such as outsider CEOs are more likely to restructure the organisation after a decline in performance compared with less independent directors who are permanent (Perry & Shivdasani, 2005). Moreover, less independent CEOs' positions are dependent on how they handle other managers. The structures help them to survive and lay blame on others; therefore, they would be reluctant to make changes. The board of directors' freedom and independence thus

determine aspects of whether self-centred or shareholder-centred decisions are taken, which either improve or adversely affect the firm's performance.

Organisational misbehaviour causes a substantial material risk to companies, which may lose market value and endure damage to their reputation and integrity, along with destroying shareholder value. Stakeholders and investors usually expect a strong response from an organisation to the disclosure of misconduct. Park et al. (2020) explain that the board of directors often takes serious action such as forced resignation towards executives engaged in financial misconduct. This may result from the structure of the board or from the circumstances related to the misconduct, leading to criticism from market participants, the public and the media that boards are ineffective in their oversight position.

Several sources of literature have taken distinct views on the significance of management and how it affects organisational efficiency. Lieberson and O'Connor (1972) claim that management is less important in influencing organisational efficiency, asserting that environmental variables have a more important impact than management variables. However, their study fails to consider the determinants affecting the performance of corporates, such as particular organisational, leadership and environmental factors. Moreover, the effects of leadership or environmental factors vary depending on performance size. Lieberson and O'Connor (1972) discovered that when taken into consideration, the size of the performance, environmental or leadership effects vary markedly. The idea that CEO turnover announcements have no significant impact on stock prices implies that each board of directors has an obligation to guarantee that the CEO delivers or fires them in other ways. Daily and Dalton (1995) argue that after a CEO is changed, the performance of companies increases modestly. Weisbach (1988) concurs, stating that nearly 60% of CEO firings contribute value to the company. The limitations of these investigations are that authority and roles may differ in separate boards of directors, which may affect the efficiency of the company.

The experience and professionalism of CEOs affects their monitoring abilities in different situations. Nthoesane and Kruger (2014) mention that experienced directors in particular fields can more easily handle issues related to the same field. Directors who hold other director positions in different firms have better monitoring qualities and therefore, this is likely to affect the firm's performances positively (Klein, 2002).

Directors with positions in other firms have a variety of expertise gained through experience to make wise strategic decisions and solve the organisation's problems (Agrawal & Knoeber, 1996). Moreover, directors with professions in a particular field such as law or political science are more likely to better address the organisation's legal and political pressures than those with a business management background (DeFond, Hann & Hu, 2005). Again, the post is practical because professional knowledge helps one to overcome issues within the profession in a more organised and evidence-based way. Experience in a variety of firms with different functions thus increases the monitoring quality of the board of directors through the diversification of strategies to guide a firm.

Kontesa et al. (2020a) investigated the impact of boards of directors on firm performance in the period 2011–2017 for a sample of 252 listed companies in Indonesia. The study focused on the networking, experience and education of board members. The findings revealed that the networking and experience of board members are two key elements in firm performance. However, the education of board members has no effect. These findings support prior theories that directors' skills and competencies are a significant determinant for the company to adhere to its aims. Networking and experience of board members may help prevent financial distress for the company. Thus, the board of directors and shareholders should elect board directors who have extensive networking and ample experience, not education.

Higher-level boards of directors will use their skills, such as networking, experience and education, to strategically address financial reporting loopholes because they would be more rigorous in managing and tracking financial statements and maintaining their reputation. The latest study of Kontesa et al. (2020b) investigated the effect of the board of directors on earnings quality. Conducted in Indonesia, the study examined 252 listed companies across various controlling shareholders, covering the period 2011–2017. The findings revealed that the board of directors has a significant influence on earnings efficiency, showing that companies whose board members have a higher educational background are more successful. In contrast, companies with experienced members of the board appear to have low earnings. Networking skills also appear not to affect the quality of company earnings. The findings indicated that various controlling shareholders serve as a moderating factor for the relationship between the board of

directors and the quality of earnings, implying the needs for various board capitals. Thus, it would appear that agency cost plays a significant role in this relationship.

3.4.2 Agency Theory and Director Quality

The agency theory is a framework that helps to understand and prescribe how the board of directors should relate to the shareholders. The directors are the agents of shareholders and principals within an organisation. Company managers are the shareholders' agents, and their relationship is characterised by potentially conflicting interests. Agency theory is used to analyse such conflicts (Fernández-Temprano & Tejerina-Gaite, 2020; Jensen, 1986). This theory has shed light on the role of an organisation's board of directors in improving firm performance. According to this theory, the task of the board of directors is to ensure that the resolutions made by the top executives of the firm are in the best interests of investors (Bonazzi & Islam, 2007). The agents or managers of an organisation might not act in the shareholders' best interests at all times and thus, a conflict may arise, undermining the firm's performance. According to the agency basis, the theory of the firm suggests that shareholders can ensure that a company's top executives will act in the shareholders' best interests if those executives are overseen, and only if sufficient incentives are offered (Almadi, 2016). If the board of directors provides good governance by implementing an effective monitoring process and if proper incentives have been established for the purpose of encouraging managers to achieve goals that are in the organisation's best interest, this will help the company to use resources more efficiently.

The history of the agency theory is long, originating in the economic work of several scholars, notably, Jensen and Meckling (1976), Ross (1973) and Spence and Zeckhauser (1971). However, Ross is widely believed to be responsible for originally developing the economic theory of agency. The agency study was introduced by Ross (1973) with regard to compensation contract issues. It is worth mentioning that agency was essentially viewed as an incentive problem.

A notable advantage of this theory is that it explains how to establish relationships appropriately, whereby the principal specifies the work that needs to be done and the agent carries out that work on the principal's behalf. Again, agency theory serves as an essential framework that can be used to design controls and governance in companies.

Moreover, it helps top managers to evaluate the strengths and weaknesses of their companies (Jensen, 1986). The theory could also prove useful to business organisations in various contexts and sectors (Bonazzi & Islam, 2007).

One disadvantage of the agency theory is that it presumes that the agent and principal are both motivated by self-interest. The agency theory is doomed to unavoidable intrinsic conflicts because of this supposition (Jensen, 1986). Therefore, if the agent and principal are both motivated by self-interest, the agent has a greater likelihood of pursuing self-interested objectives that would contradict or diverge from the principal's goals. Nevertheless, an agent is only assumed to act in the best interests of the principal (Bonazzi & Islam, 2007; Burkart, Gromb, & Panunzi, 1997). Moreover, this theory presumes that managers must, at all times, act in the best interests of owners. If this were to be taken literally, it would involve another supposition—that either the interests of the company owners were always ethically acceptable or that the agents need to act in an immoral manner to fulfil their contract in the agency relationship. These standpoints go against models of business ethics; for instance, it would mean that in large companies, managers would have to lay off many workers to reduce operating costs and achieve greater profits for shareholders. The layoffs would be made for the purpose of pleasing shareholders and increasing their wealth. In this way, the interests of the shareholders are advanced at the expense of workers. The benefit that the shareholders receive in this case might not be commensurate to the harm that is inflicted on the sacked workers.

Moreover, signalling theory is conceived to an offshoot of agency theory (Morris, 1987). According to information content theory, managers can convey their confidence about the firm's future prospects to investors by announcing changes to the board of directors/executives. Managers have a strong and 'inside' awareness of the firm's investment prospects, operations, and constraints since they spend the majority of their time guiding and directing the firm's performance. This knowledge may impact their decisions and actions, as any choice to announce top management changes reflects their belief that the firm's future earnings, cash flows, and other prospects will be positive. Connelly, Certo, Ireland and Reutzel (2011, p. 39) state the following:

> Signalling theory is useful for describing behavior when two parties (individuals or organizations) have access to different information. Typically,

> one party, the sender, must choose whether and how to communicate (or signal) that information, and the other party, the receiver, must choose how to interpret the signal.

The theory proposes a variety of probable explanations for an investor's behaviour to the announcement of top management changes such as stock returns, firm size, government ownership and firm industry. Published literature on the market reaction to top management changes announcements suggests these factors may influence investors' behaviour to senior management changes announcements (Bauer, Guenster, & Otten, 2004; Bhana, 2016; Bonnier & Bruner, 1989; Hou et al., 2012; Neneh & Smit, 2014; Rajan & Zingales, 1995). As a result, one of the aims of this study is to examine if the aforementioned factors influence investors' reactions to top management change announcements on the Saudi stock market. Thus, companies listed on the Saudi stock exchange are expected to have: firstly, statistically significant abnormal returns results; and secondly, heightened attention paid to top management change announcement date.

The agency theory provides an important argument, especially in this study, insofar as stakeholders are concerned about the kind of board of directors that is in place. Their primary concerns are trust and whether the directors are maintaining order, with no conflict between them and the stakeholders (Almadi, 2016). Through the agency theory, one could argue that an announcement about changing the board of directors would make the shareholders either satisfied or dissatisfied, depending on the trust the directors enjoyed as well as how peaceful the organisation was during their term. Therefore, this study focuses on establishing whether the information content of the announcements about top management changes affects firms' share prices.

3.4.3 Board Changes and Shareholder Wealth

The board of directors performs a significant corporate governance role in developed markets as well as in emerging markets (Marquis & Raynard, 2015). It is an internal mechanism that observes and controls the managers' actions and arranges utility functions between company managers and owners. It performs various duties relating, for instance, to managers' replacement, developing strategic plans, fiscal policy and other actions that positively (or negatively) influence the company's performance. The

board of directors plays an essential role because it controls management's operations and advises management on strategies to be adopted.

For a number of reasons, changes to board composition can be useful. All top managers have the ability to influence the company's policies and goals and thus, its efficiency. First, a new board member can give a fresh and vibrant impetus to the company's activities. It is also possible to introduce extensive knowledge and experience by employing an adequately skilled and experienced executive. Second, a signal is sent to the capital market, indicating that by displacing an inadequate member of the board, the company is taking steps to boost its effectiveness and enhance future performance.

The board of directors' composition may change under different types of management departure, and in each of these types, the wealth of stakeholders may either increase or decrease. Bhana (2016) outlines some of the instances in which the composition of the board may change. These include forced resignation, voluntary resignation, new appointment, age-related retirement or death. In each particular instance, the public's perception of the change has an impact on shareholder wealth. The market may or may not consider each change essential, which will therefore affect the share price differently (Buallay, Hamdan, & Zureigat, 2017). In fact, depending on the company's current situation, people may find, for example, that resignation from a specific director as a forecast for a company future. In contrast, the resigning director may have been either very instrumental to the company or very weak and ineffectual. Therefore, the director leaving could predict poor quality monitoring or anticipate better quality monitoring that will increase shareholder wealth (see, for instance, Buallay et al., 2017; Dedman & Lin, 2002; Fox & Opong, 1999; Warner, Watts, & Wruck, 1988).

Directors have different abilities to influence specific strategic decisions, objectives and policies. Therefore, a change would connote a new perspective that will take the organisation to the next level (Furtado & Rozeff, 1987). New board members come with a fresh way of considering the issues facing the organisation and expanding its operations, which could inflate the share price (Buallay et al., 2017). There is increased knowledge and experience in the board of directors when an appointment occurs, which may help the organisation to create new investment opportunities. The public also perceives such a change as a strategy to start other procedures to enhance efficiency, and thereby, performance. More investors are likely to join, which would increase

shareholder wealth. An announcement of a board change has a positive impact on shareholder wealth unless it is a resignation. This is because resignations are often associated with pressure from the organisation or an indication of adverse outcomes in the future.

The market demonstrates different reactions to a company regarding the appointment of an internal or external director as a successor. An internal director is one of the company's current employees. An external director is not a company worker but has the desired abilities and skills. The response will depend on the perceived impact of an internal or external successor, which is also dependent on factors such as whether the director resigns or is forced to resign (Dherment-Ferere & Renneboog, 2000).

Other determinants for the choice of a successor include the diversity of activities and size of the company. There are different situations in which organisations may find it necessary to appoint an internal or external successor. For instance, an internal successor is essential when there is a need for continued specific objectives; an external appointment is important when the company seeks a break in its strategies (Setiawan, 2008). Whatever the reason for picking an external or internal successor, the share price will be increased or decreased depending on how the public and shareholders perceive the replacement. Investors in the stock market weigh up how an organisation, through its management, creates value for their shares. Thus, investors will invest in companies that demonstrate potential, through the board of directors, to raise their share price in future.

Persistent poor financial performance can lead to the dismissal of board members, where shareholders expect that the new appointments will bring about positive changes. However, shareholders do not typically support the promotion of existing board members to the position but prefer an external successor (Davidson, Worrell & Cheng, 1990; Setiawan, 2008). According to Setiawan (2008), where there is a forced resignation because of bad performance, investors and the firm's shareholders believe that all board members are non-performers. Moreover, promoting one of the existing board members during bad performance leads to reduced share prices because of perceptions of continued bad performance. In contrast, the appointment of an external director will send a message of new strategies to promote the company's efficiency and therefore attract investors to raise the share price (Davidson et al., 1990). These findings

are significant because shareholders believe in new knowledge and experience to drive the company to the next level or overcome its challenges. However, Dherment-Ferere and Renneboog (2000) disagree, claiming that perceived losses in internal appointments have minimal impact on large companies because of the high cost of external appointments. The process of getting a new director with experience to such large companies is neither easy nor cheap. Therefore, investors may value a person who is already aware of the challenges within the organisation.

3.4.4 Market Reaction to Top Management Change Announcements

Research on changes to the board of directors/executives announcements and their effect on the market reaction produces inconsistent findings. Machdar (2019) investigates if CEO turnover in Indonesian companies does affect stock market performance through how well a company does. It is indicated that CEO turnover has a positive effect on the stock market and company performance. Also, the stock market is unaffected by CEO turnover through the company's business performance. However, significant characteristics such as successor origin, insiders/outsiders, forced and voluntary departure, age-related retirement and combinations thereof, are not considered in the analysis sample of CEO turnovers. The results obtained are not completely appropriate since abnormal returns are not calculated in the narrow window employing the event study approach.

Almadi (2016) examined the relationship between changes in board structure and the performance of companies on the Saudi Stock Exchange. The results indicated that the directors of a company with connections to powerful people in society, such as politicians and administrative officials, increases the fiscal status of listed companies in Saudi Arabia. According to Almadi (2016), the changes to the board of directors result in economic and communication conflicts, particularly if the board of directors is dominated by directors with sizeable ownership stakes in the company. However, Almadi (2016) points out that the orientation of high equity rights and the administrative board would overwhelm any such conflicts. This is in line with the findings of Bhana (2016), who found that by examining share price reactions to changes in the governance of a company, changes to the board of directors influence the behaviour of investors.

Rossi and Cebula (2015) studied how the prices of Italian stocks react to board of director changes. The results indicated that 10 days before and after the announcement, there was a positive reaction. The study also established that a change to the board of directors led to an increase in cumulative abnormal returns 10 days before and 10 days after the announcement day. Rossi and Cebula (2015) and Bhana (2016) agree with the conclusion of Almadi (2016). However, Utami, Wijaya and Amaliawati (2020) investigated the effect of executive turnover on listed companies on the Indonesian stock exchange during the period 2011–2017. The findings revealed that investors appear to be negative towards executive turnover as shown by negative abnormal returns after executive turnover, and the reputation of the successor executive was also believed to have influenced reaction on the market.

Other researchers have sought to establish whether or not leadership transformations in a firm have a significant impact on the stock market. First of all, Lieberson and O'Connor (1972) and Lubatkin et al. (1989) found that such transitions do not affect large companies in any way because individual managers do not have the power to alter their performance. Some of the factors that affect such corporations include the firm's current strategic position, significant planning opportunities and threats, the available resources and skills and major deliberated issues and performance gaps (Hofer & Schendel, 1978, p. 102). Moreover, some research findings have established that whether leaders have a positive, neutral or negative impact on an organisation's performance depends on how well their character matches the job requirements (Caiffa, Farina & Fattobene, 2021; Hambrick & Mason, 1984; Weiner & Mahoney, 1981). Nonetheless, according to Lubatkin et al. (1989), studies have not yet established contingent factors that clarify when there may be a positive relationship between succession and performance in a large corporation.

The stock prices of such companies always mirror information about the efficiency of management and senior leaders. As a result, there is no valid connection between the transition in leadership and stock market performance. In fact, logit analysis of the effects of transformation in the leadership of a company and its stock prices show that a negative relationship exists between the probability of change in the top management and share price performance (Warner et al., 1988). Setiawan (2008) found that the majority of investors (mainly in Indonesia) react to the non-routine turnover of CEOs

and when a successor is appointed from outside a firm. Primarily, the prediction on the sign of an abnormal effect on the stock price during an announcement is usually invalid, even in situations where the change addresses poor performance (Warner et al., 1988). Such a problem arises because a transition can convey more than the expected information. For instance, Warner et al. (1988) establish that a transformation can signal the probability of a firm having worse than anticipated results, or a positive component, if a transition aims to serve the interests of shareholders.

3.4.4.1 Market Reaction to Forced Resignation

In accordance with the agency theory, when directors fail to represent shareholders' interests, there is the likelihood of forced dismissal. Forced resignation has different effects on share prices depending on various factors. Investors generally have a vested interest in understanding why a CEO or top manager has left the company. Because of the influence of the CEO or manager on the performance of an organisation, shareholders often want to establish whether the individual left the firm because of a forced termination arising from governance issues or underperformance or whether they left as a consequence of a carefully planned transition. As previously mentioned in relation to the agency theory, corporate managers might seek to serve their own interests without regard for corporate value (Fama, 1980; Jensen & Meckling, 1976). Poor corporate performance usually compels shareholders to replace the current top managers, with the forced resignation of the CEO likely to result in substantial increases in the share price (Gangloff, Connelly & Shook, 2016). This is despite the costs linked to terminating the contract of the fired CEO, searching and employing new management and the loss of human capital.

Studies assessing the effect of forced resignations on share prices have yielded mixed results. Gurgul and Majdosz (2007) found that the stock market reacts positively immediately before the forced resignation announcement but negatively in the post-announcement period. Furtado and Rozeff (1987) conducted the first event study regarding how forced resignations affected stock prices in the US. They revealed a positive significant rise in the share price, however, because of the small sample size, their findings were considered tentative. Furtado and Rozeff (1987) also propose that where the board has a larger shareholder representative, the probability of forced resignation improves as a result. Dherment-Ferere and Renneboog (2000) report that

the market favourably receives the news regarding a forced resignation of top managers with a positive abnormal return of 0.5% during the window period. Other researchers have found a 2.3% price increase, although the findings were statistically significant at 1% as long as the managerial resignation announcement included announcing a successor (Worell et al. 1993). The extent of price reaction is also dependent on the presence of internal monitoring mechanisms. For instance, Weisbach (1988) indicates that the replacement of top management leads to a considerably positive market reaction when the company's board comprises a majority of independent external managers.

If the forced resignation of top managers occurs in an organisation whose board has many executive directors, there is no wealth impact (Lubatkin et al., 1989). Nonetheless, the forced resignation and substitution of top management results in a significantly positive price increase if most of the board members are independent directors (Lubatkin et al., 1989). Denis and Denis (1995) examined nearly 69 forced resignations. Their findings revealed that the market greets the firing of underperforming top managers with relief. On the day of announcing the forced resignation, Denis and Denis (1995) reported a positive market reaction of just over 2% for corporations that had experienced a decline in performance over a period of three years.

Cheung and Jackson (2012) investigated the volatility impact of stock returns relating to CEO resignations. Their findings strongly indicated that the volatility in stock returns rises as soon as the CEO resignation is announced. The rise is substantially greater after a forced resignation is announced as opposed to a voluntary departure. Clayton, Hartzell and Rosenberg (2005) and Intintoli (2013) indicate that the strategic impact of a forced CEO resignation is considerably greater. They consider this result of the CEO being forced to resign as a signal to shareholders that the company's strategies have been changed in an attempt to increase the efficiency. However, such signals do not accompany voluntary resignations. According to their argument, forced CEO resignation announcements result in a significant rise in the volatility of stock returns in comparison to voluntary resignations. However, because these studies classified forced and voluntary resignation announcements based solely on information given in

the official resignation announcement instances of forced resignation are misclassified, where the firm purposefully avoided defining the resignation as a dismissal.

However, other studies have documented conflicting results. A negative abnormal return was noted by Mahajan and Lummer (1993) for US firms on the day prior to and the day following news of a forced resignation. Pukthuanthong, Ullah, Walker and Wu (2017) discovered that delay in dismissal of the CEO due to financial wrongdoing result in a negative abnormal return on the day of the announcement. This is because the delay in resignation causes investors to lose confidence in the company due to inefficient corporate governance and supervision mechanisms. Warner et al. (1988) found negative abnormal returns of -4.3% 5 to 30 days after a forced resignation announcement. Notably, this negative reaction of the market is the result of an information effect that covers the actual effect of the forced resignation on investors' wealth: a forced resignation of top managers might be an indication of future and current performance that the market had not yet unmasked or anticipated. The appointment of a senior manager soon after the forced resignation of an underperforming top manager brings about a significant increase in abnormal returns of over 2% (Warner et al., 1988). However, their sample only contained one senior executive who departed a company for the stated cause of being dismissed. They also did not account for the potential for confusing effects from simultaneous resignation and appointment announcements.

Some scholars have mentioned that forced CEO resignations can result in a negative market reaction. According to Dedman and Lin (2002), investors may see the forced resignation of a senior manager as proof of bigger governance, financial or operation problems facing the firm. They will disapprove of the decision to fire the senior manager if they believe that the CEO was performing well. If investors believe that the forced CEO resignation was uncalled for, the market will tend to react negatively (Dedman & Lin, 2002).

Public perception of the forced reaction is not always geared towards whether the dismissal will lead to better performance and an increase in shareholder wealth. Still, it can be perceived as a general indicator of company inefficiency. The announcement might signal that poor returns and inefficiency have been uncovered within the company (Bonnier & Bruner, 1989). Investors and shareholders might perceive that the inefficiency will persist despite the changes and, therefore, decide not to invest in the

company, thereby leading to decreased shareholder wealth (Almadi, 2016). Most sources have been shown to have a substantial positive effect after announcements of forced resignations, implying that stock prices are expected to increase. The anticipated excess returns occur primarily because shareholders trust the decisions of the board and believe that the change was for the good of the company.

As a consequence of the CEO's dismissal, the company's stock price will fall if the predicted cash flows fall or its systemic risk rises. It is also feasible that a firing will lead to more stock market reaction. Shareholders may have already noticed poor senior management and see the firing as a sign that the problem will be addressed. However, there appears to be little chance of a market reaction. If the firing was expected, shareholders may perceive such an announcement as presenting no important new information.

3.4.4.2 Market Reaction to Age-related Retirement

The retirement of senior executives at the usual age of retirement is typically expected. For this reason, the announcement that a senior manager will retire at normal retirement age would not result in a price reaction. However, it may be significant in consideration of other factors, such as the announcement of a new appointment. The announcement of the retirement of a CEO leads to minimal stock market reaction because investors are always aware of the likelihood of such an event, even before the report (Bhana, 2016). Denis and Denis (1995) found a positive abnormal return of nearly 1% following retirement announcements. However, if the report is combined with the appointment of a successor, the market reaction is significant (Weisbach, 1995). Markets possibly react with relief because some directors remain on the board after the normal retirement age (Dherment-Ferere & Renneboog, 2000). When excellent managers retire upon reaching retirement age and choose to serve on the board of directors, markets are likely to react somewhat positively (Denis & Denis, 1995). It is worth mentioning that investors are largely concerned with a company's profitability and may react negatively if they believe that a top manager who was performing very well will not be easily replaced within a few days of the age-related retirement of the previous CEO.

Even so, conflicting results have been reported by other scholars. Bilgili, Tochman Campbell, Ellstrand and Johnson (2017) confirmed a significant negative market

reaction to CEO retirement announcements on a sample of S&P Dow Jones 1500 firms. The age-related retirement of top managers causes a small negative price reaction (Dherment-Ferere & Renneboog, 2000). This is particularly the case if the individual was an excellent CEO who led the company to profitability and investors are worried that replacing such a person might not be easy. In most cases, such a concern occurs when the company is unlikely to find an experienced person who can fit such a position. Similar results were reported by Bilgili et al. (2017), who mentioned that the turnover of a company's CEO because of age-related retirement negatively affects the stock price. However, there would be a negative abnormal return if the senior manager reached the retirement age and retired. Investors would review the announcement of an age-related retirement as bad news and therefore, the market would react in a negative way, with the bad news negatively affecting the performance of the stock. Güner, Malmendier and Tate (2008) demonstrated that the negative response in stock prices regarding the announcement of age-related retirement could be explained by future uncertainties, which are likely to occur when choosing a successor. Age-related retirement resignations are anticipated by the board of directors well before the announcement; to serve the interests of shareholders, the board of directors should have been looking for a replacement well in advance.

Many scholars have mentioned that there are no price reactions (Bhana, 2016; Mahajan & Lummer, 1993; Weisbach, 1988). Friedman and Singh (1989) reported that customary retirements do not have consequences on the stock market, however, the announcements of dismissal and succession were not separated. They base their argument on the assumption that investors are aware that successors will not change the set system and policies that prevailed before. The new directors appointed after an age-related retirement may not have the mandate to make strategic changes. The condition limits their functions, and the directors have limited discretion and little possibility of affecting the organisation. Therefore, the likelihood is that there will be no change in the price of the company's shares (Weisbach, 1995). However, the argument fails to consider a situation in which an organisation needs redirecting and could not force the director to retire. Where the strategic decision made through the director is a barrier to the organisation's growth, the announced retirement is likely to attract more interest among investors because the board of directors will allow the new director to make strategic changes. Age-related retirement should not provide any

information to the stock market because it will not be new information unless the age-related retirement is sudden and more related to voluntary resignation.

3.4.4.3 Market Reaction to Voluntary Departures

As previously mentioned, non-conflictual CEO turnover includes voluntary departures. If it occurs before the usual age of retirement, it can lead to negative price reactions if very important human capital is lost. Various studies have examined the impact of non-conflictual resignations of senior managers on the share price of American and European firms and have found that such news leads to negative abnormal returns (Mahajan & Lummer, 1993). Gurgul and Majdosz (2007) also reported that voluntary resignations are negatively correlated with stock prices. Generally, announcements of voluntary departures bring about a fall in share prices. This essentially implies that market participants interpret such announcements as the loss of a valuable employee by the corporation (Bauer et al., 2004). Moreover, the negative reaction by the market suggests that the company's investors disapprove of the voluntary resignation. In other words, they did not want the departing CEO to leave.

Dedman and Lin (2002) investigated how CEO departures affect shareholder wealth. The study was carried out in the UK, and several publicly listed companies were involved. According to the results, voluntary resignations lead to negative market reactions, particularly if the CEO resigned to take up a different job in another company (Dedman & Lin, 2002). Further, if a CEO resigns voluntarily, and the company does not announce a successor in the same announcement, there will be a negative market reaction (Setiawan, 2008). Bae and Joo (2021) studied 1,475 CEO turnover announcements of US public companies for the period 1997 to 2012. They indicated that the stock market reacts negatively to CEO voluntary resignation announcements with delays in new successor appointment. However, there is no significant share price reaction to a voluntary resignation (Al-Ahmad, 2018) even if a new successor is named in the same announcement (Lubatkin et al., 1989). This clearly indicates that investors are mainly focused on succession at the top of companies in which they have invested; namely, the succession of top executives. A non-conflictual resignation sends different messages to the market, which might make the share price change insignificantly (Machdar, 2019).

The voluntary departure of a top manager without someone being named in their place is a major cause for concern among investors. In research by Dherment-Ferere and Renneboog (2000), the announcement of a CEO's non-conflictual resignation causes an insignificant reaction in the share price. The study considers resignation announcements without additional information, such as the successor. The announcement of a replacement can completely alleviate any concerns. When top executives resign voluntarily and the company does not name a successor after the resignation, the firm may suffer a significant negative market response to the news (Rivolta 2018; Rossi & Cebula, 2015; Sivapregasam, Selamat, Abdul Rahim & Muhammad, 2020). Sivapregasam et al. (2020) indicate that the negative news of the CEO's dismissal is quickly compensated by the positive news of a CEO new appointment, demonstrating the value-adding benefit of implementing a CEO succession plan. Some investors think that a voluntary CEO departure is a sign that the company is failing and this may, in turn, result in a negative market reaction. In contrast, a significant positive share price reaction has been observed when a CEO resigns but continues to remain on the board as a director, or when a director resigns but continues to hold a managerial role in the company (Mahajan & Lummer, 1993).

Although the announcement of a non-conflictual resignation might have an insignificant impact on stock prices, combining the notice with information about a successor will have a substantial impact. Dherment-Ferere and Renneboog (2000) showed that the choice of successor would affect how investors and shareholders perceive the company's future. Even though the resignation is voluntary, succession information will make such a resignation influence the stock price, as discussed before (Friedman & Singh, 1989). However, the effect will again depend on the company's size. If the company is large, an internal successor will result in minimal adverse reaction because there is no perceived poor performance of the whole board and the company therefore has many potential successors (Dherment-Ferere & Renneboog, 2000). Further, a successor will make investors and shareholders conclude what might have caused the voluntary resignation, thereby affecting investment in the company. When the successor is internal, and the board comprises a large number of independent directors, the perception might be that there is no problem within the board; the result is an insignificant change in the share price (Almadi, 2016).

However, there are certain situations in which the market may react positively following the voluntary resignation of an executive. In poorly performing companies, shareholders will tend to view a voluntary resignation as the departure of an underperforming top manager, thereby resulting in a positive share price reaction (Mahajan & Lummer, 1993; Worrell, Davidson, & Glascock, 1993). The positive market reaction stems from the investors' hope that the company will find a suitable successor to replace the incompetent one. The positive abnormal returns following the voluntary resignation of the executives of a poorly performing firm suggest that investors approve of the decision of the executive to resign voluntarily.

Unexpected resignations in poorly performing companies increase tensions for shareholders who are not members of the board. These shareholders fear for the company's future and may interpret the resignations as if firm's representatives being financially or strategically misunderstood (Faccio & Parsley, 2009). If companies fail to perform, shareholders are always highly sensitive to any announcements of changes to the top management because this provides an indication of the future financial direction of the company.

Resignations from the board of directors can be viewed as positive or negative, depending on whether it is considered to increase the company's market value or share value. Intintoli (2013) and Rivolta (2018) find that the results of stock market reactions to CEO resignation announcements with delays in replacement appointment are mixed and that the study hypotheses and research methods do not separate perceived costs and advantages of these resignations arising from being fired. Therefore, depending on how the circumstances are interpreted, the impact of voluntary resignation could be good or bad. For instance, a voluntary departure could be for entirely personal reasons unrelated to the company itself, depriving it of a valuable board member. This would generally be expected to send a negative signal to the industry, resulting in negative stock prices. Resignations could also be the consequence of internal power struggles, and some of them could be a little different from the forced resignation of the substandard board of directors in terms of sending a positive signal to the market that the board of directors' average standard has improved.

A resignation could be the result of the voluntary departing director expressing dissatisfaction with what is happening within the company, and in the absence of a

strong form of market efficiency, it could be a signal to the market that something is wrong. Such resignation announcements could carry a negative message, at least for the time being. However, this could be eventually beneficial if it reveals the flaws and compels the company to clean up its act. A result of this is that any influence of resignations of board director announcements on stock prices is unlikely to be obvious.

3.4.4.4 Market Reaction to New Appointments

A new appointment to a top managerial or board position can affect the stock market. Companies can make new appointments to the board for several reasons. For instance, they may do so with the aim of increasing the organisation's effectiveness; the new appointees might have strengths in specific areas, and they may improve the efficiency of the firm if the company is performing poorly (Bhana, 2016). Moreover, the board might need to make a dynamic change to its strategy even if there is a record of poor performance. New appointments can be made merely as a signal to the market that the company will make a change to its management by applying new procedures and rules. Making new appointments, including audit committee appointments, is anticipated to bring about a positive reaction (Davidson et al., 2004).

Rosenstein and Wyatt (1990) conducted the first study in this field, analysing 1251 announcements from 1981 to 1985. They concluded that appointing an outsider to the board of directors gives a wealth of relevant knowledge and improves the firm's value. When a firm appoints an additional outside director, they discover that the market reacts positively by 0.2%, especially if the new director is from a financial institution. However, if the appointed board member is an insider, there is usually no reaction. According to Rosenstein and Wyatt (1990), the appointment of independent directors can be perceived as a change in a company's business strategy.

Bhana (2016) examined the way that stock markets react to board changes, including new appointments. The study was conducted in South Africa and considered firms listed on the Johannesburg Stock Exchange. The findings revealed that investors generally take a positive view of new appointments. Bhana (2016) concluded that there were positive abnormal returns not only on the day when the news regarding new appointments was made, but also over the two subsequent days after the announcement.

According to Nguyen et al. (2015), new appointments made because of poor performance bring about a positive change in share prices. Investors and shareholders within the company perceive that the new appointment will help to resolve the problems that the company faces and therefore increase their wealth. However, that may not always be the case because there may be other factors that determine a positive or negative stock market reaction. Other researchers have also explored the effect of new appointments on the market. In Singapore, Kang, Ding and Charoenwong (2010) found that investors responded in a positive manner to announcements regarding the appointment of new executives. A similar result was reported by Charitou, Patis & Vlittis (2010) in the US.

However, contradictory results have been reported by other researchers. In a study of the Damascus Securities Exchange (DSE), announcements regarding the appointment of top management did not have any effect on stock prices (Al-Ahmad, 2018). Similar results were found by Setiawan, Hananto and Kee (2011) in a study of publicly listed firms in Indonesia by using a trading volume approach. They indicate that no market reaction to the CEO turnover announcements for a sample without confounding effects whereas a significant difference is noted to have confounding effects. However, the findings of the study are based on volume analysis, and it would have been interesting to run the returns at the same time to see if the outcomes are identical. However, the findings on the market effect of CEO succession failed to support the hypothesis that investor reaction is statistically significant, although a statistically significant positive reaction was recorded for a sample limited to sudden CEO departures. Byrka-Kita et al. (2017) also mentioned that appointing a new senior official is associated with a negative market reaction. Other researchers found a positive market reaction following news regarding a new CEO in distressed companies and the new top manager arriving from outside the firm (Charitou et al., 2010).

Mak, Sequeira and Yeo (2003) investigated the stock market reaction to the new appointment of executives, and whether it was contingent upon the board of directors' characteristics. They found significant negative market reactions to the appointment of busy executives, who serve on several boards of listed companies. It is found that the market response to the director appointment with previous boardroom experience is

significantly positive. Past service on boards enables directors to build on their vast experience and hence allow them to enhance the value of the firm.

Moreover, Rose (2019) conducted an event study of stock market responses to executive succession announcements in Danish, Swedish and Finnish listed companies. Rose (2019) confirmed a statistically significant positive abnormal return on the event day and the effect of executive succession announcements is very much country-specific because of the cultural and institutional differences between nations. Rose (2019) also indicated that abnormal returns are related to the characteristics of individual executives as well.

A new appointment when the organisation is performing well may have a positive or no stock market reaction, with the chances of a negative response being low. Rose (2019) and Nguyen et al. (2015) noted that there are increased returns following new appointments and argued that any positive change depends on the quality of the director being appointed. The stock market will respond positively when the new director has the potential to increase shareholder wealth. Some of the qualities that investors consider in a director include their age, experience in the same role and their education (Bouaine, Charfeddine, Arouri, & Teulon 2015; Rose, 2019). However, if the new director does not possess such qualities, there is neither a positive or negative reaction because investors and stakeholders will assume that the organisation will continue to perform the way it has been (Lee, Rosenstein, & Wyatt, 1999). Moreover, the appointment of a new CEO without previous experience in the industry and in that particular role will either cause the market to react negatively or will have no effect (Nthoesane & Kruger, 2014). Share prices are sensitive to the professional qualifications and occupation of the newly appointed CEO because that predicts the firm's future financial direction.

The importance of appointing a new executive can be argued, but the importance of the position of the executive is mostly overstated. In large listed firms, there are thousands of employees, and once the corporation is well-established, executives cannot alter the company's mindset or place any dramatic personal stamp on essential decisions. Moreover, the media's emphasis on the personality of executives creates an inaccurate and inadequate image of how a corporation works and creates value. The corporation's

values, flexibility and decision-making independence are all critical issues that impact the relevance of who is the company leader.

As a technique for improving their performance, companies may appoint a new board member. In some areas, this person may have proven particular strengths. Even if not all appointees prove to be value-for-money over time, it may be claimed that new board directorship appointments will only be made if they are believed to improve the company's market or share value. Furthermore, a new appointment could be a signal to the market or the industry. If markets are efficient, companies that make appointments for purposes other than the company’s advantage will be punished. As a result, the market is expected to react positively to new board of director appointments. For an overview, a summary of key selected studies on the market reaction to top management change announcements is presented in Table 3.2.

Table 3.2: Summary of Selected Studies on the Market Reaction to Top Management Change Announcements

Author/s and Year	Sample and Data Studied	Variables Used	Analytical Approach	Conclusions
Furtado and Rozeff (1987)	323 board change announcements on the US stock exchanges (1975–1982)	ARs and firm size	Market model	Forced announcements result in significant positive market reactions.
Warner et al. (1988)	269 firms listed on the NYSE and AMEX (1963–1978)	ARs	Event study approach	Replacement announcements result in insignificant positive ARs. Forced resignation announcements result in negative ARs.
Friedman and Singh (1989)	235 surveys for firms listed on the US stock exchanges	Firm performance, size, predecessor disposition, successor origin and CARs	Event study approach	Replacement announcements result in significant positive market reactions. Retirement age results in no price reactions.
Lubatkin et al. (1989)	477 CEO succession cases at 357 companies listed on the US stock markets (1971–1985)	ARs and firm size	Event study approach	Forced resignation and substitution of top management result in a significantly positive ARs. Voluntary resignation results in significantly negative ARs. Transitions do not affect large companies in any way.
Rosenstein and Wyatt (1990)	1,251 outside director appointments of firms listed on the US stock exchanges (1981–1985)	ARs and firm size	Market model	A positive market reaction is observed around the appointment of outsider director announcements.
Worrell et al. (1993)	141 firings and replacements announcements in US public listed firms (1963–1987)	ARs	Event study approach	Replacement announcements result in positive market reactions. No market reaction to top management dismissal announcements.
Denis and Denis (1995)	69 forced resignations for 1,689 well-known US firms (1985–1988)	ARs, CARs and firm performance	Event study approach	Stock market reacts positively to the forced and retirement announcements.
Dherment-Ferere and Renneboog (2000)	235 companies listed on the Paris stock exchange (1988–1992)	ARs and CARs	Event study approach	Stock market reacts positively to the resignation announcements and negatively to age-related retirement. No market reaction to voluntary resignations.

Bauer et al. (2004)	FTSE Eurotop 300 index (2000–2001)	ARs, firm size and sector	Fama and French model	Stock prices, firm size and sector are positively correlated with the top management change announcements.
Clayton, Hartzell and Rosenberg (2005)	872 CEO turnovers in US stocks large firms (1979–1995)	Stock return volatility, ARs and CARs	Event study approach	Volatility in stock return reacts positively to the CEO resignation. Stock market reacts significantly positive to the forced announcements.
Gurgul and Majdosz (2007)	Board member resignation announcements for firms listed on the Warsaw stock exchange (January 2000–June 2005)	ARs and CARs	Event study approach	Stock market reacts positively before the forced resignation announcement but negatively in the post-announcement period. Voluntary resignations are negatively correlated with stock prices.
Setiawan (2008)	107 CEO turnover announcement at 59 firms in Indonesia (1992–2003)	ARs	Event study approach	Positive market reaction to CEO turnover announcements. No market reaction to retirement age.
Setiawan, Hananto and Kee (2011)	67 CEO turnover announcements at publicly listed firms on the Indonesia stock exchange (1992–2003)	Trading volume	Event study approach	Appointment of top management did not have any effect on trading volume.
Cheung and Jackson (2012)	259 CEO resignations for all companies listed on the ASX (1999–2009)	Stock return volatility, ARs and CARs	Event study approach OLS regression	Stock returns react positively to the CEO resignation and significantly positive to forced announcements.
Intintoli (2013)	1,247 CEO turnovers for 806 large public firms (1984–2005)	Stock return volatility, ARs and CARs	Event study approach	Stock returns react positively to the CEO resignation and significantly positive to forced announcements.
Nthoesane and Kruger (2014)	CEO appointments of 43 companies listed on the JSE (2000–2012)	ARs and trading volume	Event study approach	Stock market reacts significantly negative to CEO appointments. Volume traded reacts significantly positive to the CEO appointments.
Nguyen et al. (2015)	658 CEO new appointments for 308 US banks (1999–2011)	ARs	Event study approach	Stock market reacts positively to new appointments.
Rossi and Cebula (2015)	100 appointment announcements of 100 Italian listed companies (2012–2014)	ARs	Market model OLS regression	A positive market reaction is observed around the board change announcement days.
Almadi (2016)	131 listed firms on the Saudi stock exchange (2009–2013)	Return on assets (ROA), outside directors, firm size, age, board size, board meeting and	OLS regression	The directors of a company with connections to powerful people in society increases the fiscal status of listed companies in Saudi Arabia. Outside and

		committees and independent and inside/outside directors		government representative directors predict a better ROA.
Bhana (2016)	890 board change announcements of firms listed on the JSE in South Africa (2004–2008)	ARs and firm sector	Market model	A positive market reaction is observed around the new appointment announcement days. Voluntary resignation results in significantly negative ARs. Sector-specific effects influence abnormal returns from shareholder responses.
Bloom and Jackson (2016)	27 CEO transition announcements on the US stock exchanges (3 March 2003 to 14 September 2009)	ARs and trading volume	Market model OLS regression	Significant negative ARs were observed in the periods before and after the announcement of a CEO transition. A high trading volume was observed surrounding the announcements day.
Gangloff, Connelly and Shook (2016)	104 CEO succession announcements for firms listed on the US stock exchanges (1992–2008)	ARs and CARs	Market model	Positive market reactions to CEO successors and appointments.
Bilgili et al. (2017)	572 CEO retirements for 1500 firms on S&P Dow Jones (2003–2012)	ARs	Event study approach	Significant negative market reaction to CEO retirement announcements.
Byrka-Kita et al. (2017)	1,469 CEO appointments in firms listed on the Warsaw stock exchange (January 2005–June 2015)	ARs and CARs	Market model	Negative market reaction to CEO appointment.
Pukthuanthong et al. (2017)	US companies (1996–2007)	ARs	Event study approach	Stock market reacts significantly negative to CEO resignation announcements.
Quigley, Crossland and Campbell (2017)	240 sudden and unexpected CEO deaths in US public firms (1950–2009)	ARs	Event study approach	Significant negative reaction on the event day.
Al-Ahmad (2018)	All top management announcements at firms listed on the DSE (June 2010–June 2017)	ARs, CARs and trading volume	Event study approach	Positive ARs, significant positive CARs and negative and significant trading volumes to CEO resignations. No significant market reaction to CEO appointments.
Rivolta (2018)	CEO departures for S&P 1500 firms (1991–2015)	ARs and CARs	Market model Market adjusted returns	Stock market reactions to CEO resignation announcements with delays in appointment are mixed.

Machdar (2019)	103 manufacturing companies listed on the Indonesia stock exchange (2010–2015)	ARs and company performance	Logit regression models	CEO turnover has a positive effect on the stock market and company performance.
Rose (2019)	334 CEO announcements by Danish, Swedish and Finnish listed companies (January 2005–September 2013)	ARs and CARs	Event study approach	Stock market reacts significantly positive to new CEO appointments. The effect of CEO succession announcements is very much country-specific.
Kontesa et al. (2020a)	252 listed companies in Indonesia (2011–2017)	Firm performance (size, leverage, age) networking, experience and education of board members and board capital	GMM panel regression	Networking and experience of board members are two key elements in firm performance. However, the education of board members has no effect.
Kontesa et al. (2020b)	252 non-financial industry firms listed in the Indonesian stock exchange with 1,764 pooled year-firm observations (2011–2017)	Board capital, profitability, leverage, growth, size, age and cash flow fluctuation	Two-step dynamic Generalized method of moments (GMM) panel regression	The board of directors and size exert a significant influence on earnings efficiency.
Sivapregasam et al. (2020)	146 CEO turnover announcements in Malaysia (2007–2016)	ARs and CARs	Event study approach	Stock market reacts significantly positive to CEO turnover and new appointment.
Utami et al. (2020)	Executive turnover on 17 listed companies on the Indonesian stock exchange (2011–2017)	ARs	Event study approach	Negative ARs were observed after executive turnover announcements.
Bae and Joo (2021)	1,475 turnover announcements of US public companies (1997–2012)	Stock returns and volatility	Endogenous treatment effect model	Stock market reacts negatively to CEO departure announcements.

3.5 Annual General Meeting Announcements and Stock Price Reactions

As discussed earlier in this chapter, empirical studies have focused on the reasons for abnormal returns at certain times in the fiscal year. The studies consider the behaviours of investors and shareholders with changes to the activities of firms listed on the Saudi stock market. AGMs are among the most critical company events and can greatly alter the stock market's perception of a firm by conveying certain announcements. A company's board and management are annually obligated by the CMA to have an AGM, which offers a powerful platform for stockholders to recommend the selection of the company's board of directors and manage company issues that influence the stockholders' interest.

Moreover, all listed companies on the Saudi stock market are required to plan and publish an AGM announcement at least 10 days before the actual date of the AGM. Such announcements must include all the agendas and the major issues that will be discussed on the day so that all stakeholders are aware of them. They may contain forward proposals by the shareholders or the board and may require voting on important issues such as agreeing on last year's significant actions and future actions and opportunities, which could influence the company's performance. Because most information of the AGM information is made available to shareholders on the day of the announcement before the actual meeting date, it is possible to infer that they are constantly informed of the decisions they will make during the AGM. The information issued on the AGM date only strengthens their decisions. Therefore, the announcements of AGMs lead to increased stock prices as a result of shareholders' preparations; they may also explain to investors how they will improve the management or policies during the general meeting.

While studies on the impact of company activities on stock prices have shown clear trends in accounts and financial research, the topic of AGMs remains under-researched, despite being a significant company event. The effect of AGMs on dividends is based primarily on the significance of market-published data as well as the effectiveness of the financial market. Numerous studies have tried to assess the reaction of stock prices to a broad range of company announcements; one of the main purposes of the meeting

is to declare the financial statements, but the meeting may discuss any issues relating to shareholder control.

Compared with previous studies, a distinctive aspect of this study is that it investigates the impact of AGM announcements on stock returns for the first time. Firth (1981) examined the stock return behaviour and the volumes of trading around annual shareholder meetings, but not on the day of the announcement of the meetings. Brickley (1986) and Lawala (2016, 2021) focused on stock returns on the AGM day, but not on the announcement day. Rippington and Taffler (1995) examined the volatility of stock returns while Olibe (2002) focused solely on volatility and volumes of trading without considering the stock returns. Blandón et al. (2012) investigated stock returns, volumes of trading and stock volatility around the day of the annual shareholder meeting, but not around the AGM announcement day. The systematic approach adopted in this study will provide deeper insights into the causes of stock return behaviour before and after AGM announcements.

Other cases of company announcements that receive considerable attention in the literature include earnings results (see, for example, Aharony & Swary, 1980; Alzahrani & Skerratt, 2010; Bamber et al., 2011; Mlonzi et al., 2011; Syed & Bajwa, 2018), changes to the board of directors (Almadi, 2016; Bauer et al., 2004; Bhana, 2016; Bonnier & Bruner, 1989), merger and acquisitions announcements (Jennings & Mazzeo, 1991; Shleifer & Vishny, 2003; Yang, Segara & Feng, 2019) and the payment of cash dividends (Aharony & Swary, 1980; Fama et al., 1969; Ozo & Arun, 2019). The common factor in all of these announcements or events is that appropriate information is disseminated to the market. Therefore, it is surprising why AGMs have been largely overlooked in the literature as a source of significant company information. During these meetings, senior executives address the entire financial community, not only the shareholders. Moreover, the most important decisions are addressed at the day of AGMs covered: (i) approving the appointment of board members or suspending or dismissing them, (ii) issuing the financial statements for a fiscal year, (iii) appointing auditors, (iv) making board recommendations for cash dividends to be distributed to shareholders; and (v) issuing shares and other declarations of significant management assemblies, which generally deal with top management's views about the future of companies. These are finalised on the day of the AGMs, but the companies must give

this information to the market on the announcement day of the AGM. It is required by the updated CGRs (2017)[15] enabling shareholders to access the information relating to the AGM's agenda. Include here are the reports of the board of directors, external auditors and audit committee, and the financial statements. With these the shareholders can make informed decisions in this respect.

Because of the limited academic research on this subject, this literature review examines the findings of other researchers on the relationship between the information content of the AGM announcements and stock returns and firm factor determinants that affect the stock price around the announcements period. This is done to obtain a more definite conclusion on the impact of AGM announcements on stock returns. It is important to mention that not all aspects of AGMs, shareholders and the related duties and responsibilities can be covered in this study. Instead, the main focus of this chapter is on assessing the relationship between the date of the AGM announcement and the stock returns of companies listed on the Saudi stock market.

This section reviews extensive empirical studies to identify the elements that shed light on AGM announcements, their impact on stock prices and the associated factors. This section is organised according to different themes and sub-headings for greater clarity.

3.5.1 Importance of AGMs in the Saudi Context

An AGM can be defined as a meeting of a firm's ordinary shareholders with a view to agreeing on certain objectives and making specific decisions (Magaji, Yaacob, & Yusoff, 2020; Pettet, 2005, p. 152). This mandatory annual meeting generally includes agreeing on last year's significant actions and future actions and opportunities. The debates at the AGM cover specific, fundamental issues such as approving the appointment of board members and financial statements for the fiscal year, considering whether the company's objectives have been accomplished as scheduled, reviewing the accountability of directors or choosing new directors (Martinez-Blasco et al., 2015).

The importance of AGMs in the Saudi context is heightened because of the supervisory nature exercised over companies. In Saudi Arabia, corporate supervision is under the control of the CMA through the CML, as mentioned earlier in Chapter 2. Democratic

[15] Capital Market Authority (2017) Corporate Governance Regulations, Article 14: The Agenda of the General Assembly.

governance, accountability processes and control are optimal ways in which the various interests of parties are identified and reconciled, and administrative effectiveness, accountability and public scrutiny are ensured (Apostolides, 2007). The meeting enables shareholders and management to meet face-to-face to discuss the decisions that influence community members as well as maintaining accountability by probing leaders. These actions form part of the social and democratic practice of corporate law and governance (Rippington & Taffler, 1995; Abdul Samat & Ali, 2015). Therefore, AGMs in Saudi Arabia are important insofar as they provide an official communication platform for members to protect their interests and exercise their rights to prevent illegal practices. The board of directors has an overall mandate to govern the corporation on behalf of the shareholders who own the company. Both the ownership and control aspects enable corporations to move in the right direction, including proper investment of shareholder funds. AGMs in Saudi Arabia are particularly critical because this is the only place and time when the checks and balances between ownership and control authorities can take place.

Olibe (2002) mentions that AGMs offer at least two advantages from the perspective of the company. First, they save time because management is able to interact concurrently with shareholders and fund managers. Second, the participants are informed equally by sharing the same information at once, which alleviates selective disclosure issues. The information is given to the community members. Other disclosures, such as preliminary financial results, annual audit reports and accounts, previous and future planned activities, are supplemented by AGMs. In Saudi Arabia, members use this relevant information to hold the board to account. Thus, the meetings serve as a mechanism through which shareholders ensure transparency because the directors are expected to disclose certain information (Marai, Elghariani, & Pavlović, 2017). The lack of supervision on managers means that no information leaks throughout the year, thereby making it difficult for shareholders to know whether the directors are faithfully representing their interests and are accountable for their functions. Additionally, the CMA does not disclose any information it receives from the board; it only regulates its activities (Capital Market Authority, 2003). Through AGMs, shareholders can maintain the accountability of companies.

AGMs play a key role as a corporate governance self-regulatory tool, even in developed countries. They provide essential information that enables accountability assessments, contributing to the argument that AGM announcements lead to increased share prices. The reasoning behind this position is that information will empower shareholders to handle issues related to trust and other irregularities that may have occurred during the financial year (Marai et al., 2017). Although investors and shareholders might suspect irregularities in companies, they can only confirm their suspicions during AGMs. Therefore, it follows that investors and shareholders in Saudi Arabia anticipate proper management immediately after AGMs. The anticipation that good governance will improve corporate performance creates more demand for shares, leading to increased prices at the announcement of AGMs, especially a few days before and after the meeting.

AGMs in Saudi Arabia provides a platform where members can exercise democracy. All companies are expected to provide shareholders with information, especially during or some days before the AGM to enable them to assess performance (Sahni, Alwy, & Al-Assaf, 2017). Therefore, AGMs are essential because they allow members to pass decisions that are crucial and affect them. The ability to decide the direction of corporations is limited to AGMs because, over the year, the CMA controls the activities of companies. Moreover, it is at this meeting that shareholders can vote out and appoint board members. Shareholders also obtain a chance to reject or accept proposals from the board in addition to passing laws to regulate the behaviour of board members (Marai et al., 2017). AGMs are consequently essential because shareholders can make changes to governance, including laws, policies and individual board members, which will potentially lead to improved company performance.

Shareholders can pass proposals that will help firms succeed in the coming financial year. The importance of AGMs in making changes to governance contributes further to the hypothesis that the announcement of meetings leads to abnormal returns. Moreover, investors anticipate performance improvements when companies experience changes in governance. Shareholders aim to improve corporate performance while making such changes during AGMs. As a result, there will be increased demand for shares and a corresponding increase in share prices several days before and after the meetings.

3.5.2 Role of Information at AGMs

As discussed in the previous section, shareholders have several roles to play in the management of companies, which creates the need for information. The roles of shareholders vary from those of directors, although they are dependent on the data released by the board, including financial information. Among the information that the board of directors shares during AGM is company financial information, shareholder earnings and proposals to appoint directors (Martinez-Blasco et al., 2015). Such information is only relevant to shareholders and investors because they are the ones who did not have access to the data that would influence their investments in the company (Blandón et al., 2012). This means that shareholders and investors are the primary consumers of the information released by the board of directors during AGMs. Even though shareholders receive the information during the announcement of the AGM, the meetings add more information that might not be reflected in the reports of the notice of the meeting.

According to the CML, the invitation to the AGM must be published in a daily newspaper that is distributed in the area where the firms' headquarters are located at least 21 days before the actual date of the AGM. However, all shareholders must also be invited. A copy of the invitation to the AGM and its agenda must also be sent to the Ministry of Commerce and Industry and the CMA if the company is listed on the stock market. Moreover, the Tadawul requires all listed companies to publish their AGM materials and agendas on its website and make them available online.

The notice of the meeting is the primary source of data for stockholders prior to the AGM. A normal notice specifies the date, time and place of the AGM and the meeting's agenda. The items on the agenda consist primarily of reviewing and approving financial statements, the board of directors and audit reports, cash dividend distributions and appointing or restructuring the audit committee. Further, the board of directors can also make particular suggestions that require the agreement of shareholders. Moreover, government institutions that supervise company activities (the CMA in Saudi Arabia) provide a list of information that listed and unlisted firms should divulge to shareholders prior to AGMs. However, shareholders might require additional information that they receive during the general meetings by asking questions.

The information provided during AGMs enables shareholders and investors to audit the company's performance and therefore, make appropriate decisions regarding matters such as changing the directors (Gao, Huang & Zhang, 2020). Although shareholders and investors receive the financial reports at the time of the announcement of an AGM by post, the meetings help to clarify the authenticity and shed more light on the performance of the company. Some directors provide insufficient data when announcing AGMs, making it difficult for shareholders to assess the firm's performance until they attend the meeting to receive in-depth explanations (Blandón et al., 2012). Additionally, shareholders and investors have questions about the reports they receive that enable them to trace irregularities. Auditing performance leads to increased or reduced share demand and a corresponding increase or decrease in the company's share price (Marai et al., 2017). Investors and shareholders demand more shares when company performance tends to be good and vice versa.

One of the decisions taken by shareholders based on the audit report is whether or not to change the members of the board. However, the impact of the information starts once investors receive an audit report, especially a few days before and a few days after the AGM (Moradi, Salehi, Rigi, & Moeinizade, 2011). Information at the AGM helps shareholders to understand better what they already know about the firm's performance (Lafarre, 2017). The analysis shows that announcements of AGMs lead to increased stock prices because of the preparations shareholders make and reveal to investors how they will change management or policies during the meeting (Stankevičienė & Akelaitis, 2014). It follows that the information released before, and that expected during the meeting, affects share prices.

From the information during AGM, shareholders decide on issues such as how directors conduct themselves and the company's activities. In addition to auditing the financial records, the information guides shareholders in assessing the behaviour of directors and the quality of corporate governance (Baldacchinoa, Camilleria, Cutajara, Grimaa, & Bezzinaa, 2016; Rahman & Bremer, 2016). Another way in which shareholders use the information on the day of the AGM is to establish whether the directors implemented the decisions taken at the previous AGM to ensure that they are not merely pursuing their own interests. Some boards take advantage of flexibility in the policies and laws governing firms to serve their interests, for instance, by allowing certain people to hold

more shares. The information that shareholders obtain by asking questions at the AGM helps them establish whether conduct is acceptable and to follow up on the company policies (Rahman & Bremer, 2016).

In response to the audit, shareholders may choose to make the laws and policies tighter as a way of enhancing governance. The effect of audit reports and actions is to improve firm performance. The analysis shows that information helps shareholders make changes to the board of directors to strengthen corporate management (Okike, 2007). Because most information is made available to shareholders some days before the AGM, it is possible to infer that they are always aware of the decisions they will make during the AGM. The information at the AGM only strengthens their decisions. Therefore, the analysis supports the hypothesis that the information content of AGM announcements increases share prices.

From the available information, shareholders and investors can assess and review their investment decisions and beliefs. The information, especially that relating to financial performance and proposals to change directors, helps shareholders and investors to confirm their beliefs (Baldacchinoa et al., 2016; Wang & Hefner, 2014). Such beliefs include the refusal of directors to vacate their positions for others, that the company cannot make losses or profits or that other companies cannot overtake it. Investors and shareholders invest in companies based on their beliefs regarding company performance and management. Investors will always seek to assess whether their beliefs hold over time and therefore, decide whether to hold, sell or buy shares. AGM information plays a significant role in helping shareholders and investors to assess how their beliefs impact share prices (Blandón et al., 2012). The information can undermine the shareholders' and investors' beliefs regarding the company's performance, thereby causing them to sell or increase in their investments. AGM information is predictable at the announcement date because it is only an increment from the reports sent to shareholders with the meeting agenda (Martinez-Blasco et al., 2015). The information provided by the board during the meeting emphasises or settles initial decisions to reduce or increase investment positions.

As previously mentioned, when data are published on the market, the response of investors is evident from changes in the stock price and also the volume of trading. Changes in stock price reflect general market expectations (Beaver, 1968) while the

volume of trading represents the idiosyncratic preference of traders to hold, sell or buy a company's stock (Kim & Verrecchia, 1991b). New information released around the time of company announcements could be connected to changes in the company's share price. Therefore, the general role of information at AGMs is to enable shareholders to carry out a supervisory role and allow investors to make crucial decisions related to their investments in the firm.

3.5.3 Market Reaction to AGM Announcements

Different studies argue that the reaction to AGMs leads to an increased demand for shares and a resultant increase in prices. Ball and Brown (1968) studied the relationship between market reaction and companies' public announcements and indicated that earnings announcements help to determine share prices reactions. Although Ball and Brown (1968) did not report directly about the link, their insights prompted studies by other researchers who established how the information content of AGM announcements affects share prices. The authors argued that information contained in financial reports is important for investors to determine security prices. In a similar vein, researchers such as Beaver (1968), Brookfield and Morris (1992), Firth (1981) and Tang and Bae (2021) demonstrated that company announcements provide valuable information to investors and shareholders, helping them to assess the value of shares. Much of these announcements result from the agendas and reports of AGMs, which are published at least 10 days before the actual date of the AGM. The reports of AGMs are consequently linked to increased share prices because of the compelling data they carry. Empirical studies have demonstrated that AGM announcements have a strong positive effect on share prices, as the following section attests.

Firth (1981) was the first to formally recognise that AGMs are related to changes in share price by researching the UK stock market, specifically a sample of 120 listed companies using weekly data. Firth concluded there were no unusual stock returns or quantity trading behaviours around AGM dates. Thus, general meetings do not appear to deliver greater data concentrations for shareholders and investors. Firth fails to report abnormal returns or volume of trading behaviour around AGM dates, leading him to conclude that these meetings do not appear to give additional information. However, using weekly data cannot correctly determine the market reaction that usually lasts a few days, and it is also impossible to compare his findings to future research. Four years

later, Brickley (1986) investigated the behaviour of stock returns at AGMs using a random sample of 100 listed companies in the United States over the period 1978–1982 using daily data and observed significant positive abnormal returns around the shareholder meetings dates, concluding that AGMs often carry significant managerial announcements. The outcome of the study is compatible with the findings of Kalay and Loewenstein (1985), who claimed that a predictable event might increase the risk and the expected return.

Rippington and Taffler (1995) investigated four significant releases of corporate events (one of which was the AGM) using daily share price data for a large sample of 337 UK listed firms on the London Stock Exchange over the period 1979–1981. They revealed only a small price response to AGMs and therefore concluded that AGMs appear to communicate a modest amount of market information. Rippington and Taffler (1995) reported that the day of the meeting, as well as the next two days, was marked by a rise in return volatility. Conversely, the impact of the AGM on stock returns and trading volumes was not examined. The finding confirms Brickley's earlier work from 1986, showing positive stock market returns around AGMs.

Olibe (2002) examined the impact of AGMs in terms of unexpected stock returns and abnormal trading volumes for a sample of 227 UK-based companies whose shares were traded on the American Stock Exchange (AMEX) and the New York Stock Exchange (NYSE) covering the fiscal years 1994–1998. The findings indicate a stock price reaction and minimal trade volume reaction at the time of AGMs. This price reaction demonstrates that the AGM is informative and useful to US investors because above-average information that is not accessible in the financial media is only offered by AGMs to shareholders and investors. Moreover, Olibe (2002) suggested three significant reasons why AGMs are expected to contribute information to the market: first, the involvement of investors indicates that AGMs contribute information beyond the contents of annual reports and the announcements of earnings; second, if AGMs have been mandated by UK company law, it is because the published information during the AGM is not accessible in previous financial reports; third, during AGMs, senior executives often provide additional and better quality information to shareholders and other stakeholders. However, Olibe (2002) concentrated on volume traded and stock volatility without considering stock returns. Despite this, he only uses

the parametric t-test, and the volume traded significance is not robust due to how volumes are measured. Also, he asserted that the findings cannot be regarded as universally acceptable.

Dimitrov and Jain (2011) discovered significant positive abnormal returns and cumulative abnormal returns during the event period leading up to the AGM date, indicating that relevant information is distributed and managers are manipulating stock prices. Moreover, pre-meeting abnormal returns were considerably greater when shareholders were dissatisfied with senior executives' performance, but that this price increase is then reversed. Dimitrov and Jain (2011) contended that managers might think that underlining the latest or expected company performance improvements prior to the AGM may reduce both the dissatisfaction of shareholders and their criticism of management personnel. While they point out management's propensity for manipulating stock prices, they do not investigate the accumulation of abnormal earnings before the AGM meetings. Banko et al. (2013) analysed earnings management around AGMs using S&P Dow Jones 1500 companies as a study sample and confirmed positive and statistically significant stock returns surrounding AGMs. These findings confirm the theory that the AGM encourages managers to release information in a way that affects the market's perception of the company.

Stankevičienė and Akelaitis (2014) investigated the relationship between stock prices values and stock price changes caused by various categories of public announcements, one of which was the general meetings of shareholders, issued by companies listed on the Lithuanian stock exchange. Using event study, they detected a negative correlation between the stock price values and price changes induced by the majority of these public announcements. Moreover, higher abnormal returns were observed for news concerning shareholder general meetings. However, the sample size was small and just one stock market was considered, so the results are not comparable to other global stock markets. Furthermore, a simplified version of the model was employed to analyse the effects of public announcements on stock prices.

Wang and Hefner (2014) confirmed that AGMs day are positively correlated with stock returns as well as share demands. In their study, they showed that share prices in the US tend to rise in March, April and May, and this is associated with the increase in AGM announcements. Most companies in the US hold their AGMs in these three

months. On average, in the months leading up to AGMs, stock prices experience positive abnormal returns. This means that stock market returns are greater in the month of the meeting and the month before the meeting. The study also shows that the fundamental economic events that cluster at a certain point in time, lag behind the noticeable patterns in stock return. These are referred to as anomaly. Moreover, Wang and Hefner (2014) connected the anomalies with data mining where investors can access a great deal of information about firms because the information content of the announcements of AGMs prompt discussion across the market, which enables investors to access company information. Such information includes audit reports and agendas to make changes to the board of directors.

The board of directors is expected to send comprehensive reports for the previous financial year and sometimes publish it via the media. Moreover, reports carry a statement from the CEO. Such documents carry valuable information about the company and help investors to decide whether or not to invest in the firm. Therefore, in most cases, the information attracts investors because even though the financial analysis might not be appealing, the report from the CEO shows how the company plans to improve its performance in the following year (Hájek, 2018). It follows that directors only dispatch positive information about the firm during and before AGMs unless questioned by shareholders to maintain a company's good image among investors. The behaviour leads to higher stock prices and greater demand for shares.

Most of the information sent out by board members at the time of AGM announcements is intended to satisfy shareholders with management and attract investors, although sometimes the information is manipulated. Dimitrov and Jain (2011) discovered that in the days leading up to AGMs, abnormal returns increase significantly. Banko et al. (2013) observed that managers perform poorly in the first two quarters and manipulate the financials to reflect good performance in the quarter leading up to the AGM. Companies will consequently always send useful reports to shareholders, regardless of their performance. The purpose of AGMs is to provide shareholders with more information to help audit and clarify the authenticity of the financial reports.

Managers refrain from distributing information that would create pressure from shareholders during the AGM by manipulating or selecting only positive data to include in the reports they send together with the announcement of the meeting. Dimitrov and

Jain (2011) indicated that in the days preceding the meeting, executives manipulate perceptions of the company in the market, resulting in significant stock returns. Moreover, Dechow, Sloan and Sweeney (1996) discovered that earnings manipulation is consistently linked to weaker internal and external monitoring. Managers ensure everything that reaches both shareholders and investors is positive to preserve the company's name as well as their jobs (Dimitrov & Jain, 2011; Strätling, 2003). Therefore, it is evident that information released together with the announcement of the AGM positively influences investors' decisions regarding whether to invest in companies, thereby leading to increased demand for shares and a corresponding increase in share prices (Banko et al., 2013; Dimitrov & Jain, 2011).

Moreover, different results in different countries have been indicated regarding the impact of AGMs on companies' share prices. In Germany, Martinez-Blasco et al. (2015) concluded that before, during and after the AGM, investors appear to modify their investment portfolio decisions. Moreover, the AGM does not meet investors' expectations because there is a positive abnormal return before and during the meeting, which is corrected after the meeting with a very significant negative reaction. The findings also confirm that during AGMs, the relevant information is transferred to market participants. In the US and UK, AGMs do not change market expectations; therefore, the market participants in these two countries do not seem to receive appropriate information from the AGM. Finally, Martinez-Blasco et al. (2015) concluded that during AGMs in Spain, no relevant information is provided to market participants. However, their sample size is restricted to 1,148 observations from the countries' largest firms. A reasonable explanation is based on Spain's quite concentrated ownership structure, which makes communication with the most significant shareholders much easier for managers.

Gao et al. (2020) investigated whether online AGMs are capable of growing shareholder engagement in annual meetings based on Chinese stock exchanges. They found that online AGMs can significantly increase shareholder engagement and that AGMs record significant positive stock returns when companies conduct yearly online meetings. Lawal (2021) examined the information content of AGMs and its evolution in the UK firms over the period 2004 to 2014. They found that abnormal returns and trading volumes react significantly positively to the AGM dates. AGM information

appears to cause changes in investors' expectations and idiosyncratic preferences, which are reflected in price and trading volume fluctuations, respectively.

Among the information released to investors at the AGM announcement is the information in the qualified audit reports (Firth, 1978). These qualifications are a firm selling strategy to attract more investors because of the expected positive response to the information they contain. One of the purposes for qualifying audit reports is to emphasise and provide further explanation regarding the financial report to ensure the shareholders and investors are satisfied with the financials to ensure positive reactions (Firth, 1978). As a result of the impact of financial details on share prices, companies present qualifications for the audit reports, which they believe have a positive effect on their share prices. Such information is important to investors because it shows a firm with accountable board members lowering the risk of their investments (Balakrishnan, Qiu, & Srinivasan, 2010). In fact, no board of directors would publish compelling information shareholders to initiate a vote of no confidence in them during the AGM.

Announcements of AGMs change the mood of shareholders, ensuring the accountability of firms, attracting high demand for their shares and a corresponding increase in share prices (Catasús & Johed, 2007). Aggressiveness or dissatisfaction attracts more investors who think that the companies are going to do well after the meeting, leading to increased demand for shares. For shareholders, AGMs offer the only opportunity to express their feelings about how the board has been coordinating activities throughout the year, among other issues. However, AGM announcements give also shareholders fresh hope of future good performance because they know that they will bring about changes by exercising their rights to ensure accountability and sound management in the following year (Dimitrov & Jain, 2011). The shareholders' discussion conveys a positive image to investors that the firm will improve after the meetings. The degree of dissatisfaction and mobilisation of agendas among shareholders determines the degree to which investors have faith in the company and believe that its performance will improve after the AGM.

The fact that share prices in the US start to increase 40 days before AGMs is a good indication that shareholders' meetings affect investors' decisions to invest in different companies (Dimitrov & Jain, 2011). Further, share prices reach their maximum price during the meeting. The responsibility of shareholders increases as the days count down

to the time of the AGM announcements, as does their aggression or dissatisfaction. The continued increase in shareholders' preparedness increases investors' faith in the companies. Investors observe shareholders' preparedness to make changes in the firms' governance and make investments in firms where dissatisfaction is growing stronger (Omidpour & Talebnia, 2016). Apart from the issues with accountability, shareholders increase their dissatisfaction by making changes such as selecting new board members and strengthening laws and policies. Such information provides investors with an opportunity to rate firms' performance and make investments a few days before the AGM. Catasús and Johed (2007) observe that proponents of motions during AGMs held by listed companies on the Stockholm stock exchange (SSE) turn to their allies when the debate becomes heated. The association between share price and AGM announcements indicates shareholders' preparedness, which occurs several days before the AGM. For an overview, a summary of selected key studies on the market reaction to AGMs is presented in Table 3.3.

Table 3.3: Summary of Selected Studies on the Market Reaction to AGMs Announcements

Author/s and Year	Sample and Data Studied	Variables Used	Analytical Approach	Conclusions
Firth (1981)	120 firms listed on the UK stock exchange (1976–1978)	Stock returns and trading volume	Event study approach	AGMs do not appear to give an above-average level of information.
Brickley (1986)	100 US randomly selected firms (1978–1982)	Stock returns	Event study approach	Significant positive ARs around AGM dates.
Brookfield & Morris (1992)	1,359 news announcements for 25 large firms listed on the UK stock exchange (October 1983–September 1984)	ARs	Market model	Positive stock price reaction resulted before and on the AGM days.
Rippington and Taffler (1995)	337 listed firms in the UK (May 1979–June 1981)	Stock returns	Event study approach	Significant positive ARs on the day of AGMs.
Olibe (2002)	227 UK-based companies (1994–1998)	Stock returns and trading volume	Event study approach	Significant stock return changes and minimal trade volume reactions at the time of AGMs.
Dimitrov & Jain (2011)	26,408 listed companies AGMs on the NYSE and AMEX (1996–2005)	Stock returns	Event study approach	Significant positive CARs resulted in the pre-event period of AGMs.
Blandón et al. (2012)	Spanish stock market (January 2002–June 2009)	Stock returns, volatility and trading volumes	Event study approach	AGM dates do not have a significant effect on stock returns, volatility and trading volumes.
Banko et al. (2013)	1500 listed companies on the S&P Dow Jones (1996–2009)	Stock returns	Event study approach	Significant positive ARs and CARs occurred surrounding the AGMs.
Stankevičienė & Akelaitis (2014)	All firms listed on the Lithuanian stock exchange (2005–2012)	Stock prices values and the price changes	Event study approach	Positive AARs at the time of shareholder meetings.
Wang & Hefner (2014)	S&P 1500 firms (1992–2012)	Stock returns	Regression model	Positive stock price reactions to AGMs.
Hatem (2015)	137 French firms (2007)	CARs, firm size, managerial/institutional ownership and profitability	Event study approach	Firm size, managerial/institutional ownership and profitability negatively affects the CARs.
Martinez-Blasco et al. (2015)	1,148 observations of the largest firms in common law countries (UK and US) and civil-law	Stock returns, volatility and trading volumes	Event study approach	No evidence in support of information content of AGMs for common and civil-law countries except for Germany.

	countries (Germany, Japan, France and Spain) (January 2005–June 2010)			
Lawal (2016)	15,375 AGM dates of UK firms (2004–2014)	ARs	Event study approach	Stock market reacts significantly negative to AGM announcements over event window.
Omidpour & Talebnia (2016)	29 observations of cement companies listed on the Tehran stock exchange (one year)	Stock returns, trading volumes and stock return fluctuations	Panel data approach	AGMs have a significantly and positively effect on stock returns and trading volumes, and no effect on the stock return fluctuations
Gao et al. (2020)	All firms listed on the Shanghai and Shenzhen stock exchanges (2005–2017)	Ownership representation, Shareholder participation, firm size, performance, risk, growth opportunity, firm age, institution and insider ownership	Event study approach	Significant positive stock returns resulted at the online AGM dates.
Lawal (2021)	14,360 AGM dates for returns and 4,059 for volume traded of All UK listed firms (2004–2014)	ARs and trading volume	Event study approach	ARs and trading volume react significantly positive on the AGM dates.

3.6 Determinants of Stock Price Reactions to Firm Characteristics

The current literature examines how the stock market reacts to the information content of the announcements of annual earnings, top management changes and AGMs and the determinants of stock price reactions to firm characteristics around the announcement event period. The primary determinants of abnormal returns in this study include firm size, government ownership and industry type. These firm characteristics determine abnormal returns and the reactions of investors to stock prices following company announcement periods.

3.6.1 Firm Size

The empirical literature demonstrates that a firm's size is a significant determinant of how its stock price reacts (Alzahrani & Skerratt, 2010; Chan, Faff, & Ramsay, 2005; Firth, 1981; Murphy, Shrieves, & Tibbs, 2009; Reynolds & Francis, 2001). Size implies the market capitalisation when the company goes public. The size of a company influences its performance, representing its capabilities, complexity and resources (Anderson & Reeb, 2003). Barclay, Smith and Watts (1995), Blandón et al. (2012) and Rajan and Zingales (1995) note that a company's size is inversely related to the probability of bankruptcy. For that reason, larger companies are more willing to release a considerable amount of information into the public domain through earnings announcements to moderate agency conflict with shareholders (e.g., Christensen, Smith, & Stuerke, 2004).

Further, scholars have studied the size of the firm to determine the availability of information regarding share prices. In essence, larger firms react more significantly positively to earnings announcements (Chan, et al., 2005; Christensen et al., 2004) compared with small and medium-sized firms. A survey of studies examining the impacts of firm size on stock market reaction indicated that investors have little performance information pertaining to small firms. Moreover, small firms' earnings announcements, which are often surprising, create more comprehensive and extended market reactions than large companies' earnings announcements. So the body of evidence suggests that small companies' earnings announcements are particularly valuable to investors, apparently because of the restricted accessibility of alternative sources. Thus, the size of a corporation influences the reaction of its stock price.

According to Aharony and Swary (1980), stock market experts consider earnings announcements a valuable alternative source of information for investors. Moreover, the information content theory proposes that company leaders can relay optimistic information about the corporation's prospects via earnings announcements to interested investors. In the same way, the signalling theory has been used to explain the reactions of investors to announcements, including changes to the earnings of a firm, the volatility of earnings, the age of the company, insider ownership shareholding, the size of the corporation and the sector in which the firm operates (Sare & Esumanba, 2013). Sare and Esumanba (2013) found a relationship between company characteristics and abnormal returns. In essence, these factors influence abnormal returns, which in turn, motivate investors to purchase stock.

Chan et al. (2005) investigated the impact that firm size on the reaction to annual earnings in the short-term window following the release of earnings information for a large sample of listed firms on the Australian Stock Exchange (ASX). The study involved regressions of unexpected returns with unexpected earnings. Therefore, it incorporated the non-linearity of the earnings–returns relationship as well as other factors with significant implications for earnings announcements, which were controlled for. The findings of the study yielded contrasting results to the previous research in the US market, indicating that firm size exerts no strong influence on earnings announcements within the three-day window or that the response level was more substantial in circumstances where the firm's size was larger. However, the window period was extended to 21 days (Chan et al., 2005). Therefore, the information content regarding firm context and size portrayed differences in the nature of the responses.

Further, the size of the company was found to have a significant impact on stock price reactions. Blandón et al. (2012) found that the smaller the company, the lower the probability of the company failing if it did not comply with its obligation to release information about its dealings to the public. Moreover, the shareholders of large companies were found to react positively to constant company announcements by increasing their investments. Al-Shawawreh and Al-Tarawneh (2015) found a positive correlation between abnormal returns and the characteristics of the company, including age, size, sector and offer size for listed companies in the stock market of Amman.

These findings imply that the size of the company determines how investors react to announcements of financial information.

Edi and Jessica (2020) examined the impact of firm characteristics and good governance on the behaviour of earnings management for companies listed on the Indonesian stock exchange in 2014–2018. They discovered that firm characteristics such as size, financial efficiency and leverage, together with characteristics of good governance, can significantly accentuate the behaviour of earnings management. These findings are corroborated by Nalarreason, Sutrisno and Mardiati (2019).

According to Bauer et al. (2004), stock prices and firm size are positively correlated with the announcement period of changes to the board of directors/executives. Larger publicly listed companies perform much better in comparison to smaller ones primarily because the confidence of investors is gained when an organisation is already well-established within its industry in terms of operating efficiency and effectiveness. According to Lubatkin et al. (1989), a company's size is positively related to its long-run performance, including abnormal stock returns. The bigger the company size, the better its abnormal returns. The reverse is true for smaller companies.

Small firms experience abnormal returns in reaction to AGM announcements (Blandón et al., 2012). Investors have little performance information related to small firms, making the release of such data important when making decisions about whether or not to buy shares (Rippington & Taffler, 1995). Small firms provide relevant information to shareholders compared with large firms through regular releases and conferences. Moreover, small companies rarely hold press briefings and conferences that would expose their performance to the market since they have few activities and transactions requiring updates to shareholders (Blandón et al., 2012). The media and financial analysts also pay little attention to small firms in terms of reporting their performance. Consequently, there is probably a lower level of stock market anticipation of the formal release of information (Firth, 1981). The corollary is that, because big companies are more actively analysed and followed by stockbroking analysts, more data are accessible. As the company reduces in size, the amount of stockbroker analyst attention declines and there is subsequently less data accessible to market participants (Rippington & Taffler, 1995).

In contrast, shareholders typically make little attempt at preparedness because smaller firms have only a marginal impact on their investments, resulting from their limited activities (Catasús & Johed, 2007). Limited discussions lead to little information in the market. Scarce information creates tension among investors because they are unable to determine whether or not such firms are doing well (Blandón et al., 2012). However, Blandón et al. (2012) found that AGM announcements, which yield such information, have a greater effect on the share returns of small firms compared with large ones.

3.6.2 Government Ownership

Equally important, government ownership is a significant determinant of stock price reaction. The government owns shares in many companies, and this form of ownership has an impact on the determination of abnormal stock returns. A high level of government ownership is positively correlated with abnormal stock returns. Investors have more trust in firms in which the government has a large percentage of shares. Therefore, they will be more inclined to invest (Boubakri et al., 2018; Neneh & Smit, 2014; Rossi & Cebula, 2015). The presence of the government on the share register increases transparency, thereby fostering trust among investors (Hou, Kuo, & Lee, 2012).

Moreover, government ownership in GCC countries is one of the most frequent ownership structures. Al-Janadi, Abdul Rahman, and Alazzani (2016) claimed that the listed firms in GCC countries are mainly government-owned. A large percentage of the shares of public listed firms in the Saudi stock market is held by the government. The Saudi government's conservative policy on privatisation is one explanation for such a high level of government ownership. Also, Saudi treasury funds invest in listed firms, which increases the government ownership percentage of shares in these firms.

Moreover, corporate transparency makes the firm more independent, creating the potential to invest and expand. The expected growth resulting from transparency and the trust of investors means the firm achieves abnormal stock returns. Therefore, government ownership attracts more investors by increasing transparency and improving corporate governance. Thus, a positive stock market reaction can be expected with announcements by companies whose large percentage of shares are owned by governments. In a study of the effect of government ownership on the

performance of government-linked companies (GLCs) in Malaysia, Najid and Rahman (2011) found that a large percentage of government ownerships of shares has a significantly positive relationship with firm performance.

In this regard, Lim, How and Verhoeven (2014) provide evidence that corporate ownership (measured by a firm's largest shareholders) and the identity of the biggest shareholders are relevant to the timeliness of firm earnings and significant factors for price discovery timeliness. These findings indicate that companies with governments as their biggest shareholders have a significantly shorter lag of earnings reporting and timely discovery of prices, as opposed to the widely held perspective that government-owned companies embrace a more obscure data environment to cover up their inefficiencies. Moreover, government-owned companies are correlated with increased disclosure and transparency in Singapore, in line with government assistance being associated with better strategic disclosure (Lim et al., 2014). Additionally, a higher level of government ownership of a company signals greater confidence in the company's prospects.

A high level of government involvement or ownership of shares in a company positively affects the reaction to company announcements, leading to higher share prices (Hatem, 2015). Investors have considerable trust in governance when the government is part of the company (Boubakri et al., 2019; Ding & Suardi, 2019). However, this changes if the government is undemocratic and manipulates directors to serve their interests (Hatem, 2015). Democratic governments represent citizens in such firms by ensuring that board member direct agendas to serve the public. Government presence in a company ensures close supervision, thereby leading to better management. Investors trust the performance of such firms, which they expect to record good earnings. As a result, the public company announcement increases the demand for shares in companies with a high level of government shareholdings, leading to abnormal share prices and returns.

Hou et al. (2012) confirmed that reform of the split share structure enhances the information share prices of Chinese listed companies, especially those with the largest percentage of government ownership stakes and restricted stocks. Eckel and Vermaelen (1986) examined the impact of government ownership on companies' share prices, proposing the following reasons why shareholders can lose or profit from government

ownership. First, there is improved efficiency. Government involvement may eliminate inefficiencies such as replacing incompetent senior management, implementing a more effective production technology or making major decisions (e.g. restructuring and financing, strategy and divestments, etc.). As a result, a rise in stock price would be expected as a consequence of a government purchase announcement. Second, there are agency costs. The most common type of separation between management and ownership is represented by a government-owned company. As a consequence of this separation, top management may not always make decisions that are in the best interests of risk bearers. Such separation and the resulting agency issues also occur in private companies in a well-developed capital market where there are large and varied shareholdings. However, such agency issues would be dealt with more effectively by private firms than by government firms. Third, there is regulation on internalisation. The intrinsic rigidity of sector regulation may be inappropriate if a large quantity of information is required by the government to achieve its objectives efficiently. Direct stock ownership makes a company's internal regulation more flexible. If a sector changes quickly or is extremely technical, direct ownership can reduce the cost of regulatory monitoring, which will benefit shareholders. Fourth, there are bankruptcy effects. To prevent the company from becoming bankrupt, the government can acquire a stake in a private company. The participation of the government means that the company will not be permitted to fail, even if direct subsidies are needed. In contrast, shareholders also profit to the extent that they expect the government to pay bankruptcy costs and stock prices will increase. Indeed, investors' trust in the government will lead to greater equality and stability in the economy even though this contradicts the argument that government intervention created economic issues in most East Asian nations (Najid & Rahman, 2011).

On the other hand, there are several circumstances that might lead government ownership to reduce the liquidity of a company's shares. The government's political stance is that state-owned companies help to achieve their political goals, which are at odds with the firm's goal to maximise profits and market share (Boubakri et al., 2018; Ding & Suardi, 2019). According to Megginson (2017), there is a belief that the government's "grabbing hand" can lead to minority shareholder expropriation. Also, in a study of 32 countries, Guedhami, Pittman and Saffar (2009) found that companies under government-control have little incentives to enhance their accounting and

reporting systems. Moreover, the literature confirms that government ownership is correlated with moral hazard problems, inadequate corporate governance and poor company performance, as managers and shareholders take on larger risks knowing that public funds would be resorted to, in order to bail out financially distressed companies (Boubakri et al., 2018; Ding & Suardi, 2019). If investors feel that the high level of government ownership would result in the agency problem, a loss of information symmetry, and a reduction in company value, they will be less willing to purchase such stocks, resulting in lower stock liquidity and greater spreads, as well as a decrease in trading activity.

Previous research has found numerous reasons to believe that a high level of government ownership may compromise earnings quality, and a low level of government ownership may increase earnings quality. Al-Janadi et al. (2016) claim that a high level of government ownership leads to poor corporate governance. Because government ownership has no clear owner and the company is overseen by bureaucrats; politicians and bureaucrats might possibly operate the company in ways that benefit them personally. Government owners of firms may have less motivation to enhance earnings quality because they are not competing for investors and capital. The high level of government ownership allow the government to run the business, and hence managers hired by the government do not care about the investment return of the shareholders. Capalbo, Lupi, Smarra and Sorrentino (2020) confirm that political pressures may drive profits management by detecting a rise in earnings management across municipality-owned firms during election terms. Furthermore, the high level of government ownership affects board independence because the government would try to interfere in the appointment of directors (Al-Janadi et al., 2016). As a result, such government initiatives would have an impact on the independence of directors in composing the best decisions. Government ownership imposes its influence over firms and their boards of directors; such actions may have an impact on the size of a board and its willingness in providing high-quality reports.

In a study of stock exchange-listed corporations in the China, Singapore, the United Arab Emirates (UAE) and Malaysia, where the government ownership is particularly common, Uddin (2015) discovered that a high level of government ownership of shares negatively affected the performance of companies in all of these countries, except for

the UAE. In other words, the high level of government ownership was correlated with negative abnormal stock returns and the low level of government ownership was correlated with positive abnormal returns. Najid and Rahman (2011) observe that the Malaysian government's ownership of firms' shares, leads to weaker financial performance compared to companies with a low level of government involvement. According to Uddin (2015), a high level of government ownership can undermine a company's financial performance, and a causal link between government ownership and corporate performance may exist due to agency problems or companies' having to rely on government support.

In contrast, government and institutional investors such as insurance companies, pension/investment funds and banks, do not appear to cause CEO resignations, even if they hold majority stakes (Bhana, 2016; Dherment-Ferere & Renneboog, 2000). Government and institutional investors might not be concerned about affecting corporate strategy or corporate control activities such as disciplining top management. This could put an end to their shareholding as government and institutional investors must avoid transgressing the regulations of insider trading.

3.6.3 Firm Sector

The empirical literature shows that the industry type or sector is a significant determinant of investors' perceptions about the decision to purchase a firm's shares (Al-Shawawreh & Al-Tarawneh, 2015; Alzahrani & Skerratt, 2010; Baah, Tawiah, & Opoku, 2014; Barclay et al., 1995). The sector in which the firm operates influences the determination of abnormal stock returns. Therefore, there are specific characteristics correlated with certain sectors, which have different capacities to add value to shares. This industry-level analysis is discussed in the study because it is believed that certain characteristics are associated with certain sectors of the stock market.

Alzahrani and Skerratt (2010) investigated the impact of industry-level earnings announcements on the share price of companies listed on the Saudi stock market. They found that some characteristics related to certain industries could affect the share price of listed companies. For instance, non-service industries such as manufacturing generate relatively stable earnings because of their flexibility in adjusting their

processes, prices and labour during economic downturns. However, their adaptability is lower compared with firms in the mining industry (Baah et al., 2014). Nevertheless, service industries such as insurance and banking tend to have higher market capitalisation, greater ownership of government and institutional investors, and experience greater fluctuations in their values, reflecting large shifts in demand for their shares.

In contrast, Alzahrani and Skerratt (2010) found that low market capitalisation, greater stock pricing and earnings volatility, low disclosure levels and loss-making companies are disproportionately associated with the service and agriculture industries. The results of their study found that the insurance and agriculture sectors have the largest returns of 9% and 8%, respectively, on their good news portfolios while the largest losses were observed in the banking and electricity sectors. In the bad news portfolios, positive returns were observed in the insurance and agriculture industries at 4.2% and 2%, respectively (Alzahrani & Skerratt, 2010). In fact, highly speculative waves consistently target these two sectors in the Saudi stock market because of their relatively small market capitalisation, causing their prices to stray extensively from their basic values.

Sare and Esumanba (2013) found that cumulative abnormal returns are positively associated with a firm's sector. In the precious metals industry, investors always elicit stock price reactions. Precious metals firms in the extractive and mining sectors experience considerable patronage during economic downturns (Sare & Esumanba, 2013). The reason for this is that investors usually view such metals as valuable assets that can act as a store of value. Moreover, the sector in which a company operates can be a determining factor in the investors' response whenever that firm decides to initiate the payment of dividends. As a case in point, companies in the financial services sector typically experience a different reaction from shareholders of companies in the mining sector (Rossi & Cebula, 2015).

Bhana (2016) examined the effect of changes to the board on stock prices for firms listed on the Johannesburg stock exchange over the period 2004–2008. The findings revealed that sector-specific effects influence abnormal returns from shareholder reactions to announcements of changes to the board of directors/executives. The findings also indicated greater abnormal returns in the mining industry compared with

industrial sectors, supporting the empirical evidence that the mining industry is in a position to provide shareholders with greater abnormal returns (Bhana, 2016). In contrast, the manufacturing sector provides shareholders with fewer abnormal returns. These findings correspond to the comparative profitability of certain industries on the Johannesburg stock exchange. Moreover, Bauer et al. (2004) documented that abnormal stock returns are positively associated with a firm's sector. The reaction of shareholders to board changes appears to reflect their view of the profitability of the industry to which the firm belongs. Therefore, the empirical literature demonstrates that abnormal returns differ by sector and that the type of industry influences stock price reaction.

3.7 Hypothesis Development

In the previous section, the literature review investigated whether the information content of the announcements of annual earnings, top management changes and AGMs results in an increase or decrease in stock prices or whether stock prices remain unchanged during the event window. The focus was on listed companies on the Saudi stock market, underpinned by a theoretical framework. Concerning the announcement event period, the chapter further investigated the efficacy of the stock market and the determinants of stock price reactions to firm characteristics such as size, government ownership and sector.

Earnings Announcements and Abnormal Returns

Previous studies have indicated that there is a positive correlation between earnings announcements and the direction in which stock prices move (Alzahrani, 2010; Alzahrani & Skerratt, 2010; Bamber & Cheon, 1995; Beaver, 1968; Cready & Gurun, 2010). Efficient capital markets always react and respond to financial announcements, including earnings or dividend announcements (Syed & Bajwa, 2018). The disclosure of firms' earnings has a significant effect on the capital market because it provides investors with relevant information to predict future performance and the value of equity (Hirshleifer et al., 2008). Shareholders and investors can determine how viable their investments are and how their stock prices will be affected before, during and after the earnings announcements.

Firms use financial statements to signal important information about their financial and non-financial prospects. Earnings announcements are used to forecast future cash flows and profits (Doyle & Magilke, 2009). Providing the public with information about the performance of a firm can result in significant changes in stock prices after announcing their earnings. For instance, if a company announces high earnings, its stock value rises, whereas low earnings result in low stock values. Following this reasoning, it can be said that earnings announcements influence the willingness and desire of investors to purchase stocks in a certain company. Earnings announcement returns are an efficient indicator that can be used to forecast subsequent returns or the direction of the capital market in a certain period. However, the theory of behavioural finance concludes that the cognitive biases of investors resulting from earnings announcements influence either positive or negative abnormal returns.

Common human attributes such as overconfidence, anxiety or fear cause investors to make errors of judgement, which are viewed as deviations from the assumed rational expectations of the efficient capital market hypothesis (Alzahrani & Skerratt, 2010; Kim & Kim, 2003). These human attributes influence investors to react differently to earnings announcement news, which prevents them from recognising the serial auto-correlated patterns in earnings news (Alzahrani, 2010; Alzahrani & Skerratt, 2010). As previously stated, low earnings announcements could result in two outcomes: positive abnormal returns, because investors adhere to the warnings, or negative abnormal returns, because investors are unwilling to risk their investments (Cready & Gurun, 2010). High earnings announcements trigger greater reaction and volatility, whereas low earnings announcements trigger low reactions. The result of these biased reactions is abnormal returns and anticipated returns (Feng & Hu, 2014; Kama, 2009). Many investors tend to underreact to prior information, which results in different patterns in return reversals or continuations.

The effects of early earnings announcement have been illustrated by the Saudi capital market, which was characterised by high price volatility during the early announcement period. While many investors prefer early announcements to surprise the market (Chen et al., 2005), past experiences have illustrated a negative relationship between these early announcements and abnormal returns (Cready & Gurun, 2010). Therefore, investors use announcements to forecast and model expected stock earnings (Matharu

& Changle, 2015). Most investors prefer frequent announcements, such as quarterly announcements, as a proxy for market expectations (Truong & Corrado, 2014). However, despite the increased dependence on frequent announcements, attributes such as under or overreaction and incentive bias hinder investors from making accurate forecasts. In most scenarios, the forecasted earnings are optimistic and are formulated by sell-side analysts (Ivković & Jegadeesh, 2004; Johnson & Zhao, 2012). The results of such analysts forecast unusual profits that differ from the anticipated rate of return for the investment. Based on previous literature, these arguments and empirical evidence, I predict that there are positive abnormal returns results and increased attention around the annual earnings announcement date. This study proposes the following hypothesis:

H1: Annual earnings announcements have a positive relation with abnormal returns around the announcement date.

Top Management Change Announcements and Abnormal Returns

The senior management of a firm is critical in determining its future. It is responsible for making and implementing major decisions to steer the company in the right direction. As such, top management plays a critical role in influencing the direction of a firm's stock (Alhoqail & Alanazi, 2019). By forecasting the future earnings of their firm and the expected rate of return, investors can consider their position regarding investing in the company's stock. Therefore, any change in leadership is considered a significant event that will prompt investors to reassess potential future earnings. This is because the market's reaction to management changes is of critical importance to the pay-out dynamics of the company as well as the stock's value.

Changes to the structure of the board of directors or the CEO of an organisation are influenced by various factors (Bloom & Jackson, 2016; Quigley & Hambrick, 2015; Quigley et al., 2017; Utami et al., 2020). Some organisations continue performing well while others bear no relation to their previous performance. Yet others decide to dismiss CEOs because of poor performance or a negative reputation that is adversely affecting the company's image. In all cases, the inclusion of such change biases ultimately influences the performance of the company's stock (Almadi, 2016; Bauer et al., 2004; Buallay et al., 2017). Leaders who signal poor governance are associated with high

market risks and investors are less willing to invest. In contrast, good governance boosts investors' confidence (Azeez, 2015; Kouwenberg, Salomons, & Thontirawong, 2014). If a company announces the appointment of a new director who will signal positive changes, then the capital market reacts positively, resulting in positive abnormal returns. However, there is no certainty regarding the possible drift that stock prices could take after the announcement of management structure change is made.

During the announcement of executive changes, abnormal stock returns become the sum of two components. As previously mentioned, the first is referred to as the information component, which is considered negative if the proposed new management signals worse performance than the previous one. This component results in negative abnormal returns and a decline in stock values. The second component is positive if the new management signals they have the shareholders' interests at heart. This component results in positive abnormal returns that encompass higher prices for the company's stock and higher demand (Bhana, 2016). When the real component in absolute value is greater than the information component, a positive impact is anticipated, but any failure will result in negative abnormal returns. While each component is unobservable, it is possible to analyse whether the sum of the two components is equal to zero, which is also similar to examining the sectional distribution of the abnormal returns (Warner et al., 1988).

The stock reaction to an announcement indicates the significance levels of the capital market. However, the predictions of an abnormal return drift may remain uncertain even though the structural adjustment is a reaction to poor management (Omidpour & Talebnia, 2016). One reason for this is that an announcement of change conveys different types of information; for instance, a new direction for the company or new goals that necessitate the hiring of a new, well-skilled leader. It is possible for a positive average abnormal return before and after a change in senior management.

Announcements of top management changes may be interpreted as either good news, bad news or no news (i.e. neutral news), as discussed earlier in the literature review. Therefore, the response of the market cannot be known in advance. Based on the above arguments and the stockholder and agency theories, I predict that there are positive abnormal returns results and increased attention around top management change announcement date. The following hypothesis is proposed:

H2: Top management change announcements have a positive relation with abnormal returns around the announcement date.

Annual General Meeting Announcements and Abnormal Returns

AGMs are viewed as one of the most important corporate events at which major issues are discussed, for example, changes in corporate governance, a review of the financial statements and other critical issues (Martinez-Blasco et al., 2015). Using the information asymmetry approach, an organisation can either deliver good news that will result in positive abnormal returns or bad news that will result in negative returns (Angelovska, 2017). Moreover, critical decisions are passed during these meetings, including early financial results, the election of a new CEO or changes to the board of directors; these are decisions that affect every aspect of the firm. AGMs are always anticipated in advance, and the impact of the decisions and agenda depends on the nature of the announcements made during such meetings. Market participants are always made aware in advance of the issues to be deliberated at the AGM, including public information such as the election of new directors or the dividends payable. Abnormal returns after AGMs are influenced by the information provided to shareholders at the meeting (Brickley, 1986).

AGMs play an important role as self-regulatory governance tools for corporations by providing essential information to the capital market that will influence the drift of stock values. AGMs are a core component of an efficient capital market because the information that is not offered to the public financial media is provided during these meetings (Olibe, 2002). AGMs receive little attention despite experts emphasising their importance in influencing stock volatility. Moreover, AGMs may be the only way that shareholders and investors can confirm their suspicions or worries (Bannier, Pauls, & Walter, 2017; Firth, 1981). Therefore, AGMs empower shareholders and investors by influencing their financial decision-making.

It is possible to quantify the capital market reaction after AGMs and the impact this reaction has on stock prices (Bannier et al., 2017; Firth, 1981; García-Blandón, Martínez-Blasco, & González-Sabaté, 2012). Importantly, investors use the information announced in conjunction with the reaction of the capital market to arrive at appropriate decisions regarding how best to exploit opportunities on the stock market.

However, abnormal returns will be either positive or negative, depending on the type of information revealed during the AGM.

Firth (1981) noted that the preliminary announcement and the announcement of the annual report causes substantial abnormal returns and also affects volumes of trading. However, after the AGM announcement, Firth (1981) observed no such market reaction, suggesting that AGMs do not appear to give the financial markets any new information. This finding is consistent that of García-Blandón et al. (2012), who analysed the information value of AGMs in Spain and reported no market reaction. Only small reactions in stock price and volume of trading around AGMs were observed by Brickley (1986) and Olibe (2002).

Martinez-Blasco et al. (2015) conducted a comprehensive study on the announcement of AGMs in various countries by examining changes in abnormal returns, the volatility of returns and the volume of trading. The findings revealed no market response in Japan or Spain. In contrast, in Germany, they confirmed significant increases in abnormal returns, volatility and volume following AGMs, thereby implying that AGM announcements contain highly informative information. In China, Gao et al. (2020) investigated the influence of online AGMs on shareholders and found that AGMs record significant positive stock returns when companies conduct general online meetings. Based on the discussion above and the findings of previous studies, I predict that there are positive abnormal returns results and increased attention around the AGM announcement date. The following hypothesis is proposed:

H3: AGM announcements have a positive relation with abnormal returns around the announcement date.

Firm Size

There is a high correlation between the size of a company and the abnormal returns attributed to the announcements of earnings, top management changes and AGMs. The size of a firm contributes to the size of investment; most investors view big firms as offering minimal investment risk (Mossin, 1996; Sharpe, 1964). In terms of size, smaller companies are at greater risk of experiencing negative abnormal returns. Investment levels in these companies tend to be relatively low, and their direction is influenced by those with a larger market share (Duy & Phuoc, 2016). Additionally,

most investors pay more attention to larger companies unless smaller companies signal the potential for future growth to achieve more market share (Alzahrani, 2010).

The size of a company is an important variable in terms of influencing its stock performance. Large companies are capable of generating internal funds but may also experience challenges in coordinating their resources to influence positive performance (Duy & Phuoc, 2016). In most instances, however, large companies have stable leadership, which results in efficient and effective decisions, the nomination of the best CEOs, a well-equipped board of directors and timely announcements of financial statements.

The size of a company contributes to the risk premium associated with a stock investment; larger companies are considered to offer a safer investment (Alzahrani, 2010; Duy & Phuoc, 2016). Risk is often associated with small companies, which can be attributed to challenging financial resources, less brand awareness or low market share. However, unlike small companies, large firms are associated with several assets that can provide profitable returns to investors. According to the Capital Asset Pricing Model (CAPM), small companies generate higher returns because investing in them is considered riskier with regards to whether any returns will be made. Further, small companies have minimal influence on the Saudi Arabian stock market compared with larger firms (Alzahrani & Gregoriou, 2010). The direction of their stock prices is influenced by the current status of the returns of larger companies. Therefore, investing in small companies implies having stock prices controlled by companies that have a larger share of the Saudi capital market.

With regards to announcements of earnings, top management changes and AGMs, most investors pay more attention to the stock price volatility of large companies. It is common for large companies to experience negative abnormal returns resulting from the factors previously mentioned and recover quickly thanks to a wide range of resources, including financial and human resources (Keim, 1983). The capital market is always anxiously waiting and analysing earnings announcements, the decisions made and the financial statements of large companies (Gu & Xue, 2007). Being under constant critical scrutiny places big firms in a vulnerable position because they are expected not to make any mistakes or show poor judgement that could deter potential

investors. However, large companies have sufficient resources to influence the drift that their stock returns take, unlike smaller companies (Nurhaida, 2018).

Moreover, past occurrences illustrate that it is easier for larger companies on the Saudi market to bounce back from negative abnormal returns. This can be attributed to their influence on the stock market. Unlike big companies, smaller companies are likely to suffer significantly from negative abnormal returns, which places them at a greater risk of losing their stock values as a result of weak or ineffective decisions. However, it should be noted that the size of a company does not always influence its level of risk because different strategies are implemented by each company to suit their particular situation (Iqbal & Farooqi, 2011). The liability of negative abnormal returns can be costly for small firms that do not have sufficient resources for settlement. In accordance with the empirical evidence, I predict that there is a positive relationship between abnormal returns of companies listed on the Saudi stock market and the announcements of annual earnings, top management changes and AGMs in large firms. Accordingly, the following three hypotheses are posed:

H4a: There is a positive relationship between abnormal returns and the announcements of annual earnings in large firms.

H4b: There is a positive relationship between abnormal returns and the announcements of top management changes in large firms.

H4c: There is a positive relationship between abnormal returns and the announcements of AGMs in large firms.

Government Ownership

The ownership of a firm plays a critical role in influencing the firm's earnings, financial statements, frequency of announcements and corporate governance. Several studies argue that there is a high correlation between government-owned firms and positive abnormal returns (Eckel & Vermaelen, 1986; Hatem, 2015; Hefner, 2014; Hou et al., 2012; Lim et al., 2014). The positive abnormal returns are suggestive of the political, social and economic benefits that state-owned companies enjoy. The first privilege a state-owned company enjoys is easy access to financial and human resources (El-Masry

& El-Ghouty, 2017). The Saudi government provides whatever resources are needed to companies in which it owns shares.

Additionally, a corporation in which the government owns shares enjoys a high level of awareness on the capital market. This, in turn, attracts both local and foreign investors (El-Masry & El-Ghouty, 2017). These companies also enjoy a high level of professionalism and leadership in the form of experienced former government officials. These leaders play a critical role in steering the companies in the right direction to ensure positive returns.

Owing to the high levels of trust investors place in these companies, many firms with government ownership enjoy positive abnormal returns. However, while in most instances, government ownership of shares is associated with privileges, the returns are likely to suffer from the politicisation of company objectives. If the government is the main shareholder, that can result in leaders pursuing political objectives rather than focusing on how to maximise the firms' profits (Çelik & Isaksson, 2013). The politicisation of a company's operations and objectives may influence the disruption of active leadership structures and reduce the emphasis on meeting the goals of the company. In such situations, the firm may experience a drop in earnings, which may, in turn, cause low abnormal returns, thus deterring potential investors.

Government ownership has been viewed as a favourable sign for firm valuations. Capital market investors express trust in government-owned firms, unlike private firms (Hou et al., 2012). This trust is not only attributed to the decreased level of risk assured by state control, but also because the company is controlled by the institution that makes the laws governing the stock market and other firms' operations (Yu, 2013). Hatem (2015) and Rossi and Cebula (2015) argue that investors prefer to invest in companies that have higher government ownership because of the associated protective measures, including government subsidies and exposure to minimise risks. Thus, stock control and ownership by the government have a positive impact on the stock market.

Further, it is generally recognised that the government functions as a guarantee for loans given to public companies, either indirectly or directly. The other benefit is that these companies enjoy lower costs of distress, which minimises the rates of return demanded by investors (Rossi & Cebula, 2015). Moreover, a connection with the government

helps to reduce potential systematic risks and the cost of equity capital, particularly during financial crises or periods of distress such as the current corona virus pandemic. Therefore, according to Dewenter and Malatesta (2001), state-owned companies provide investors with an attractive investment proposition, resulting in positive abnormal reactions. In accordance with the empirical evidence, I predict that there is a positive relationship between abnormal returns of companies listed on the Saudi stock market and the announcements of annual earnings, top management changes and AGMs in firms with government ownership of shares. The following hypotheses are proposed:

H5a: There is a positive relationship between abnormal returns and the announcements of annual earnings in firms with government ownership of shares.

H5b: There is a positive relationship between abnormal returns and the announcements of top management changes in firms with government ownership of shares.

H5c: There is a positive relationship between abnormal returns and the announcements of AGMs in firms with government ownership of shares.

Firm Sector

The literature indicates that industry type or sector is a significant determinant of investors' decisions to purchase a firm's shares (Al-Shawawreh & Al-Tarawneh, 2015; Alzahrani & Skerratt, 2010; Barclay et al., 1995; Rossi & Cebula, 2015; Sare & Esumanba, 2013). The sector in which the firm operates also influences abnormal stock returns. Barclay et al. (1995) indicate that the sector could influence the perceptions of investors in terms of whether or not to purchase a company's stock. Abnormal stock returns are found to be positively associated with a firm's sector (Bauer et al., 2004).

Alzahrani and Skerratt (2010) examined the effect of industry-level earnings announcements on the share prices of companies listed on the Saudi stock market. They reported that some characteristics regarding specific industries affect the share prices of the companies. Banks and industrial sector firms, for instance, tend to have higher market capitalisation and larger ownership by government and institutional investors. In comparison, low market capitalisation, greater stock pricing and earnings volatility,

low disclosure levels and loss-making companies are disproportionately associated with the service and agriculture sectors (Alzahrani & Skerratt, 2010). The results of this study found that the insurance and agriculture sectors have the largest returns of 9% and 8%, respectively, on their good news portfolios and the largest losses were observed among the banking and electricity sectors. In the bad news portfolios, positive returns were observed in the insurance and agriculture sectors at 4.2% and 2%, respectively. In fact, highly speculative waves consistently affect these two sectors because of their relatively small market capitalisation, causing their prices to stray extensively from their basic values.

A study by Bhana (2016) examined the effect of changes to the board on stock prices for firms listed on the JSE and found that sector-specific effects influence abnormal returns from shareholder reactions to announcements of changes to the board of directors/executives. The findings also indicate greater abnormal returns in the mining industry compared with industrial sectors, and this supports the empirical evidence that the mining industry is in a position to provide shareholders with greater abnormal returns.

The sector in which a company operates also affects the market reaction to the announcement of AGMs because of the information that the board of directors sends alongside the announcements such as the dividend allocation (Baah et al., 2014). In fact, different sectors have different capacities to add value to shares. For example, mining industries typically continue generating profits even during economic downturns. Many investors tend to store their value by investing in mines (i.e. those producing precious stones). In contrast, the manufacturing industry generates relatively stable earnings because of their flexibility in terms of adjusting their processes, prices and labour during economic downturns, although their adaptability is lower than that of firms in the mining industry (Baah et al., 2014).

The type of industry can be a determining factor in the investors' response whenever that firm decides to initiate the payment of dividends. As a case in point, companies in the financial services sector typically experience a dissimilar shareholder reaction to that of companies operating in the mining sector (Rossi & Cebula, 2015). This is because precious metals such as gold as well as diamonds tend to perform well in times of recession as a store of value for shareholders compared with goods from other

sectors. In their research study, Sare and Esumanba (2013) determined that CARs are positively associated with a firm's sector. Whenever a publicly listed company that operates in the manufacturing sector initiates the payment of dividends, investors are inclined to respond speedily, thus resulting in positive abnormal returns relative to companies operating in other sectors.

Investors view the various sectors differently, which, in turn, influences their decision whether or not to buy company stocks. Therefore, the relationship between the sector in which a firm operates and the abnormal returns related to announcements of annual earnings, top management changes and AGMs are different. Based on the explanation, as mentioned earlier from the previous studies, I predict that there is a relationship between abnormal returns of companies listed on the Saudi stock market and the announcements of annual earnings, top management changes and AGMs by sector. This study proposes the following hypotheses:

H6a: There is a relationship between abnormal returns and the announcements of annual earnings by sector.

H6b: There is a relationship between abnormal returns and the announcement of top management changes by sector.

H6c: There is a relationship between abnormal returns and the announcement of AGMs by sector.

3.8 Conclusion

This chapter highlighted some interesting results from academic research on the EMH. It discussed the impact of these findings on the use of financial theory by academics and professionals. The stock market efficiency theory sheds light on the decision-making skills of investors. The efficiency of the exchange clearly shows the importance of data in decision-making. The fluctuation in stock market prices confirms that decision-making is paramount in action plans. Moreover, the efficiency theory holds that equilibrium is attained when individuals are unable to yield abnormal profits. The primary reason for investing in the stock market is extreme profit-making and wealth creation. The theory tries to discredit the hopes of investors who are willing to partake in the activity.

Adopting this theory has made it possible for companies to transact while at the same time ensuring that the rights of traders are not violated. As described above, there are three main types of market efficiency, depending on the extent to which information is accessible. Efficiency shows that investment is linked to information interpretation. The best economies are made up of investors who know when and how to act on the information received. A rush to act on a specific set of information yields the wrong results because the system is created only to benefit a small percentage of investors. This is the main reason why Saudi Arabia has a good chance of creating the most efficient market compared with advanced economies. Investors should not rush to purchase stock and securities based on dubious information but rather act on real information.

The announcement of information will significantly affect the general direction of Saudi Arabia's stock exchange. The stock exchange changes following the announcement of financial statements and cash flow to the public. Investors are likely to act on the information after ascertaining the truth. Relying on data will yield some anomalies, but it is best to rely on the efficiency theory as the basis for decision-making. Some of the identified patterns do not present the correct predictions for prices in the capital market. The only way to sufficiently improve the stock exchange of Saudi Arabia is to strictly follow the EMH.

Moreover, the chapter comprehensively reviewed empirical literature on how the information content of announcements of annual earnings, top management changes and AGMs influence stock returns as well as the associated firms' characteristics. The findings of the literature review demonstrated the essential role played by market intermediaries, especially analysts. Further, the review proposed various explanations for the existence of PEAD in both developed and emerging markets. The main source of PEAD is attributed to investor irrationality and market inefficiencies. The PEAD is reported as an anomaly, presenting an EMH challenge. Moreover, stock price recommendations by investment analysts help firms to adjust accordingly to compete favourably in the stock market.

The literature review also demonstrated the central role played by top management changes in shareholder wealth. Unique explanations from different markets around the world were presented. The market reaction depends on the type of top management

change. Most studies confirm the informativity of announcements of top management changes on either developed or emerging markets.

The review of literature on AGMs, although relatively small, revealed crucial discussion points regarding AGM announcements and their impact on stock prices. The findings provided some confirmation of AGMs' incremental informativity. Shareholders and investors receive information relating to the items on the AGM's agenda during the AGM announcement, several days before the meeting actually begins. Hence, shareholders have access to AGM information, including the report of the board of directors, the external auditors' report and the audit committee report, and the financial statements. Armed with these they have the means to make an informed decision, which will be connected to changes in the company's share price.

Firm characteristics determine abnormal returns and reactions of investors to stock prices around the announcement event. These factors influence abnormal returns, which, in turn, motivate investors to purchase stocks. Moreover, characteristics related to certain sectors can affect share prices, thus influencing investors' behaviour towards news about annual earnings, top management changes and AGMs. The following chapter describes the research methodology adopted in the study.

Chapter 4: Research Methodology

4.1 Introduction

This chapter describes the methodology and methods used in this study. The chapter clarifies the general methodology of research and the appropriateness of using a particular method to evaluate the objectives of the study. An explanation is provided for the selection of the data sample, including the selection criteria and secondary data collection method. A brief overview is also provided of the techniques used for secondary data analysis and the reasoning for using a particular form of methodology to analyse the data.

The chapter further outlines the common research problems that arise when dealing with emerging markets, such as the problem of thin trading. An event study using the Fama–French three-factor model was selected to calculate the expected returns while a GMM regression model was used to investigate whether the firm's characteristics influence the efficiency of the stock market around the selected company announcements.

The chapter is structured as follows: Section 4.2 presents the research design, which includes the research philosophy and the research approach. Section 4.3 provides the overview of the event study. Section 4.4 presents the research questions while Section 4.5 outlines the data and sample. This includes clarification of the data collection, sample selection criteria, event period and estimation period. Section 4.6 delineates the analysis methods, followed by Section 4.7, which provides the test statistics, including the parametric and non-parametric test statistics. Section 4.8 concludes the chapter.

4.2 Research Design

Wokler (2012) offers a philosophical foundation for research paradigms and methodologies, referring to Plato's pioneering philosophy of the world of forms. In Plato's view, we live in two types of world. That is, we live in a world of appearances—a world that is constantly changing and imperfect. Conversely, there exists a world of reality that is perfect, immutable and eternal, though we cannot see it. According to Plato, in the world of forms, we only see reflections of things and not the things

themselves. Wokler further explains that Aristotle's philosophy differs to that of Plato in that ideas co-exist with visible things, but also the idea of the thing is the essential nature of anything.

The ideology of representation is the set of beliefs and practices stemming from the idea that various entities underlie their representation. These entities include things, patterns, meanings, causes, facts, motives and objects. A researcher's job entails identifying and rationalising the links between real-world entities and theoretical understanding. According to Aquinas (2014), motion reduces things from potentiality to actuality. He believed that every change is caused by something else, arguing that knowledge is not dependent on the things that are known but on the nature of the knower. In his view, everything that happens is a result of cause and effect. Therefore, a researcher following Plato's philosophy is in constant pursuit of knowledge to better understand the world.

Before embarking on a research project, it is necessary to understand the different purposes of the research, along with the epistemological underpinnings of alternatives. This understanding not only provides the researcher with a range of choices for the research field but also creates an awareness of different perspectives. Thus, the investigative model is multifaceted, combining several domains of knowledge ranging from reflexivity, ontology, axiology and epistemology. Ontology entails the nature of reality, while reflectivity is a personal critique of the research process, reflecting on how to create meanings throughout the research process. Epistemology entails the theory of knowledge, encompassing the scope of knowledge, its validity and reliability as well as an understanding of the nature of knowledge. At the same time, axiology involves the ethical value system of a researcher. Therefore, the research methodology determines a general approach to studying research topics.

4.2.1 Research Philosophy: Positivism

Paradigms are a set of assumptions that guide researchers in making their inquiries in a given research field. According to Guba and Lincoln (1994) different assumptions about ontology limit epistemological assumptions, which consequently limit assumptions on research methodologies. Schwandt (2014, p. 225) argues that because paradigms are worldviews, differences occur in how specific or general the belief

system of researchers might be. Moreover, models embrace the thoughts, values, experiences, beliefs and ethics of the researcher.

Parker (1998) acknowledges that paradigms are epistemological stances; they channel a researcher's possible approach to a particular belief system. Thus, the approach adopted by the researcher points to a specialty area as far as the meaningfulness of the research questions and research methodology is concerned. In this regard, Parker (1998) introduces the notion of the paradigm shift, with the aim of studying changes in research fields. He notes that it is important to understand the different types of methods before discussing the aspect of the paradigm shift. In this way, the researcher can understand the influence of different research designs on the research process. Parker (1998) also describes realism as a paradigm that uses a quantitative research methodology and reinforces the principle that the external world is independent of perception, which he terms as deductive in nature.

Baran and Jones (2016, p. 43) discusses positivism, a paradigm introduced by the French philosopher, August Comte. Comte's view dwells on physical aspects that involve a prior statement of hypothesis, which is either accepted or rejected at the end of the research process. He argues that in the positivists' view, that is only one reality—the known and the knower—both of which are independent. In his view, the emphasis is on theory. Following this, the researcher is expected to remain unbiased and objective. This requires the researcher to use objective measurements and quantitative analysis to identify causal associations. Parker (1998, p. 86) terms this the 'correspondence theory of truth.' It implies that phenomena influence our perception, hence the correspondence between things and what they represent. In contrast, relativism is connected with context and culture. The methodology of the social sciences is bent on finding the nature of reality and truth regarding spiritual issues. The central aspect is how these issues are related to the actual research based on feasible viewpoints.

Baran and Jones (2016) contributes to the social constructivism paradigm, claiming that reality is a constantly changing realm, which is given meaning by people. In his argument, the interpretivist's view depends on the social context of language. In this regard, a qualitative methodology is required. The representations of the world are understood based on current linguistic representations. Moreover, the construction of

lexical representations occurs through subjects and objects; hence they are not objective reality. According to the researcher, there are multiple constructed realities; one cannot separate the knower from the known, and any inquiry is subjective and based on values. In this view, it is impossible to make a distinction between causes and effects. As a result, different interpretations are possible because circumstances are bound to change over the course of the research. It is advisable for researchers to adopt a critical approach to their survey and understanding of the world because knowledge is not synonymous with the perception of reality.

Baran and Jones (2016) includes pragmatism in the field of research. This approach combines both qualitative and quantitative research methodologies. In his opinion, these two are compatible and come into use at different stages of the research process. According to the pragmatic school of thought, the link between ideas and conceptions with human behaviour supersedes theories. Therefore, research based on pragmatism is motivated by anticipated outcomes and consequences. In this view, the logical choices about what the research will address and how it will be conducted are conditioned by what the researcher wishes to achieve. In this sense, the researcher has control over the direction of the research because they decide what is known and the consequences they desire. Similarly, Baran and Jones (2016) argues that pragmatism underlies practical as well as applied philosophy. Therefore, the individual researcher's culture and social settings influence all of these.

4.2.2 Research Approach: Deductive

In analysing the different research methodologies, Bryman (2006) maintains that it is crucial to understand a range of research approaches and distinguish between these in terms of their strengths and weaknesses. In his view, there are two primary research methods—either quantitative or qualitative. The quantitative approach is general while the qualitative approach is particular. Bryman (2006) further distinguishes between 'hard' data and 'rich' data. In the researcher's view, hard data refer to measurable data derived from simulated settings such as computer systems for analysis and prediction. Conversely, rich data stem from ordinary situations. With this understanding in mind, quantitative methods seek to determine causality between two variables. In contrast, qualitative methods search for an explanation of the contexts of social phenomena.

Baran and Jones (2016) is opposed to the combination of different paradigms in one research process. He asserts that the notion of compatibility of qualitative and quantitative methods is fallacious because it overlooks profound epistemological challenges. Consequently, Baran and Jones (2016) introduces the concept known as the 'incompatibility thesis'; this term means that it is not necessary to mix different models that feature in various methodologies. The incompatibility thesis allows for mutually exclusive, diverse research methods in a single study, with the researcher applying one or more methods to various questions but allowing the entire research to presume different epistemological archetypes. In his view, it is preferable to adopt 'paradigm purity' whereby a single model and method features in the research.

According to Baran and Jones (2016), paradigm purity reflects a dichotomy of worldviews and research methods. In this sense, the use of a varied approach is mutually exclusive. Generally, different paradigms have different ideas, and mixing them leads to a lack of correspondence. However, Bryman (2006) advocates mixing methods. In his view, different methods of research can bridge the existing gap between qualitative and quantitative approaches. The pragmatic paradigm emphasises 'collective meanings and co-operative action', meaning that 'lines of action' are linked with behaviours and beliefs that underlie such behaviours, as well as the consequences of these measures. Moreover, there is the interlinking of the methodology and epistemology as well as the methods and methodology.

Pragmatism emphasises shared interactions in research. It is thus possible to combine two compatible methodologies to execute multifaceted research issues dynamically. Moreover, pragmatism allows the researcher to understand the research problems holistically by capturing complex human phenomena efficiently. Conversely, Green (1995) casts doubt on the combination of different research methods in investigations. He coined the term 'triangulation design' and questions whether the use of different methods at the same time, and with equal importance, affects the use of the 'triangulation design' to increase the reliability of research. Green believes that it is possible to use his proposed design, which is based on a dominant approach. Further, Green (1995) proposes that the use of an experimental design such as a sequential design is applicable where the first phase is qualitative. In this regard, the qualitative phase is used to inform the quantitative part.

Noting that the use of many methods influences research studies by aligning them to either qualitative or quantitative approaches, most scholars feel that the pragmatic paradigm gives the researcher greater freedom to go back and forth between induction and deduction during an inquiry. This is known as the abductive approach because of its difficulty to operate in an independent theory without engaging the data-driven mode. Bryman (2006) highlights some of the benefits of using mixed methods and affirms that pragmatism gives a more complete overview of the phenomenon under investigation. He also notes that one method neutralises the weaknesses of the other while enhancing its strengths to provide stronger inferences. Moreover, mixed methods offer solutions to various exploratory queries; they are also useful for constructing and analysing propositions, selecting tools for gathering data, examining findings and elucidating clear study outcomes.

Bryman (2006) also points out the limitations of mixed methodologies. One of the notable limitations includes contradiction arising from the mixing of varied methods. This could occur in the collection and analysis of two types of data or be understood as an integration of two approaches. He cautions of problems in the relationship between the two elements involved in both methods. There is no clear distinction as to how the methods mix. While some methods conduct quantitative phases independently and later combine qualitative phases in the data section of the research study, others mix at the research objectives level; hence, every section features a mixture of both qualitative and quantitative methods. Like Baran and Jones (2016), Bryman (2006) states that the pragmatic design falls short of answering the question of to whom the research is practical and to what end. Morgan (1996) also claims that mixed methods emphasise the research question more than the method or paradigm. Researchers need to recognise the relevance and usefulness of two research designs that mutually support each other to address specific research questions during the research process.

4.3 Event Study

An event study is an empirical analysis that investigates the effect of a significant incentive occurrence or contingent event, such as the impact of some event on the valuation of a stock price. Event studies may reveal valuable information on how a given event is likely to influence stock price. Examples of events affecting the stock

price value include announcements such as quarterly or annual earnings, stock splits, dividends, changes to the board of directors/CEO or favourable news of a merger.

Event studies are commonly used in financial research to explore a variety of different scenarios. They include instruments that are well-suited to measuring the effect on security prices and trading activity of listed companies. Moreover, event studies help to shed light on capital markets efficiency by capturing the flow of information through stock prices. The scope of activities for event studies is very broad. Fama (1998) presents the significant body of empirical research on such studies, which examine whether stock returns react effectively to event information. Announcements such as earnings, share repurchases, stock splits, dividends and mergers as well as IPOs are included in these events. Fama (1998) finds that obvious information underreaction is just as prevalent as overreaction, and the continuation of post-event of abnormal returns pre-event is as common as post-event reversals.

An event study, also known as an event history analysis, relies on statistical methods to use the dependent variable ‘time’ and then checks for variables that describe an event’s length (or the time before an event occurs). An event study represents an efficient method of investigating event information content, as viewed by market participants. It is also used to shed light on market efficiency (Kliger & Gurevich, 2014, p. 19). In common event studies, the underlying concept is to monitor the stock market prices whose listed firms participated in the event under analysis. This information is then used to identify market-related reactions. Prices are tracked over a period that is theoretically important to the estimation of the impact of the event on the stocks traded prices; this period is referred to as the ‘event period’.

A special corporate event study examines any changes in stock prices and how these contribute to a particular event. The effect of an event on an entire industry, sector or market can also be evaluated using an event study as a macroeconomic method. The effect of the changes in supply and demand is analysed through a market analysis. Event studies at a micro or macro level attempt to determine whether or not the financial performance of a corporation or economy is influenced by a specific event.

The method of an event study is a valuable and effective technique that has helped financial analysts better understand the effect of changes resulting from various

company announcements. In other words, it is the analysis of a given event's effects. This method enables researchers to assess whether or not there is an abnormal return change, over and above the change associated with the event that was otherwise expected; that is, whether investors assume in the stock market that the event would make a major difference to the company's performance. Investigating the abnormal returns allows researchers to assess whether or not the event is beneficial or useful to the corporation and whether it serves the shareholders' interests, depending on the magnitude and overall importance of the event.

Theoretically, all available information and assumptions about the future are considered by the stock price. Thus, the stock price corresponds to its actual price, plus the estimated amount of its expected dividend. According to this theory, the impact of a particular event on a firm may be analysed by examining the related effects on the firm's stock. The most popular analysis in an event study is the market model. This approach explores the actual returns of the baseline market and monitors the relationship between the stock price of a firm and the baseline. This model monitors the abnormal returns on the same day of an occurrence; thus, it shows the difference, which is the actual impact on the company, between stock returns and the average returns.

The market model can be used to examine the impact of an event on stock returns over time. An analysis of an event may expose more significant trends or patterns in the market. If the same model analyses several events of the same kind, it can predict how stock prices normally react to a particular event. From this, both participants in the market would understand the costs of a negative event, which can provide them with sufficient guidance. Alternatively, the positive returns from performing such announcement actions can be more easily interpreted by the market participants.

4.4 Research Questions

To achieve the objectives of this study, as stated in Chapter 1, the following three research questions are formulated:

1. How do announcements of annual earnings, top management changes and AGMs by Saudi Arabian listed companies influence stock returns?

2. Does the Saudi Arabian stock market respond efficiently to corporate announcements of annual earnings, top management changes and AGMs?
3. Are different firm characteristics (size, government ownership and sector) determinants of stock price reactions to announcements of annual earnings, top management changes and AGMs in the Saudi stock market?

4.5 Data and Sample

4.5.1 Secondary Data Collection

Secondary data from TASI were used in this study in the form of daily stock prices and companies' public announcement dates over a five-year period from 2014 to 2018. This period was chosen mainly because it represents the latest data following the introduction of the financial reforms and programs as desired in the Saudi government's Vision 2030. It also had to reflect the entry of foreign investors participating in the market, and the updated corporate governance regulations they had to follow. This was used to determine the sensitivity of stock prices to the information content of the public announcements of annual earnings, top management changes and AGMs. Daily data were selected for the following reasons: they are freely available, an event study is generally called in a number of days and daily data are more efficient than weekly or monthly data. The population of the study was particularly heterogeneous. Therefore, the sample for this study consisted of 171 companies that were listed, continuously traded and issued announcements on the TASI over a five-year period, from 2014 to 2018 including both years (see Table 4.1). The scope of company availability influenced the sample selection because the companies considered in the sample had to be listed, traded and announce annual earnings, top management changes and AGMs during the sample period. The sample included companies from various industries including banks, capital goods, commercial and professional services, consumer durables and apparel, consumer services, diversified financials, energy, food and beverage, food and staples retailing, health care equipment and services, insurance, materials, media and entertainment, pharmaceuticals, biotechnology and life sciences, real estate investment trusts (REIT), real estate management and development, retailing, telecommunication services, transportation and utilities sectors. For the GMM regression analysis of abnormal returns, 10 sectors have been selected according to their market capitalisation, availability of company

announcements, number of companies, number and value of shares traded, and number of transactions, namely, banks, diversified financials, energy, food and beverages, insurance, materials, real estate management and development, retailing, telecommunication services and utilities.

Table 4.1: Sample Selection

Description	Total
Number of listed companies on the Saudi stock market[16]	188
Less: Companies without sufficient data	(14)
Less: De-listed or suspended companies	(3)
Companies that meet the data selection criteria over the five-year period	171

Figure 4.1 presents the number of listed companies included in the final sample of 171 on the Saudi stock market across various industries, with a total of 696 annual earnings announcements, 450 announcements of top management changes and 489 AGM announcements during the period 2014 to 2018 (as shown in Table 4.2). In terms of the companies listed, the sample covered approximately 91% of the total market. In relation to the companies that were not included in the sample, these were mainly companies that listed in the previous year and the majority of these newly listed companies had not declared one of the selected announcements at the time when the samples were collected. All in all, it appears that the findings based on the selected samples seem reasonably capable of reflecting the impact of the information content of the three selected announcements on share prices in the Saudi stock market.

[16] As at the end of 31 December 2018.

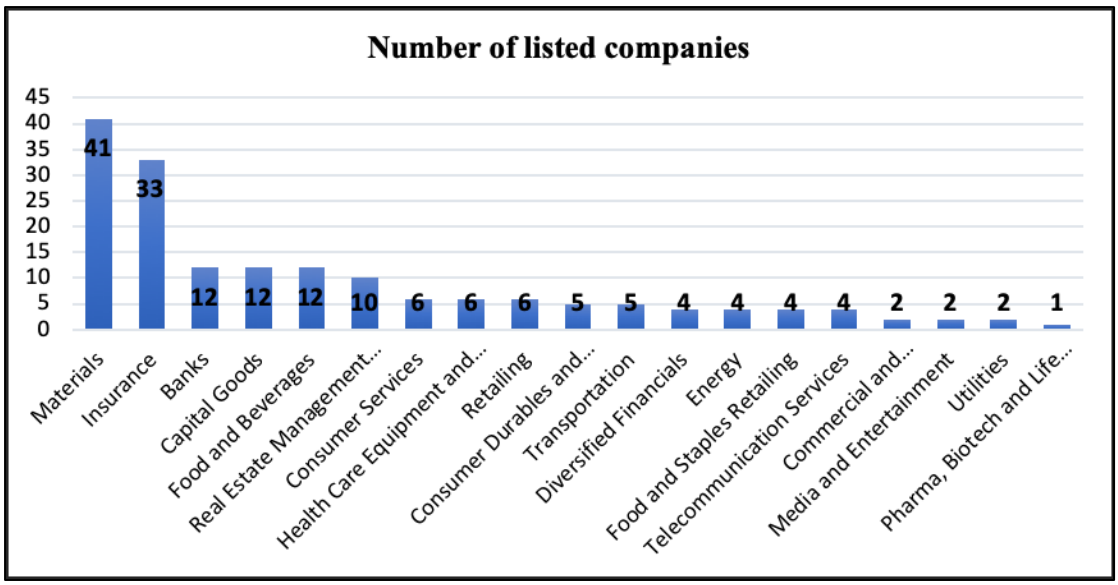

Figure 4.1: Number of Listed Companies Included in the Final Sample by Sector

Daily closing prices were obtained from Thomson Reuters DataStream for each share while the data for each company's public announcements were collected from the Bloomberg database and the official site of the Saudi Stock Exchange (www.tadawul.com.sa). Data were available from the section covering company announcements with details of the date and time being collected manually from the Tadawul website. Data for the sector of a company were obtained from the official site of the Saudi Stock Exchange.

The size of the company shows a company's scale. In empirical research of corporate finance, various methods are used to calculate the size of the company, and the most popular three methods measures of firm size comprising total assets, revenues and equity market value.[17] Moreover, a company size method or proxies only test certain areas of corporate finance implication. In particular, market capitalisation typically includes firm prospects for growth and the state of the equity market, reflecting only the equity ownership; total assets are suitable for calculating firm resources but not the performance and risk of a firm, while total revenue is an adequate measure for product market and non-progressive implications (Dang, Li, & Yang, 2018). Accordingly, the

[17] The consequences and correlates of company size studies can be tracked to Coase (1937), a seminal paper on how company boundaries influence resource allocation and what defines company boundaries.

natural logarithm of the market capitalisation method was used in this study to quantify firm size.

Further, firm size was categorised into two levels—large and small. This was measured as market capitalisation, which is available from the Tadawul website. Market capitalisation indicates a corporation's value by multiplying the stock price by the outstanding stock numbers. Large-capitalisation stocks are usually sector and industry leaders, representing well-known companies. The rest of the companies were classified as small. Moreover, government ownership was categorised into two levels—companies with and without government ownership of shares. Companies with government ownership of their shares are usually sector and industry leaders, representing well-established companies. The percentage of the company's shares held by the government is available from the Tadawul website.

Two types of annual earnings announcements were investigated in the study, namely, good news and bad news. This is based on total net income, derived from the firms' financial reports. The Tadawul stock market listing rules require submission of two annual financial reports by companies—one in Arabic and one in English. For this study, only the English versions are considered. This is because the firms' financial reports must be provided within three months after the end of their financial year according to the Gregorian calendar and not the Arabic (*hijri*) calendar.

Four types of the top management change announcements were investigated, namely, forced resignations, age-related retirements, voluntary departures and new appointments. Only one type of AGM was considered, namely, the ordinary general meeting. The others were excluded since the meeting is held for a specific reason other than the ordinary general meeting (such as increasing or decreasing the capital market or announcing the results of the previous AGM, among others).

4.5.2 Sample Selection Criteria

The sample was drawn from all listed securities on the Saudi Arabian stock exchange that announced annual earnings, top management changes and AGMs during the period 2014 to 2018, including both years. For companies to be considered for the sample, the following criteria had to be met:

1. Companies must be listed on the Saudi stock market throughout the study period of 2014–2018.
2. Shares of the company must be actively traded on the Saudi stock market in the form of daily share prices, and they must be available for the event period (-15, +15), (15 days before and after the announcement is made) and for the estimation period.
3. The company must announce annual earnings, top management changes or AGMs during the study period on the Saudi stock market.
4. The date of the announcements of annual earnings, top management changes and AGMs must be available.
5. The company must have daily trading data for 2013, to collect the estimation period.
6. In the 15 days surrounding the announcements of earnings, top management changes and AGMs, companies must not have made any other major announcements (e.g. dividend announcements, mergers and major agreements announcements, stock split announcements or capital increase announcements).
7. The announcements of annual earnings, top management changes and AGMs must be published on the TASI website within market trading hours and not after the close of the day.
8. For the size of the firm, the market capitalisation must be available to categorise the company according to large or small size.
9. For government ownership of the firm, the percentage of shares held by the government of a firm must be available.

This procedure yielded a sample of 171 listed companies (see Appendix 4.1). Moreover, these criteria yielded a final sample of 1,635 announcements. Of these, 696 were earnings announcements (567 good news announcements and 129 bad news announcements), 450 were top management change announcements (44 forced resignations, 5 were age-related retirements, 129 were voluntary departures and 272 were new appointments), and 489 were AGM announcements. These figures are shown in Table 4.2.

Table 4.2: Number of Announcements by Sector on the Saudi Stock Market

Announcement Type	Annual Earnings		Top Management Changes				AGMs
Sectors	Good News	Bad News	Forced Resignation[18]	Age-related Retirement	Voluntary Departure	New Appointment	Ordinary General Meeting
Banks	57	0	1	1	5	17	21
Capital Goods	42	11	3	0	7	16	40
Commercial and Professional Services	10	0	1	0	2	4	5
Consumer Durables and Apparel	16	5	0	0	8	7	12
Consumer Services	29	0	2	0	0	8	12
Diversified Financials	16	0	0	0	3	7	9
Energy	16	2	0	0	3	11	13
Food and Beverages	34	20	8	3	15	22	36
Food and Staples Retailing	12	4	0	0	0	5	14
Health Care Equipment and Services	26	0	1	0	3	8	17
Insurance	94	50	5	0	26	60	94
Materials	123	21	7	1	27	54	119
Media and Entertainment	5	4	1	0	4	4	7
Pharma, Biotech and Life Science	5	0	1	0	0	1	3
Real Estate Management and Development	24	5	1	0	12	20	29
Retailing	21	1	2	0	4	9	21
Telecommunication Services	10	6	2	0	4	9	12
Transportation	17	0	5	0	4	6	16
Utilities	10	0	4	0	2	4	9
Total	567	129	44	5	129	272	489
	696		450				489

[18] The sample contained only announcements in which the words 'dismissed', 'fired' or 'asked for resignation' appeared. Therefore, the sample does not include forced resignations in which a member of the board of directors or top executive is allowed to 'save face' through resignation or retirement.

4.5.3 Event Window (Test Period)

The first step in the process of conducting an event study is to determine the appropriate event window when calculating the abnormal returns (MacKinlay, 1997). Jeng (2015, pp. 83–84) states that various empirical studies of daily returns use different numbers of days before the announcement is made and a few days after the announcement is made as event windows when estimating abnormal returns. MacKinlay (1997) and Nobanee, Haddad, AlShattarat and AlShattarat (2009) claim that the length of the event period is subjective because it can differ depending on the market and the event being examined. Moreover, they agree that researchers would have to allow the market some time to respond to the new information.

Kothari and Warner (2007) indicate that the consequences of short-horizon methods are well specified, and there is more confidence in these than there is in most of the long-horizon methods. They add that the short-horizon event study methodology is comparatively straightforward and trouble-free (Kothari & Warner, 2007). It also represents reliable, attainable evidence of efficiency (Fama, 1991). According to Fama et al. (1969), the impact of all new information on a semi-strong form of economic value is entirely reflected in the stock price within several days.

For that reason, the current research adopted the methodology proposed by MacKinlay (1997) by dividing the event window into a number of smaller periods, as in Figure 4.2. The study event window for analysis purposes is defined as a 31-day event window (-15 to +15) around the events under investigation; i.e. the announcements of annual earnings, top management changes and AGMs. It is 15 days before the public announcement date, the announcement date ($t = 0$), and 15 days after the public announcement date (denoted as t=-15…., +15), which is sufficient to test for abnormal returns and gives more reliable findings (see Figure 4.2).

Usually, rumours about the three selected announcements in this study begin to spread prior to the announcement day. Therefore, the prices are likely to respond to these rumours before the event date. This led to the start of the event window being set 15 days before the events under investigation. It is vital that the event window start before the date of the event because it then gives a clear indication of whether the stock market

has suffered from information leakages prior to the formal announcements. This also contributes to the understanding of regulatory and supervisory efficiency.

The Saudi Arabian CMA requires all listed firms to publish their public announcements on the TASI website within the trading hours of the market, not after the close of the day. Therefore, 'day 0' is labelled as the first day in which the announcement is made. Days +1 to +15 are denoted as the post-event period whereas days -15 to -1 are denoted as the pre-event period. The study investigates the effects of the information content of the announcements of annual earnings, top management changes and AGMs for the period from 1 January 2014 through to 31 December 2018.

4.5.4 Estimation Period

The estimation period was used to estimate the parameters for the Fama–French three-factor model, which allows the predicted returns to be calculated within the event window. The methodology for the event study selected an estimated period as a number of days before the event period. This is because the expected return during the estimated period was based on the assumption that new information is released independently. The estimated period was needed when calculating abnormal returns (ARs) using statistical and economic models; when calculating ARs and cumulative ARs (CARs) over the event window and also checking whether the ARs and CARs varied from zero for the pre- and post-announcement period.

The estimation period for this study was determined as 100 daily trading observations from day -16 to -116 before the announcement day, in accordance with the approach proposed by Suwanna (2012) (see Figure 4.2). Therefore, the estimation window allows analysis of the impact of the information content of the announcements of annual earnings, top management changes and AGMs on stock price reactions without contamination of events.

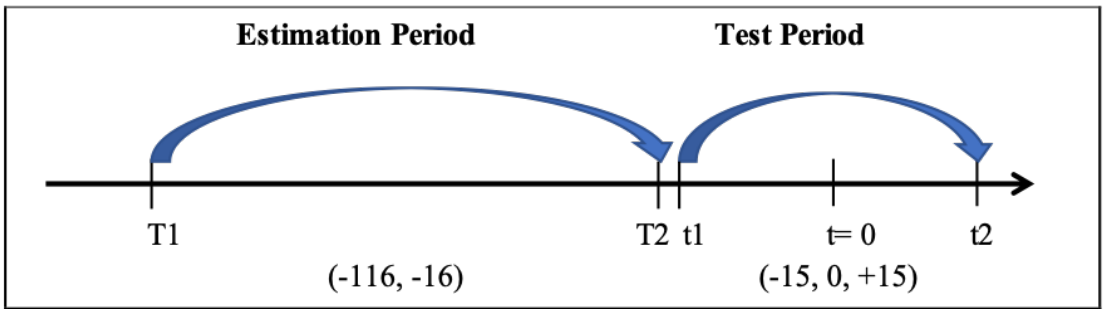

Figure 4.2: Test Period and Estimation Period

4.6 Data Analysis Methods

4.6.1 Event Study Approach

As explained in the previous chapter, an event study is a valuable and powerful research tool that helps researchers to determine whether there are any relationships between event fluctuations in stock prices by monitoring changes in stock prices and the emergence of abnormal returns (Aharony & Swary, 1980; Angelovska, 2017; Laidroo, 2008; Louhichi, 2008). This study used an event study research design. This method holds that because investors are rational, they will react to any announcements; this will, in turn, result in changes in the financial market, reflected directly in security prices. To examine the magnitude of this impact, analysts can simply assess the variations in the price of a security a few days before and after an event. The original event study model was introduced and developed by Dolley (1933, 1939). After a slight modification by Ball and Brown (1968) and Fama et al. (1969), the model format has remained unchanged. Therefore, the current model is based on the table layout and classical stock split event established by Fama et al. (1969). Further, this model focuses on the sample securities' mean and the cumulative return during an event.

The underlying concept in the stock market is that investors are rational and they consider any new information that becomes available. Therefore, anomalies in the market only occur for a short period because investors notice their presence and respond appropriately by either buying or selling stocks (Angelovska, 2017). This view is supported by Shiller (2003), who asserts that when people who are irrationally optimistic buy stocks, smart people sell them; when unreasonably pessimistic people sell, smart people buy. This tendency has the overall effect of eliminating irrational

traders and re-balancing the market, as postulated in Fama's (1965) EMH. Nonetheless, Angelovska (2017) highlights that this system does not work perfectly in the real world, as proven by many asset price bubbles.

The event study methodology and event parameter approach were adopted in this study to identify abnormal performance in the stock market when companies announce their annual earnings, top management changes and AGMs. The event study methodology helped to examine changes in the price of stocks after an announcement. Given that this study started by examining the stock prices a few days before the announcement and ended a few days after the event, it could identify whether there were abnormal returns resulting from the anticipated event.

As indicated above, this research is based on Fama et al.'s (1969) study, examining whether there are abnormal returns on each day during the event window. The difference in a realised market return to the benchmark return is the abnormal return. The most popular approaches used in the event study methodology in deriving abnormal returns are mean adjusted returns, the CAPM benchmark, market-adjusted returns, the market model benchmark and the Fama–French three-factor model.

Most studies of the semi-strong form of market efficiency (Ahmed et al., 2009; Cready & Gurun, 2010; Olibe, 2002; Setiawan, 2008; Shalaei & Hashemi, 2017) use either all of the above approaches or any two of the approaches to obtain details for any abnormal returns. According to Brown and Warner (1985) and Dimson and Marsh (1986), all of the above models perform equally well in detecting abnormal returns for both daily and monthly data, and there are no additional benefits to be derived from adopting more complicated approaches. The market model technique offers more powerful statistical tests to deduce abnormal returns than alternative models (Strong, 1992). However, the Fama–French three-factor model is used in this study to identify abnormal returns.

To sum up, an event study methodology is used in this study to examine how the Saudi stock market responds to announcements of annual earnings, top management changes and AGMs to determine whether these announcements convey price-sensitive information to the market and to examine the stock market efficiency. In particular, the study checks the null hypothesis that the information content of the three selected

announcements does not produce statistically significant abnormal returns around the announcement date (event period). In other words, daily abnormal return is equal to zero, which there is no systematic impact on the corresponding share prices in the three selected announcements. The parametric t-test and non-parametric Corrado rank test are used to test the hypotheses, whereby the t-statistics are determined using the GMM standard deviation. The Fama–French (1992, 1993, 1996) three-factor model is used in the current study to calculate the abnormal returns. The study aims are achieved by using data from 1 January 2014 to 31 December 2018, for all listed companies on the Saudi stock market that meet the data selection criteria.

4.6.2 Thin Trading Problem

The Tadawul is an emerging stock market. One of the characteristics of emerging stock markets is that they are thinly traded (Abraham et al., 2002; Alam, Alam, & Uddin, 2007). A thin trading market is described as having a low number of bids and asks, and this causes bias in the estimation of beta—an important component of event studies. These biases in the estimation of beta could result in misleading abnormal returns, producing inaccurate test statistics (Strong, 1992). Price adjustments and trading delays are some of the biases identified by Dimson (1979), Fowler and Rorke (1983) and Scholes and Williams (1977). Scholes and Williams (1977) developed techniques that could help to produce beta estimates to reduce bias to low levels where estimation could work (McInish & Wood, 1986). The non-synchronous trading bias estimator method of Scholes and Williams (1977) (SW estimator) implies a non-synchronous adjustment, requiring the calculation of lagged, synchronous and leading market returns coefficients to present an unbiased systematic estimate of the stock risk. Three separate regressions of stock returns on lagged, synchronous and leading market returns estimate these coefficients (Katscher, MacCawley, & Reyes, 2020). The method of the SW estimator is computed as the sum of the coefficients of the beta emanating from these multiplied stock returns regressions, split by one plus two times the market returns first-order autocorrelation coefficient, $\hat{\rho}_m$, as presented in Equation (1). The SW estimator reduces biased and unreliable beta estimates since it is comparable to the estimator of instrumental variable (IV), which uses the changing amount of lagged, synchronous and leading market returns (Katscher et al., 2020). These techniques are

important because they improve the level of decision-making, particularly in the study of stock markets. In this study, the Scholes and Williams method (1977) was used to address the issue of a thin trading market.

As the problem of thin trading is well-known in emerging stock markets, Scholes and Williams' approach (1977) was used to estimate β and α. The beta was calculated as follows:

$$\hat{\beta}_i = \frac{\hat{\beta}_{-1} + \hat{\beta}_0 + \hat{\beta}_{+1}}{1 + 2\,\hat{\rho}_m} \quad (1)$$

where:

$\hat{\beta}_i$ = *the parameter of the market model based on Scholes and Williams (1977) methods of stock i;*

$\hat{\beta}_{-1}$ = *the OLS regression beta with the daily stock return of the market index lagged one period;*

$\hat{\beta}_0$ = *the OLS regression beta with the market index contemporaneous daily stock return;*

$\hat{\beta}_{+1}$ = *the OLS regression beta with the daily stock return of the market index leading one period; and*

$\hat{\rho}_m$ = *the first-order autocorrelation coefficient estimation for the market index.*

$$\hat{a}_i = \frac{1}{T-2} + \sum_{T=2}^{T-1} R_{i,t} - \hat{\beta}_i \frac{1}{T-2} \sum_{T=2}^{T-1} R_{m,t} \quad (2)$$

where:

$\hat{a}_i$ = *the parameter of the market model based on Scholes and Williams (1977) methods of stock i;*

$R_{i,t}$ = *the daily stock return of stock i on day t;*

$R_{m,t}$ = *the return of the market index on day t; and*

T = *the number of days in the estimation period.*

4.6.3 Determination of Abnormal Returns

The Fama–French (1992, 1993, 1996) the three-factor model was used to estimate the abnormal returns. By definition, abnormal returns are actually residual in the

Fama–French three-factor model, which is briefly explained in the following sub-section.

4.6.3.1 Fama–French Three-Factor Model

The Fama–French (1992, 1993, 1996) three-factor model, an asset pricing model, was employed in this study to better estimate cross-sectional expected returns and to obtain abnormal returns. The model was developed by Professors Eugene Fama and Kenneth French in response to inadequate CAPM performance in explaining realised returns. It is a widely used approach that has been tested in event studies to detect abnormal returns (Fama & French, 1996; Fazal & Shafiq, 2019; Gaunt, 2004; Raghuram, 2017; Sehgal & Balakrishnan, 2013; Shalaei & Hashemi, 2017; Shiddiq, Hasnawati, & Huzaimah, 2020).

According to Fama and French (1993, 1996), previous research indicates that average stock returns are related to a company's factors such as book-to-market equity, size and long- and short-term past returns. Because the CAPM does not explain these patterns in average stock returns, they are called CAPM anomalies. The three-factor model captures these anomalies. It assumes that the key drivers of a company's returns are captured by three factors, namely, market risk premium, size and book-to-market ratio. Fama and French (1993) state that the three-factor model includes a CAPM-based market factor and two additional explanatory variables of risk, namely, a company size factor (measured by market capitalisation) and book-to-market value of equity factor (measured by a firm's book value of equity (BE) to its market value of equity ratio (ME and BE/ME). The three-factor model offers significantly more power for clarification than the one-factor CAPM (Gaunt, 2004; Raghuram, 2017).

Fama and French conceptualised the three-factor model in the 1970s when researchers began documenting 'anomalies' within the CAPM, namely, patterns in average stock returns that the CAPM could not explain (Davis, Fama, & French, 2000; Fama & French, 1996).[19] Two risk factors that into the CAPM have been adapted by the three-factor model of Fama and French to help identify the fluctuations of the stock return

[19] The CAPM of Lintner (1965) and Sharpe (1964) provides a single-period simple linear relationship between the expected stock return and stock market risks.

and resolve most of the CAPM's anomalies. Fama and French (1996) also claim that the three-factor model's empirical successes indicates that it is an equilibrium asset pricing model, Merton's (1973) three-factor version intertemporal CAPM (ICAPM) or the arbitrage pricing theory (APT) of Ross (1976).

Basu (1977) reported one of the first anomalies—the price/earnings ratio (P/E) effect. Basu provided evidence of significantly higher returns for stocks with high P/E ratios than for stocks that have low P/E ratios. The size effect was discussed by Banz (1981) and Reinganum (1981) and resulted in average returns for small-capitalisation stocks being far above the average returns of large-capitalisation stocks. The average returns on the small-capitalisation stocks were considerably higher than the return estimated by the CAPM.

Moreover, average returns on the US stock market were shown to be positively related to the book value of stocks divided by their market value ratio, which was not explained by the CAPM (Rosenberg, Reid, & Lanstein, 1985; Stattman, 1980). Similarly, in describing stock returns, many other variables were demonstrated to have a significant effect over and above the CAPM market factor. De Bondt and Thaler (1985) captured the long-term return reversal and found that stocks with low long-term historical returns were usually more returnable in the future and vice versa.

The momentum effect was further explained by Jegadeesh and Titman (1993); well-performing stocks in the previous 3 to 12 months went on to perform well over the following few months whereas stocks that did not perform well in previous months extended to underperform over the next several months. Notably, the CAPM is unable to explain this momentum effect.

The Fama–French three-factor model has also revealed significant size effects and significant positive effects of value in emerging and developing stock markets. Fama and French (1995) examined whether stock price behaviour is consistent with earnings behaviour in relation to size and book-to-market equity (BE/ME) by testing their model on the AMEX, NASDAQ and NYSE stock markets in the US. Their findings revealed that in accordance with rational pricing, a high BE/ME signals persistent low earnings while a low BE/ME signals persistent high earnings. Fama and French (1995) confirm

that the factors in returns are explained by the market and size factors in earnings but no relation can be identified between book-to-market equity factors in earnings and returns.

Meanwhile, MacKinlay (1995), Daniel and Titman (1997) and La Porta, Lakonishok, Shleifer and Vishny (1997) all observed that risk-based explications provide no credible justification for the return behaviour observed (see Bauman, Conover, & Miller, 2001; Chopra, Lakonishok, & Ritter, 1992). Moreover, Daniel and Titman (1997) examined the validity of the Fama–French three-factor model from 1963 to 1993 on the AMEX, NASDAQ and NYSE stock markets. The findings did not support the model, and the authors concluded that no relationship exists between expected returns and the risk factors of Fama and French.

Extending the study of Daniel and Titman (1997), Davis et al. (2000) tested the Fama–French three-factor asset pricing model over the period 1929–1997. They produced results that were contradictory to those of Daniel and Titman (1997), confirming the validity of the three-factor model. Moreover, Fama and French (1996) claimed that most of the anomalies of the CAPM are linked and identified by using their three-factor model. The authors demonstrate that the three-factor model captures the strong patterns in returns on portfolios generated according to P/E, C/P and sales growth.

Connor and Sehgal (2001) investigated the three-factor model using a sample of 364 listed companies on the Indian stock market by determining whether these three factors (market, size and book-to-market value) are pervasive in the cross-section of random stock returns. Their results are consistent with Fama and French's model because they confirmed the Indian stock market size and value factors. Similarly, Eraslan (2013) examined the validity of the three-factor model on the Istanbul Stock Exchange (ISE) using data for the period 2003 to 2010. The findings conformed the validity of the model during the study period. Eraslan (2013) concluded that the Fama–French model has the power to explain excess portfolio return variations on the ISE.

Fazal and Shafiq (2019) studied the validity of the three-factor model for the period of July 2012 to June 2018 using a sample of 98 listed companies on the Pakistan Stock

Exchange. They found that the model is valid and better able to explain the variability in stock returns. Moreover, Shiddiq et al. (2020) investigated the impact of the three variables of the Fama–French model (market risk, SMB and HML) in companies listed on the Indonesia Stock Exchange. The results indicated a significant positive impact of the three-factor model's variables on stock portfolios excess returns on the stock market.

Fama and French (1996) describe all of the pattern anomalies except the momentum effect with their three-factor model. Researchers and practitioners have shown interest in the size and value premium in the three-factor model. For company evaluation, premium size data are used. Fama and French (1996, p. 55) state that:

> The model says that the expected return on a portfolio in excess of the risk-free rate [$E(R_i) - R_f$] is explained by the sensitivity of its return to three factors:
>
> (i) The excess return on a broad market portfolio R_m less the risk-free rate R_f ($R_M - R_f$),
> (ii) The difference between the return on a portfolio of small stocks and the return on a portfolio of large stocks (SMB, small minus big); and,
> (iii) The difference between the return on a portfolio of high-book-to-market stocks and the return on a portfolio of low-book-to-market stocks (HML, high minus low).

The first step in the study is to find daily share returns. The actual return is calculated by either logarithmic returns or discrete returns[20] (Strong, 1992). Strong (1992, p. 535) states that logarithmic returns are favoured for theoretical as well as empirical reasons:

> Theoretically, logarithmic returns are analytically more tractable when linking together sub-period returns to form returns over longer intervals (simply add up the sub-period returns). Empirically, logarithmic returns are more likely to be normally distributed and so conform to the assumptions of standard statistical techniques.

[20] The discrete approach of stock return is calculated as $R_{i,t} = \frac{(P_{i,t} - P_{i,t-1})}{P_{i,t-1}}$.

Moreover, log returns are preferred because they factor out any bias from normal returns caused by rapid shifts in the price because of market responses. The use of log returns also helps to give a reasonable risk estimate based on the additional kurtosis (Fergusson & Platen, 2006). Kliger and Gurevich (2014, p. 21) state that logarithmic returns provide a mathematically useful compounding basis for estimations and block modelled stock prices from becoming negative. The analysis takes the logarithmic returns to minimise the difficulties associated with using daily data to reduce the non-normality in the data (Strong, 1992). In this respect, the log returns were evaluated, as shown in Equation 3. These log returns were expressed as the logarithm of the price return divided by the price return of the previous day.

The original data were in the form of adjusted closing share prices. The logarithmic returns of security were evaluated as follows:

$$R_{i,t} = \mathrm{L}n\left(\frac{P_{i,t}}{\mathrm{P}_{i,t-1}}\right) \tag{3}$$

where:

Ln = *the natural log;*

$P_{i,t}$ = *the daily closing price of stock i on day t;*

$P_{i,t} - 1$ = *the daily closing price of stock i on the previous day.*

The return on a stock is defined by the three-factor model of Fama and French (1993) and a risk-free rate, as shown in Equation (4). These three factors are the excess return of the market, the small stocks average return versus big stock portfolios (SMB) and the value average high minus low (HML) minus the portfolio of growth. The Fama–French three-factor model was chosen because the empirical findings indicated that market return and book-to-market ratio were accountable for most of the cross-section of average returns on the stock market.

However, the actual stock returns of firm *i* on day *t* were calculated using the following equation:

$$R_{i,t} - R_{f,t} = \alpha_i + \beta_i\left(R_{M,t} - R_{f,t}\right) + \mathrm{s}_i SMB + \mathrm{h}_i HML + e_{i,t} \tag{4}$$

where:

R_{it} = *the daily actual return of stock i on day t;*

R_{ft} = *the risk-free interest rate;*

α_i = *the intercept term of stock i;*

β_i, s_i *and* h_i = *the regression coefficients corresponding to market of stock i ($R_{m,t}$-$R_{f,t}$), SMB and HML respectively;*

$(R_M - R_f)$ = *the excess return of the market;*

(SMB) = *the expected difference between returns of small and large companies (small minus big SMB);*

(HML) = *the expected difference in returns between companies with high and low B/M ratio (high minus low ratio HML) (book-to-market portfolios); and*

$\varepsilon_{i,t}$ = *the error term of stock i at time t.*

The regression coefficients α_i, β_i, s_i *and* h_i for each company event were determined by regressing $(R_{it}-R_{ft})$ on $(R_M - R_f), (SMB)$ *and* (HML) in the period.

Having determined the regression coefficients α_i, β_i, s_i and h_i for each company event and using Equation (4), to determine the abnormal returns, the expected returns (Equation 4) were subtracted from the actual returns (Equation 3), as shown in Equation (5). For each stock in the sample on a related announcement date, this process was repeated.

Unexpected returns were determined by the difference in the actual and expected returns. Therefore, from that estimation, $AR_{i,t}$, the daily abnormal return of security *i* on event day *t*, was calculated using the following equation:

$$AR_{i,t} = R_{i,t} - \hat{R}_{i,t}$$

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i(R_{M,t} - R_{f,t}) + s_i SMB + h_i HML + e_{i,t}) \quad (5)$$

where:

$AR_{i,t}$ = *the daily abnormal return of stock i surrounding the announcement date;*

$R_{i,t}$ = *the daily actual return of stock i surrounding the announcement date*;

α_i = *the intercept term of stock i*;

β_i = *the systematic risk of stock i*; and

$R_{m,t}$ = *the daily market index return on day t.*

The mean $\overline{AR_t}$ on day *t* (observations) is the total of the abnormal returns on day *t* divided by the number of observations (the number of stocks in the sample on day *t*) (Angelovska, 2017), which can be measured as follows:

$$\overline{AR_t} = \frac{1}{N} \sum_{i=1}^{N} AR_{i,t} \quad (6)$$

where:

$\overline{AR_t}$ = *the mean abnormal return on day t*; and

N = *the number of stocks in the sample with abnormal returns during day t.*

Next, firm-specific cumulative ARs (CARs) and overall cumulative AARs (CAARs) were calculated to define the magnitude of ARs and AARs over the whole event period, respectively. The CARs, which measure the cumulative return of investors over a period starting 15 days before and after the announcement day, were measured using the following equations:

$$CAR_{i,t} = \sum_{t=1}^{T} AR_{i,t} \quad (7)$$

$$CAR_{i,t} = CAR_{i,t-1} + AR_{i,t} \quad (7\text{-}1)$$

where:

$CAR_{i,t}$ = *the cumulative AR of firm i at time t;*

$CAR_{i,t-1}$ = *the cumulative AR of firm i at time t-1;*

$AR_{i,t}$ = *the abnormal return of firm i at time t; and*

T = *denotes day -15 through to a day +15.*

The daily cross-sectional average abnormal returns (AAR_t) on day *t* were measured by dividing the daily abnormal returns $AR_{i,t}$ for each security *i* across firms on day *t* by the total number of observations (N) on day *t* using the following equation:

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{i,t} \quad (8)$$

where:

AAR_t = *the average abnormal returns on day t;*

$AR_{i,t}$ = *the abnormal returns of firm i on day t;*

N = *the total number of observations on each day; and*

$\sum_{i=1}^{N} AR_{i,t}$ = *the sum of the abnormal returns of all firms.*

To determine the magnitude of AARs over the entire event period, we calculated the firm-specific cumulative AARs (CAARs). The CAARs were the total of all AARs over a small-time event period. Calculating total CAARs typically happens over a short time window, often just days. This short time frame is because evidence shows that compounding daily AARs can establish bias in the outcomes. The CAARs were used to assess the impact of the company public announcements and other activities affecting the stock prices. Moreover, when determining the accuracy of the asset pricing model, CAARs are helpful in predicting the expected performance. The CAARs for *t* days were obtained by summing the AAR_t over different time intervals using the following equation:

$$CAAR_t = \sum_{t=1}^{T} AAR_t \quad (9)$$

where:

$CAAR_t$ = *the cumulative average abnormal returns for t days over an event period;*

AAR_t = *the average abnormal returns on day t; and*

T = *the number of event days prior to day t (T=+15, t=-15).*

$$CAAR_{i,t} = CAAR_{i,t-1} + AAR_{i,t} \quad (9\text{-}1)$$

where:

$CAAR_{i,t}$ = *the cumulative average abnormal returns of firm i at time t;*

$CAAR_{i,t-1}$ = *the cumulative average abnormal returns of firm i at time t-1; and*

$AAR_{i,t}$ = *the average abnormal return of firm i at time t.*

4.6.4 Generalized Method of Moment (GMM)

One of the study objectives was to investigate whether or not the different firm factors (size, government ownership and sector) are determinants of stock return reactions to the announcements of annual earnings, top management changes and AGMs. The presence of a correlation between residual disturbance terms and endogenous variables is caused by endogeneity and simultaneity biases. As a result, using ordinary least squares (OLS) regression in this context leads to biased and inaccurate results, violating one of the traditional linear regression model's assumptions. We use a GMM approach to achieve a reliable and accurate analysis. The GMM method is introduced by Arellano and Bond (1991). In support of this approach, they claim that in the dynamic panel model, an extra instrument may be obtained by applying the orthogonal condition between the dependent lag value and the error term. As a result, the association between the independent variable and the disturbances is eliminated using this new instrument (Arellano & Bond, 1991; Arellano & Bover, 1995; Ahn & Schmidt, 1995).

In this study, we employ the GMM estimator. The possibility of endogeneity in the predictor variables can be addressed utilising orthogonal conditions between the dependent variable lag value and the error term. In this way the estimate becomes constant and reliable. It is predicated on the notion that the equation's disturbances are unrelated to a collection of instrumental variables. This GMM estimator is robust since no information about the precise distribution of the disturbances is required.

Generally, the steps involved in obtaining the abnormal returns in the Fama–French three-factor model are the same for the determinants of stock price reactions. The dependent variable is the abnormal returns of the event period for the announcements of annual earnings, top management changes and AGMs. The independent variables are large firms (abnormal returns of large size firms, the natural logarithm of the market capitalisation), government ownership of shares (abnormal returns of firms that have government-owned shares, the percentage of shares held by the government), sector in which a firm operates (Tadawul has 20 sectors; in this study sample, 10 sectors have

been selected according to their market capitalisation, availability of company announcements, number of companies, number and value of shares traded, and number of transactions, namely, banks, diversified financials, energy, food and beverages, insurance, materials, real estate management and development, retailing, telecommunication services and utilities), a dummy variable on the announcement day (to investigate the announcement day impact on stock returns, taking on a value of 1 on the announcement's day and 0 otherwise) and a trend dummy (to investigate the trend of the abnormal returns following the announcement day, in the post-announcement period (+1, +15), taking on a value of 1 to 15 on the days after the day of the announcements is made and 0 otherwise). Each of the three company public announcements is analysed separately. The variable definitions are shown in Table 4.3. To compute the determinants that influence abnormal returns, the linear regression equation is specified as:

$$\text{ARs} = \beta_0 + \beta_1 FSIZE_{it} + \beta_2 FGOV_{it} + \beta_3 FSEC_{it} + \beta_4 DAD_{it} + \beta_5 DTrend_{it} + \varepsilon \quad (10)$$

where:

ARs = *the abnormal returns of the event period;*

$FSIZE_{it}$ = *the size of firm i;*

$FGOV_{it}$ = *the government ownership of firm's i share;*

$FSEC_{it}$ = *the sector of firm i;*

DAD_{it} = *the announcement day dummy variable;*

$DTrend_{it}$ = *the trend dummy variable; and,*

ε = *the error terms.*

Table 4.3: Definition of Variables in the Regression Model

Symbol	Variables	Definition of Variables
ARs	Abnormal Returns	The abnormal retunes of 31-day event window (-15, +15) for listed companies that announced annual earnings, top management changes and AGMs in this study.
FSIZE	Size	The abnormal returns of firms categorised as large, according to market capitalisation.
FGOV	Government Ownership	The abnormal returns of firms that have a percentage of their shares owned by the government.
FSEC	Sector	The abnormal returns of companies in the sector to which they belong in terms of their main activities.
DAnnouncementDay	Dummy Variable on the Announcement Day	A dummy variable, 1 = the announcement day, and 0 = otherwise.
DTrend	Trend Dummy	A dummy variable, 1 to 15 = for days following the announcement day (+1, +15) and 0 = otherwise.

4.7 Event Study Test Statistics

To test the study hypotheses outlined in Section 4.3.2, we applied the two main test statistics types used in the relevant literature—the parametric test and the non-parametric test. It is a matter for debate between researchers whether non-parametric or distribution-free test statistics should be used in event studies, especially when daily data are used (Berry, Gallinger, & Henderson Jr., 1990; Brown & Warner, 1980). Scholes and Williams (1977) show that the use of daily data or short intervals of observation can lead to a non-synchronous trade problem. Berry et al. (1990) and S. J. Brown and Warner (1980) conducted simulations using daily returns to check which of the two statistical tests was better at identifying abnormal returns and whether the parametric test assumptions could be fulfilled. Their findings revealed that the non-parametric test statistics such as the sign test and rank test are significantly more powerful than the t-test at generating abnormal returns and avoiding possible t-test errors. Moreover, because of daily non-normality, the non-parametric sign test and the rank test can be specified as being preferable to the parametric tests (Berry et al., 1990).

Several event studies are based on parametric test statistics. However, one disadvantage of using the parametric test is that the distribution of probabilities of returns requires essential assumptions. Brown and Warner (1985) claim that share prices are not normally distributed. Consequently, parametric tests yield unspecified test statistics when this assumption of normality is violated. In contrast, Bartholdy, Olson and Peare (2007) claimed that non-parametric tests are more effective than parametric tests at identifying a false null hypothesis of no abnormal returns. This is because parametric tests presume that an abnormal return will be distributed normally. The t-test is usually applied in empirical event studies as a parametric test while the Wilcoxon signed rank test and the Corrado rank test are used as non-parametric tests. MacKinlay (1997) indicates that both types of results should be applied together to ensure the robustness of the results. This was demonstrated by Campbell and Wesley (1993) for NASDAQ stocks, when they established that the non-parametric rank test achieved more reliable inferences than the parametric test. Bartholdy et al. (2007), Campbell and Wesley (1993, 1996), Corrado and Truong (2008), Corrado and Zivney (1992), Cowan (1992) and Zivney and Thompson (1989) have all published well-known studies of non-

parametric tests. Each of these studies indicates that the sign test and rank test yield better specifications and are more powerful than parametric tests.

To test the robustness of the results, the study used the two main types of tests that have been used in event studies, namely, the parametric t-test and the non-parametric Corrado rank test, in case the data had problems with normality. Brown and Warner (1985) observe that no apparent effect on the event study methodology is shown by the non-normality of daily abnormal returns. In contrast, Dyckman, Philbrick and Stephan (1984) claim that in daily abnormal returns, non-normality has a modest impact on the event study methodology. Parametric tests are more reliable and robust and often require less data to reach a strong inference than the non-parametric tests. The parametric and non-parametric tests are briefly explained in the following subsections.

4.7.1 Parametric Test Statistics

Parametric tests are used if the returns are assumed to be distributed normally of values. Lyon, Barber and Tsai (1999, p. 178) state the following:

> The Central Limit Theorem guarantees that if the measures of abnormal returns in the cross section of firms are independent and identically distributed drawings from finite variance distributions, the distribution of the mean abnormal return measure converges to normality as the number of firms in the sample increases.

Further, the assumption provided is that we expect the t-statistic to be well specified with our relatively large sample. Applying the t-test is to test whether a company's abnormal returns in the pre-announcement and post-announcement days are significantly different from zero.

To test the significance of the AARs for each day in the event window, the t-test based on the cross-sectional variance for each AAR_t was calculated using the following equations to test the study hypotheses, as explained by MacKinlay (1997):

$$t_{AAR} = \overline{AAR}_t / S_{AAR} \tag{11}$$

$$S_{AAR} = \sqrt{\frac{\sum_{i=1}^{N}(AAR_{i,t} - \overline{AAR}_t)^2}{N_t - 1}} \quad \text{where i = 1,2, …,} N_t \tag{12}$$

where:

t_{AAR} = *the t-test statistic for average abnormal returns*;

S_{AAR} = *the standard deviation of average abnormal returns; and*

N = *the sample size.*

The t-test statistic for CAAR was calculated using the following equations:

$$t_{CAAR} = \overline{CAAR}_T / S_{CAAR} \quad (13)$$

$$S_{CAAR} = \sqrt{\frac{\sum_{t=1}^{T}(CAAR_T - \overline{CAAR}_T)^2}{T-1}} \qquad \text{Where t = 1,2, …,T} \quad (14)$$

where:

t_{CAAR} = *the t-test statistic for cumulative average abnormal returns;*

S_{CAAR} = *the standard deviation of cumulative average abnormal returns;*

$CAAR_T$ = *the cumulative average abnormal returns over the T-day interval;*

$\overline{CAAR}_T$ = *the summation of cumulative average abnormal returns over a T-day interval divided by the number of T-day intervals; and*

T = *the number of event days in the event window.*

4.7.2 Non-Parametric Test Statistics

MacKinlay (1997) argues that the event study methodology is used in two common types of non-parametric tests: the Wilcoxon signed rank test and the Corrado rank test. We applied Corrado's rank test in this study for two reasons. First, because of the possibility of the data being skewed, the Wilcoxon signed rank test is unreliable since it is not clearly defined for daily data used in this empirical study. Second, Maynes and Rumsey (1993) claim that the Corrado rank test outperforms in terms of test statistics for the significance of abnormal returns because its rank distribution is uniform. For instance, Seiler (2000) states that the rank test is well-defined and independent of the skewness degree.

4.7.2.1 Corrado Rank Test

The Corrado rank test, also known as the distribution-free test, is a non-parametric test developed by Corrado (1989) and further improved by Corrado and Zivney (1992). The Corrado rank test eliminates the necessity of using population distribution parameter assumptions that are frequently not true. The Corrado rank test has thus been shown to be competitive and superior to the standardised cross-sectional tests of Boehmer, Masumeci and Poulsen (1991), Campbell and Wesley (1993), Kolari and Pynnönen (2010) and Patell (1976).

Moreover, the rank test has been shown to be clearly specified and independent of the skewness degree in the abnormal returns cross-sectional distribution (Seiler, 2000). Campbell and Wesley (1993) indicate that the rank test offers more reliable inferences than any alternative. The test assumes that the ARs are distributed symmetrically around the average 'mean'. For each share, the errors of the event window and the estimation period were ranked, and then the average rank was deducted from the error of the event day rank, as presented in the following equations (Armitage, 1995):

$$AD_t = \frac{1}{N}\sum_{i=1}^{N}(\mathrm{K}_{it} - [(T+1)/2]) \quad (15)$$

where:

AD_t = *the average difference for day t;*

K_{it} = *the rank of abnormal returns of stock i on day t;*

N = *number of stocks in the sample; and*

T = *number of days in the event window and estimation period.*

The test statistic for testing the null hypotheses was calculated using the following equation (Armitage, 1995):

$$\text{Average difference for day} \,/\, S_{AD_t} \quad (16)$$

where:

$$S_{AD_t} = \sqrt{\left(\left(\frac{1}{T}\right)\sum_{t=1}^{T}[AD_t]^2\right)} \quad (16\text{-}1)$$

4.8 Conclusion

This chapter described the methodology and methods used in the study. The general methodology of research and the appropriateness of using a particular method for the purposes of this study were clarified. An explanation was provided for the choice of the data sample, including the selection criteria and the secondary data collection method. Moreover, the chapter then outlined the common research problems that arise when dealing with emerging markets, namely, the problem of thin trading. This was followed by a brief overview of the techniques used for secondary data analysis and the reasoning for using a particular form of methodology to analyse the data.

An event study using the Fama–French three-factor model was adapted to measure the expected returns around the announcement day. A GMM regression model was used to investigate whether firm characteristics influence the efficiency of the stock market around the three selected announcements in this study. The following chapter presents and discusses the study findings.

Chapter 5: Findings and Discussion

5.1 Introduction

This chapter estimates and presents the results of the analysis of the information contained in the announcements, in accordance with the methodology outlined in Chapter 4. The data consisted of 696 earnings announcements, 450 announcements of top management changes and 489 announcements of AGMs for the sample of 171 listed companies (see Table 4.2). An event window of 31 trading days was used to determine any abnormal returns arising from the announcements, including the announcement day. The Fama–French three-factor model was used to estimate expected stock returns in the event period using an estimation window of 100 trading days while GMM regression analysis was used to examine whether or not firm factors such as size, government ownership and sector were determinants of the stock return reactions to the announcements.

The remainder of this chapter is structured as follows: Section 5.2 provides the empirical findings stemming from the analysis of the annual earnings announcements and their two categories (good news and bad news). Section 5.3 uses GMM regression analysis to identify the determinants of stock price reaction to the earnings announcement period based on firm characteristics. Section 5.4 provides the empirical findings stemming from the analysis of top management change announcements and their four categories (forced resignation, age-related retirement, voluntary departure and new appointments). Section 5.5 identifies the determinants of stock price reaction to the top management change announcement period based on firm characteristics. Section 5.6 presents the empirical findings stemming from the analysis of AGM announcements and their effect on stock prices. Section 5.7 identifies the determinants of stock price reactions to firm characteristics. Section 5.8 discusses the efficiency of the Saudi stock market. Finally, Section 5.9 concludes the chapter.

5.2 Empirical Findings on Annual Earnings Announcements

One of the primary purposes of the study was to examine the information content of annual earnings announcements to determine their impact on stock returns. The study also investigated the efficiency level of the Saudi stock market by examining the stock price adjustments in response to these announcements as well as exploring the determinants of the stock price reaction to the earnings announcements period. The study sought to establish the impact of earnings announcements on abnormal returns based on the recognition that such announcements convey full and accurate information about the position, progress and performance of a firm as well as documenting the profitability of a company over a specific period that has a direct impact on stock prices.

The study was based on the EMH, which asserts that stock prices already reflect the available information in the market. Consequently, the Saudi stock market was examined in the semi-strong form of the EMH and the determinants of stock return reactions to earnings announcements based on firm characteristics. To achieve these objectives, three research questions were posed. In response to these questions, the findings of the literature review reveal a correlation between earnings announcements and stock returns.

The data were divided into three groups: those with a full sample of earnings announcements are presented in section 5.2.1, good news earnings are presented in section 5.2.2 and bad news earnings are presented in section 5.2.3. Abnormal returns were calculated in the form of cross-sectional AARs and cross-sectional CAARs. There were mixed signs in the findings (for instance, positive and negative signs) for all types of earning news. The performance of the abnormal stock was investigated on the basis of the value of daily adjustments in abnormal returns and the value of CARs.

5.2.1 Share Price Reactions to Annual Earnings Announcements

As previously stated in Chapter 4, one benefit of using a non-parametric test is that it is less sensitive to outliers (McWilliams & Siegel, 1997). The first hypothesis addresses the question of how annual earnings announcements issued by Saudi Arabian listed companies influence stock returns. Abnormal returns are measured using the Fama–French three-factor model. As part of the initial investigation, Table 5.1 and

Figure 5.1 present the AARs and the CAARs for companies listed on the Saudi stock market over a 31-day window around annual earnings announcements.

Panel A of Table 5.1 provides descriptive statistics of the AARs and CAARs for the whole sample of earnings announcements in different event windows (pre-event, event day and post-event). Median and mean abnormal returns were computed in the case of outliers in the data that cause bias in the reported average values. The standard deviations were also provided to shed light on the distribution of the abnormal returns across the mean values.

Notably, the AARs from the pre-event days exhibited a negative median and skewness. However, the event day and the post-event day recorded positive AARs for all of the parameters. Panel A of Table 5.1 shows that the mean AARs over the 15-day window before the announcements were made (-15, -1) are $0.00034 while the AARs on the announcement days are $0.00221. The results suggest that AARs vary significantly in the event window of earnings announcements. Panel A indicates that the distribution of AARs after the announcement days (+1, +15) was positively skewed because the mean abnormal return of $0.00211 was more than seven times the median $0.0003.

Panel B of Table 5.1 presents the descriptive statistics for the abnormal returns associated with good news. The results indicate that AARs (-15, -1) were slightly positive $0.00006. The abnormal return distribution was positively skewed because the mean abnormal returns associated with good news after the announcement were $0.0019, which is more than seven times the median value of $0.00026. Moreover, Table 5.1 Panel B shows that the good news AARs are less compared to bad news. This is due to evidence of underreaction to good earnings news and overreaction to bad earnings news being observed. It is suggested that the stock market is driven by the dominance of individual investors, with a lack of financial analysts.

Panel C of Table 5.1 shows the descriptive statistics for the abnormal returns for the bad news. The results indicate for all days on which bad news was released, AAR (0) was $0.00134, which is a positively skewed distribution because the mean abnormal return is more than twice the median $0.00053. The results also reveal the same for the days following bad news announcements, where the mean was $0.00312, which is more

than six times the median $0.00048. As a result, the pre-event, event day and post-event windows indicate a positively skewed distribution.

Panel D of Table 5.1 presents the descriptive statistics for the differences in mean and median values of the CAARs of each event window over the 31 days surrounding the announcement days. The mean value of the CAARs ranged from 0.219% and 2.252% for the windows (-10, -1) and (+1, +15), respectively. Considering the standard deviation, CAARs seem to fluctuate considerably, especially for the windows (-15, +15), (+1, +5), (+1, +10) and (+1, +15), where the differences between minimum and maximum values stood at 1.40, 1.36, 1.4 and 1.4, respectively. Panel D shows the skewness of the CAARs distribution for 5, 10, 15 and 31-day event windows. The distributions of the CAARs for the full sample earnings announcements over 5, 10 and 15days before the announcement days and the 5-day event window following the announcement days were negatively skewed (-0.34, -0.35, -0.43 and -0.06, respectively). In contrast, the distributions of the CAARs following the announcements over 10- and 15-day event windows were positively skewed (0.042 and 0.16, respectively). Further, the skewness of the CAARs for the selected event windows around earnings announcements was close to zero, indicating the normal distribution of CAARs.

Table 5.1: Descriptive Statistics of AARs and CAARs of Annual Earnings Announcements

	N	Mean	Median	Max.	Min.	Std. Dev.	Skewness	Kurtosis
Panel A. AARs of Whole Sample								
AARs (-15, -1)	10440	0.00034	-0.00022	0.11613	-0.13609	0.02413	-0.17176	4.62623
AARs (0)	696	0.00221	0.00160	0.10745	-0.10675	0.02340	0.28765	4.92483
AARs (+1, +15)	10440	0.00211	0.00030	0.14122	-0.10711	0.02085	0.75009	4.37781
Valid N (listwise)	21576							
Panel B. AARs of Good News								
AARs (-15, -1)	8505	0.00006	-0.00037	0.11613	-0.13609	0.02292	-0.22699	4.54287
AARs (0)	567	0.00241	0.00176	0.10745	-0.10675	0.02315	0.41211	4.45555
AARs (+1, +15)	8505	0.0019	0.00026	0.14122	-0.10711	0.02033	0.67464	4.49813
Valid N (listwise)	17577							
Panel C. AARs of Bad News								
AARs (-15, -1)	1935	0.00160	0.00048	0.10519	-0.12489	0.02882	-0.09020	3.95311
AARs (0)	129	0.00134	0.00053	0.09817	-0.10306	0.02454	-0.16535	6.72704
AARs (+1, +15)	1935	0.00312	0.00048	0.11546	-0.08758	0.02296	0.94368	3.71697
Valid N (listwise)	3999							
Panel D. CAARs of Selective Event Windows Around the Annual Earnings Announcements								
CAAR (-15, -1)	10440	0.00345	0.00185	0.57054	-0.54388	0.07518	-0.42564	5.72426
CAAR (-10, -1)	6960	0.00219	0.00117	0.57054	-0.54388	0.08671	-0.35172	3.83473
CAAR (-5, -1)	3480	0.00234	0.00343	0.57054	-0.54388	0.09660	-0.33773	3.16917
CAAR (-15, +15)	21576	0.01281	0.00699	0.76674	-0.63677	0.11213	0.21554	4.49083
CAAR (+1, +5)	3480	0.01047	0.01311	0.72005	-0.63677	0.11832	-0.05477	3.27464
CAAR (+1, +10)	6960	0.01633	0.01587	0.76674	-0.63677	0.12827	0.04151	2.65066
CAAR (+1, +15)	10440	0.02252	0.02060	0.76674	-0.63677	0.13915	0.15990	2.50527
Valid N (listwise)	21576							

Table 5.2 shows the AARs and CAARs of each day around the announcements of annual earnings for the whole sample. It also shows the results of testing the significance of the abnormal returns using the parametric t-test and non-parametric Corrado rank test. The findings document that there were no significant abnormal returns for the five days prior to or after the earnings announcements in terms of both the t-test and the rank test. Abnormal returns only significantly occurred after the announcements during day +9 at the 10% level in terms of the rank test. Consequently, the hypothesis that states that annual earnings announcements have a positive relation with abnormal returns around the announcement date holds true. The presence of average of abnormal returns following the announcements on the ninth day suggests a

delay in reacting to information. This finding is somewhat unexpected, considering the limited information that we were expecting companies to send to the market by issuing annual earnings announcements. These findings are consistent with studies conducted by Sutejo and Utami (2010) and Virginia, Manurung and Muliawati (2012), which revealed that investors are typically slow to absorb information about earnings announcements. However, Johnson and So (2018) state that returns around earnings announcements are experiencing asymmetrical pressures from financial intermediaries' frictions. The presence of abnormal returns is assumed to result from a lack of information about the earnings announcements among investors on the day the information is made public.

According to Felimban, Floros and Nguyen (2018) and Sutejo and Utami (2020), there is a lack expertise evident in the delayed investor reactions to an event; investors also lack information, which prevents them from fully and accurately reacting to the information. Virginia et al. (2012) reported that there were significant AARs on day +9 following the announcement day. They also concluded that there was an information leak whereby some investors received information, and some were not informed.

When considering the speed of the adjustment of share prices to the new information emerging from earnings announcements, there was a lagged response. In particular, as shown in Panel B Table 5.2, the CAARs of days (-10, -1) indicate significant negative evidence of price adjustments prior to the earnings announcement event of -0.293% at the 5% level, according to the Corrado rank test. In contrast, considering the post-announcement period with a CAARs of (+1, +10) and (+1, +15) days, a sluggish market reaction was evident. These findings indicate that the Saudi stock market does not respond quickly and efficiently to the corporate news contained in earnings announcements.

On the earnings announcement day, insignificant positive AARs of 0.221% were documented. The positive stock price reaction on the day of the announcements was consistent with the notion that the announcements of earnings are informative to the market, resulting in stock price appreciation. The negative AARs prior to the announcement being made on days -10, -9, -8 and -7 imply that the market expected lower returns than the actual returns regarding negative news prior to the earnings

announcement. This is because the return reversed to be positive 6 days before the announcement day. Moreover, during the post-announcement period, the AARs were positive but significant only on day +9 with 0.337% at a 10% confidence level, indicating a delayed market response and inefficient reaction to the announcement. Further, insignificant positive CAARs were observed on the 5-day event window before and after the announcement date of 0.468% and 0.559%, respectively.

Panel B of Table 5.2 presents the CAARs and t-statistics for certain event windows around the whole sample of earnings announcements, along with the results of testing the significance of the CAARs using the parametric and non-parametric tests. Different CAAR windows were intended to examine the abnormal returns realised in the pre- and post-announcement periods. Such windows also indicated whether PEAD was present in the earnings announcements. Because PEAD is documented when CAARs start to drift upwards (downwards) in companies that announce earnings announcements, PEAD analysis is more concerned with the post-announcement periods to test predictions of the study hypotheses. Based on the results for the 696 earnings announcements, the CAAR of the 15 days before the announcements was 0.517%, which is insignificant. The CAAR of the 10 days before the announcements turned negative, with -0.293% and was statistically significant at the 5% confidence level in terms of the rank test in the (-10, -1) period. This is possibly because of evidence of negative information leaks to the market before the news announcement.

Following the announcement, the abnormal returns began to pick up slightly in the first five days, with a CAAR of 0.559%. The clear increase in the AARs in the post-announcement period, especially on days +6, +8, +9, +12, +13 and +15, as shown in Table 6.2 Panel A, supports the growth of the CAAR for the periods (+1, +10) and (+1, +15) to be 2.020% and 3.159% at a 5% and 1% confidence level in terms of the t-test, respectively. This result indicates that the longer the period after the announcement, the higher the returns. Therefore, these results indicate the presence of PEAD following the earnings announcements. This is consistent with Baker et al. (2019), who investigated competitive earnings news and the resulting drifts in post-announcement earnings. Their findings revealed a significant advantage of information transfer in the announcement of earnings of firms in the same industry on the same day. Therefore, such an occurrence results in returns drift, driven by analysts' forecasts.

It is possible to obtain a better idea of the final effect of the annual earnings announcements on stock returns by examining the CAARs within the window period of (-15, +15). The CAARs for this event window were 3.897%, and statistically positively significant at the 1% confidence level in terms of both the t-test and rank test. This indicates that the overall effect of earnings announcements on stock returns is positive and significant, thereby endorsing our main conclusion following the examination of the AARs.

As mentioned earlier, there are complications in explaining the nature of market patterns after earnings announcements in reasonable and comprehensive clarity. However, the explanation provided regarded the efficiency of the market and its impact on investor behaviour. According to behavioural finance, the irrationality of investors results in several biases, particularly cognitive ones, which lead to abnormal market return patterns. Human beings display certain characteristics such as fear, greed, overconfidence and errors of judgement that discredit rational behavioural assumptions and efficient markets. The over or underreaction of investors to the announcements of earnings leads to drifts in post-announcement earnings. Indeed, when earnings news is released, investors tend to underreact; therefore, they fail to recognise patterns of serial correlations, particularly with quarterly earnings announcements (Alzahrani & Skerratt, 2010).

Based on the results of the 696 annual earnings announcements (21,576 observations), it is clear that, in general, the Saudi stock market is not semi-strong form efficient during annual earnings announcement periods. These findings lead us to confirm that the Saudi stock market does not respond efficiently to corporate announcements containing annual earnings. Generally speaking, these findings are not surprising and, to some extent, are entirely consistent with the expectation set out in the hypothesis. This also suggests that some of the theories about earnings announcements may be valid, particularly the efficiency theory, which assumes that the motive is based on the maximisation of shareholder value. These findings are also in accordance with the results of Alzahrani (2010), Alzahrani and Gregoriou (2010), Alzahrani and Skerratt (2010) and Syed and Bajwa (2018) in the Saudi stock market.

Figure 5.1 graphically represents the AARs and CAARs for earnings announcements. It summarises the results reported in Panel A and B of Table 5.2. As can be observed in Figure 5.1, the AARs of the firms on the pre- and post-announcement periods present a common trend. The CAARs for the full sample of annual earnings announcements started to increase 15 days before the event and reach their maximum level 11 days before the earnings announcements were made. From day 11 onwards, the CAARs started to move downwards and then push upwards from day 6 onwards before the event. They also started to increase dramatically from the sixth day prior to the earnings announcements day and maintained this pattern until day 15 following the announcements. The AARs also acted in the same way, except that the positive value was again touched back on the sixth day before the announcement.

The findings demonstrate that the Saudi stock market is not a semi-strong form of the EMH as far as earnings announcements over the period for the stock sample are considered. Moreover, if the market is highly effective, investors respond immediately on the day of the event, with no underreaction or overreaction.

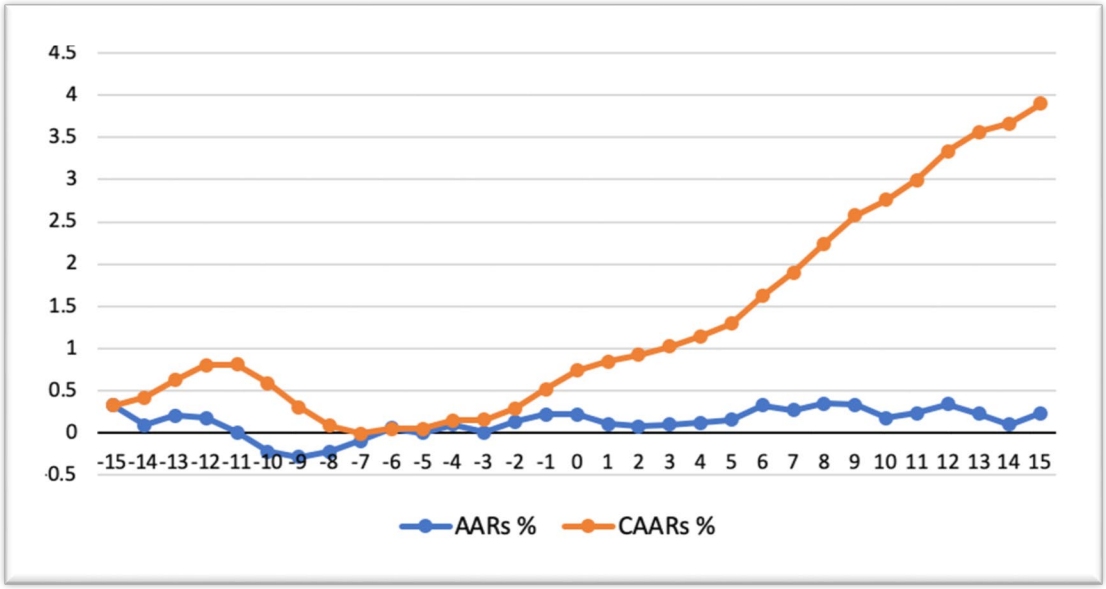

Figure 5.1: AARs and CAARs during the 31-day Event Window Around Annual Earnings Announcements

Table 5.2: AARs, CAARs and T-Statistics for Event Windows Around Annual Earnings Announcement Days

Panel A. AARs, CAARs and T-Statistics for Event Windows Around Annual Earnings Announcement Days

N = 696
Whole Sample

Days	AARs %	T-Stat	Rank Test	CAARs %	Days	AARs %	T-Stat	Rank Test	CAARs %
-15	0.330	1.32	0.93	0.330	0	0.221	0.89	1.11	0.738
-14	0.090	0.36	0.43	0.421	1	0.109	0.44	-0.04	0.848
-13	0.206	0.83	0.67	0.627	2	0.075	0.30	-0.34	0.923
-12	0.177	0.71	0.50	0.804	3	0.099	0.40	0.12	1.022
-11	0.006	0.02	-0.63	0.810	4	0.121	0.49	-0.49	1.143
-10	-0.220	-0.88	-1.10	0.590	5	0.154	0.62	0.15	1.297
-9	-0.287	-1.15	-0.85	0.303	6	0.327	1.31	1.29	1.625
-8	-0.218	-0.87	-0.27	0.085	7	0.272	1.09	0.83	1.897
-7	-0.094	-0.38	-0.27	-0.009	8	0.345	1.38	1.28	2.241
-6	0.058	0.23	-0.02	0.049	9	0.337*	1.35	1.64	2.578
-5	0.003	0.01	-0.61	0.053	10	0.180	0.72	0.00	2.758
-4	0.099	0.40	0.38	0.151	11	0.233	0.93	0.27	2.992
-3	0.004	0.02	-0.46	0.156	12	0.343	1.37	1.29	3.334
-2	0.138	0.55	0.11	0.294	13	0.229	0.92	0.72	3.564
-1	0.223	0.89	0.76	0.517	14	0.101	0.40	0.23	3.664
0	0.221	0.89	1.11	0.738	15	0.233	0.93	0.44	3.897

Panel B. CAARs and T-Statistics for Selective Event Windows Around Annual Earnings Announcement Days

Event Windows	CAARs %	T-Stat	Rank Test	Event windows	CAARs %	T-Stat	Rank Test
CAAR (-15, -1)	0.517	0.53	-0.43	CAAR (-15, +15)	3.897***	2.80	8.06
CAAR (-10, -1)	-0.293**	-0.37	-2.33	CAAR (+1, +5)	0.559	1.00	-0.60
CAAR (-5, -1)	0.468	0.84	0.17	CAAR (+1, +10)	2.020***	2.56	4.44
CAAR (-15, +15)	3.897***	2.80	8.06	CAAR (+1, +15)	3.159***	3.27	7.38

Notes: This table presents the average abnormal returns (AARs), the cumulative average abnormal returns (CAARs) and t-statistics for AARs for the sample (N) of 696 earnings announcements for 31 days around earnings announcement date (t = 0) using the Fama–French three-factor model. The first column (Days) presents 31 days of the event window (-15 to -1 are 15 days before the announcement is made, 0 is the event day and +1 to +15 days are 15 days after the announcement is made). AAR is the mean deviation of actual returns from predicted returns. The significance of the AARs is tested by using the t-test and the rank test for the hypothesis that annual earnings announcements have a positive relation with ARs around the announcement date. The CAAR is the sum of the AARs in each day from -15 to +15. The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation.

5.2.2 Share Price Reactions to Good Earnings Announcements

On the announcement day, stock prices showed a strong positive reaction because of the good news in earnings announcements, with an AAR of 0.241%, albeit this was not significant. This positive reaction of the stock price on good news day is consistent with the notion that good earnings announcements are informative to the market and have an impact on stock prices, resulting in share price appreciation. This has been confirmed by other financial studies examined in the literature review, for example, Ball and Brown (1968) and Bernard and Thomas (1989, 1990).

In response to good earnings news, stock prices continued to rise days after the event, indicating that stock prices on the Saudi stock market are not immediately adjusted to reflect the information contained in the earnings announcements. In the first five days following the announcements, the stock market did not experience large abnormal returns, as illustrated in Table 5.3 and Figure 5.2, while the CAARs in this period (+1, +5) are just 0.588%, although they were insignificant. There were significant positive abnormal returns following the announcement day. On day 9 following the announcements, abnormal returns averaged 0.317% and were statistically significant in terms of the rank test.

Regarding the post-good news period, the market significantly underreacted to good news with a significant positive CAAR of 1.88% and 2.81% at the 1% confidence level in the period between (+1, +10) and (+1, +15) respectively. These findings corroborate the results of previous studies, showing that good news earnings announcements are associated with a positive reaction in share prices. We conclude that the main reason for this phenomenon is that the Saudi stock market is driven by the dominance of individual investors, with a lack of financial analysts. It is widely agreed that there is more information available to the public about companies that are followed by more financial analysts (Bhushan, 1994) and their stock prices are quicker to reflect changes in future earnings (Ayers & Freeman, 2003).

Further, as mentioned earlier, stock price drifts following earnings announcements are caused by inaccurate measurement tools used by financial analysts (Alzahrani & Skerratt, 2010). Equity analysts and financial analysts might be inaccurate when

measuring returns and risk or when using an incorrect methodology. There is a possibility that stock prices may drift after good earnings announcements because of transaction costs and the premium of rational risk. Consequently, the rational behaviour of investors explanation contends that price drifts go a long way to providing compensation for the risks that often accompany earnings announcements (Alzahrani & Skerratt, 2010; Foster et al., 1984; Garfinkel & Sokobin, 2006).

Comparable PEAD after good announcements has been observed in several other studies such as that of Ball and Brown (1968), Baker et al. (2019), Bernard and Thomas (1989, 1990), Chari, Jagannathan and Ofer (1988) and Su (2003). Therefore, the study findings indicate that the Saudi stock market is responding slowly and inefficiently to good earnings announcements. Moreover, various studies of the Saudi stock market such as those of Alzahrani (2010), Alzahrani and Gregoriou (2010), Alzahrani and Skerratt (2010) and Syed and Bajwa (2018) have also found evidence of PEAD following good news.

For the pre-announcement period, abnormal returns generally reacted positively (negatively) during the 15 days before the announcement is made, with CAARs of 0.089% and -0.547% for the periods (-15, -1) and (-10, -1). These results were both statistically significant at the 10% and 1% level, respectively, with the rank test, although neither of these was statistically significant in terms of the t-statistics. Such findings are consistent with the observations of Alzahrani and Skerratt (2010) in the pre-announcement periods on the Saudi stock market but inconsistent with the findings of Alzahrani and Gregoriou (2010). The latter found positive CAARs 15 days prior to the announcement date on the Saudi stock market. Nevertheless, the results show that even in the last five days before the announcements were made, after negative CAARs were noted during that period, the market could not anticipate good earnings news. Moreover, the results of Huang's (2004) study on the Chinese stock market are a close reflection of our results. Our results are also consistent with the previous experimental results of Su (2003). On most days before the announcement of good earnings, negative AARs were observed.

Alzahrani and Skerratt (2010) used a different event analysis model (the market-adjusted model) to generate expected returns and observed significant positive abnormal returns 10 and 20 days after the announcement. The CAARs were examined

in the days from (-5 to +5) and significant positive abnormal returns were reported in the case of good news, which they claimed resulted from a strong reaction—both on the day of the announcements and PEAD on the following days.

Moreover, the results of the good news announcements suggest that stock market investors do not quickly re-estimate stock prices, resulting in stock prices drifting several days later, as shown in Table 5.3. This phenomenon may be attributed to the absence of financial analysts who would otherwise track stock prices and predict the earnings in addition to the stock's valuations following surprise announcements, as mentioned earlier in Chapter 4. The value importance of public information can be analysed by financial analysts, who have more expertise than investors. Analysts may also be able to collect and efficiently process a large variety of data that may not be readily accessible to investors and institutions. Moreover, financial analysts' predictions are often excessively optimistic and can lead to overreactions following earnings announcements (De Bondt & Thaler, 1990; Ivković & Jegadeesh, 2004; Kim & Verrecchia, 1991a; La Porta et al., 1997; Song, 2013; Stickel, 1989). This is especially because they are developed by analysts who favour the sell-side of the market because of their connections with investment banks already in business relationships with the specified firms under analysis. Therefore, the bias and optimism of the analysts' forecasts have continuously cast doubt on their relevance for the assessment of price reactions and trading volumes among investors (Alzahrani & Skerratt, 2010; Brown, 1993; O'Brien, 1988).

Although it should be noted that more positive stock price information is disseminated by financial analysts than negative stock price information (Ivković & Jegadeesh, 2004), investors may nonetheless mistrust the forecasts provided by financial analysts because they may either overreact or underact to financial information. In contrast, Easterwood and Nutt (1999) and Gu and Xue (2007) claim that financial analysts' behaviour is not a result of their bias but of the considerable uncertainty associated with earnings estimates. Ahmed et al. (2009) indicate that disagreement among investors is the leading cause of increased capital costs, high investment risks and drift of stock returns from fundamental values. The study emphasises the importance of information quality (provided by analysts) in enhancing the efficiency of capital markets and also in investor decisions.

These phenomena or anomalies have been attributed to various types of investors, depending on different schools of thought. For instance, Bartov, Radhakrishnan and Krinsky (2000) and B. Ke and Ramalingegowda (2005) state that institutional investors play a significant role in the creation of PEAD. In contrast, several studies conclude that anomalies are caused by individual investors (Battalio & Mendenhall, 2005; Bhattacharya, 2001; Chen et al., 1997). Yet other studies on this phenomenon conclude that no individual investors or their subgroups are responsible for the underreaction to earnings announcements (Hirshleifer et al., 2008; Trueman et al., 2003).

Most of the earnings announcements were made after equity analysts had conducted earnings estimates (Doyle & Magilke, 2009). Equity analysts and financial analysts provide estimates of earnings a few weeks or days before a company announces its earnings. However, on some occasions, analysts' estimates may be far removed from the actual earnings of a company. Therefore, in the days closest to the earnings announcement, equity and financial analysts increase or reduce their estimates. Such increments and reductions in estimates affect share prices as a result of speculative trading.

The overall effect of good news in annual earnings announcements on stock returns was positive and significant. This is because the CAARs within the window period of (-15, +15) were 3.144% and statistically significant at the 1% level in terms of rank tests. These indicate that the overall effect of good news on stock returns was positive and significant, therefore supporting our main conclusion following the examination of the AARs.

Figure 5.2 illustrates the AARs and CAARs for annual earnings announcements covering good news. It also summarises the results reported in Panel A and B of Table 5.3. At the start of the event window, CAARs exhibited stable behaviour; from the third day before the good news, they started to increase significantly and continued this pattern until the last day of the event window, which was day 15 following the announcements. However, the AARs exhibited stable behaviour in this case.

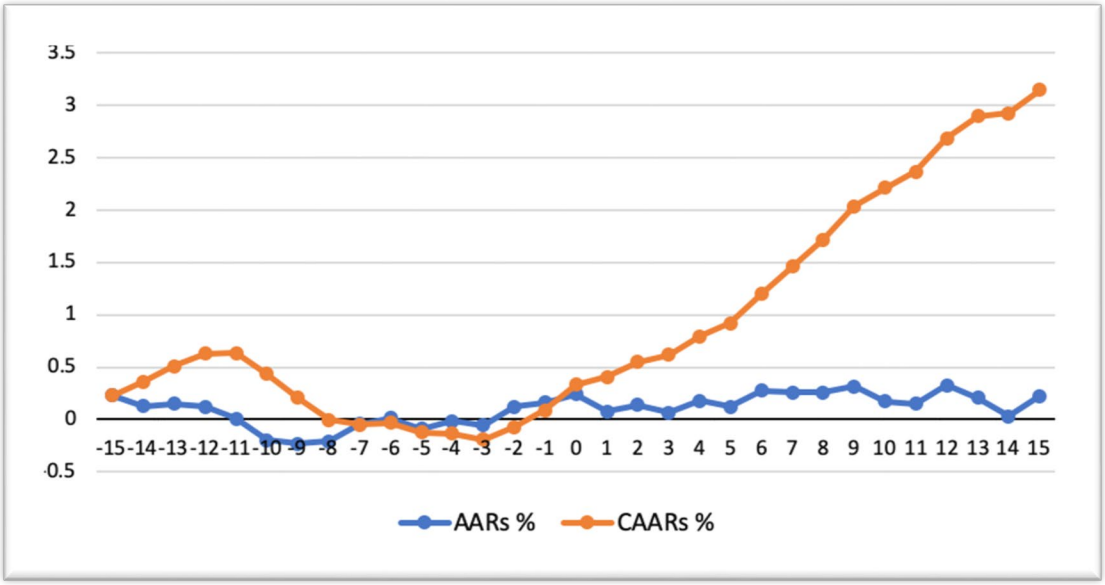

Figure 5.2: AARs and CAARs during the 31-day Event Window Around Good Earnings Announcements

Table 5.3: AARs, CAARs and T-Statistics for Event Windows Around Good Earnings Announcements

Panel A. AARs, CAARs and T-Statistics for Event Windows Around Good Earnings Announcement Days									
N = 567 Good News									
Days	AARs %	T-Stat	Rank Test	CAARs %	Days	AARs %	T-Stat	Rank Test	CAARs %
-15	0.231	0.96	0.61	0.231	0	0.241	1.00	1.38	0.331
-14	0.128	0.53	0.69	0.358	1	0.078	0.32	-0.07	0.408
-13	0.150	0.62	0.56	0.508	2	0.141	0.59	0.11	0.550
-12	0.119	0.49	0.29	0.627	3	0.067	0.28	-0.11	0.616
-11	0.009	0.04	-0.64	0.636	4	0.178	0.74	-0.19	0.794
-10	-0.199	-0.83	-1.03	0.436	5	0.124	0.52	0.20	0.919
-9	-0.230	-0.95	-0.69	0.207	6	0.278	1.15	0.95	1.197
-8	-0.210	-0.87	-0.33	-0.003	7	0.260	1.08	1.14	1.457
-7	-0.044	-0.18	0.10	-0.047	8	0.260	1.08	0.81	1.717
-6	0.016	0.07	-0.19	-0.031	9	0.317*	1.32	1.70	2.033
-5	-0.090	-0.38	-1.00	-0.122	10	0.174	0.72	0.25	2.208
-4	-0.016	-0.06	-0.07	-0.137	11	0.153	0.64	-0.17	2.361
-3	-0.053	-0.22	-0.72	-0.190	12	0.324	1.35	1.20	2.685
-2	0.121	0.50	-0.06	-0.070	13	0.207	0.86	0.65	2.892
-1	0.159	0.66	0.54	0.089	14	0.028	0.11	-0.17	2.920
0	0.241	1.00	1.38	0.331	15	0.225	0.93	0.56	3.144

Panel B. CAARs and T-Statistics for Selective Event Windows Around Good Earnings Announcement Days							
Event Windows	CAARs %	T-Stat	Rank Test	Event Windows	CAARs %	T-Stat	Rank Test
CAAR (-15, -1)	0.089*	0.10	-1.92	CAAR (-15, +15)	3.144***	2.35	6.32
CAAR (-10, -1)	-0.547***	-0.72	-3.43	CAAR (+1, +5)	0.588	1.09	-0.06
CAAR (-5, -1)	0.120	0.22	-1.30	CAAR (+1, +10)	1.877***	2.47	4.79
CAAR (-15, +15)	3.144***	2.35	6.32	CAAR (+1, +15)	2.814***	3.02	6.87

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.2.3 Share Price Reactions to Bad Earnings Announcements

As expected, on the day of the bad earnings announcements, there was a negative effect on stock prices. As shown in Table 5.4, the stock price on the event day had an average positive abnormal return of 0.134%, but this was not statistically significant. Moreover, on the first day following bad news, the abnormal returns of the stock remained positive, with 0.248%. Afterwards, the abnormal returns reversed direction into negative territory, with a return of -0.215% and -0.129% on the second and fourth days, respectively. During the post-announcement period, the market reaction to the bad news was statistically significantly positive on the sixth and eighth days, with AARs of 0.545% and 0.719% at the 10% and 5% level, respectively, for both the t-test and the rank test. These findings indicate that the Saudi stock market does not respond quickly and efficiently to bad news in the annual earnings announcements. These results are in line with the study by Chakraborty and Chetan (2018), who analysed the stock market reaction to quarterly earnings announcements for all Midcap listed companies on the NSE. They found that significantly positive AARs result in the days before and after the bad news and continued increasing until the 10 days. In contrast, Johnson and So (2018) claimed slightly negative abnormal returns several days before the bad announcement and significant negative abnormal returns results on the announcement day and the post-announcement period.

Moreover, a strong PEAD was noted in the bad news sample, particularly in AARs at days +6 and +8. This finding is consistent with the EMH, which indicates that investors postpone their reaction to bad announcements but not good announcements. These findings corroborate the results of other studies, confirming that bad news earnings announcements are associated with a positive reaction in share prices (Chakraborty & Chetan, 2018). The reality shows that stock prices underreact to earnings announcements, leading to PEAD. Moreover, the CAAR of periods (+1, +10) and (+1, +15) have clear positive statistically significant abnormal returns at the 5% and 1% levels, with 2.648% and 4.677%, respectively, which confirms that the Saudi stock market overreacts to the announcement of bad news. Moreover, the main reason for this phenomenon is that the Saudi stock market is dominated by individual investors, with a lack of financial analysts.

As shown in Table 5.4, Panel B, stock prices in the context of bad earnings announcements suggested a strong indication of news expectation or information leakage in the five days leading up to the announcements. Positive significant CAARs were recorded five days before the day when bad news was announced at 1.994% at the 1% confidence level. Alzahrani and Skerratt (2010) report various findings during this period, suggesting that 10 days before bad announcements, the Saudi stock market starts to respond negatively, which they claim, is because of information leakage. We assume this disparity in outcomes is expected because of the different methodologies used in both studies regarding whether the model is used to calculate the expected return or the sample size. In this study, the market appeared to anticipate bad news five days before it occurred as the statistically significant positive CAAR in the (-5, -1) period. The positive CAARs came mainly from the positive AARs of the last five days of trading before the announcement (-5 to -1), with values of 0.416%, 0.602%, 0.258%, 0.216% and 0.502% respectively. Also, in a study of listed companies on the Bombay Stock Exchange (BSE), Dsouza and Mallikarjunappa (2017) found that the AARs and CAARs are positive during the majority of the entire event window of 61 days.

When considering the speed with which the stock prices adjusted to bad news, there was a lagging response to bad news. In particular, the CAARs of days (-5, -1) reflected significant positive evidence of price adjustment prior to the bad earnings announcement. In contrast, considering the post-announcement period, significant positive CAARs were observed for the (+1, +10) and (+1, +15) periods, with 2.648% and 4.677% at the 5% and 1% level, respectively, confirming a sluggish market reaction. The results indicate that the market does not respond quickly and efficiently to bad news.

Moreover, Alzahrani and Skerratt (2010) note that for the 10 days following bad news announcements, the stock prices of the companies reporting bad news experienced negative abnormal returns. They also report a stronger reverse in the days (+10, +20) than discovered in the present study, resulting in CAARs of 1.240% at the 1% significant level. Also, in Chakraborty and Chetan's (2018) work on the NSE, significant positive CAARs were observed on the day of the announcement and started to increase significantly and continued this pattern until the last day of the event period. Further, in Su's (2003) study of the Chinese stock market, an overreaction occurs in the

days following the bad news in the period (+10, +20). The results were not significant, but even so, the results indicated that this segment is efficient after the announcement of bad earnings.

The reversal in the firm's financial results could explain the overaction in the stock market following bad news earnings announcements (De Bondt & Thaler, 1985). Williams (2015) found that investors place more reliance on negative news than positive news. Otherwise, investors react to both positive and negative news in the same way. One probable explanation for this is that the general level of market sentiment influences investors' responses to negative and positive news, and the shifts in the volatility index reflects investor sentiment. Investors react more strongly to bad news than to good news during high market sentiment periods (Li, Tian, Ouyang & Wen, 2021; Mian & Sankaraguruswamy, 2012). Systematic errors in earnings predictions are linked to fluctuations in sentiment (Wu, Liu, Han & Yin, 2018). When market sentiment is low, however, investors react more strongly to positive news than to bad news.

In other words, investors in the Saudi stock market may be overconfident about earnings estimations before the announcements. This reaction is based on previous earnings announcements whose results show that stock prices start to increase before the announcement of bad news since the CAAR of the period (-15, -1), with 2.396%, was significant at 1% level. The findings also indicate that stock prices continued to increase in the post-bad announcement period (+1, +15). These investors overestimate and overreact when bad announcements are revealed. Moreover, the CAARs within the window period of (-15, +15) were positive and statistically significant, with 7.208% at the 1% level in terms of the t-test and the rank test. Thus, the overall effect of bad news annual earnings announcements on stock returns was positive and significant.

Figure 5.3 summarises the results reported in Table 5.4, illustrating the behaviour of the AARs and CAARs in the case of bad news. At the beginning of the event window, CAARs displayed stable behaviour. They started rising on the day 14 before the event and reached a peak on day 11 before the bad news announcement was made. The CAARs then started going downwards from day 11 onwards until the seventh day prior to the announcements. From the sixth day before the announcements, the CAARs started to increase noticeably and continued this pattern until the first day after the

announcement day. Subsequently, they began to stabilise on the first day following the announcement until the fourth day; then they started to increase, following this pattern until the day 15 after the announcement is made.

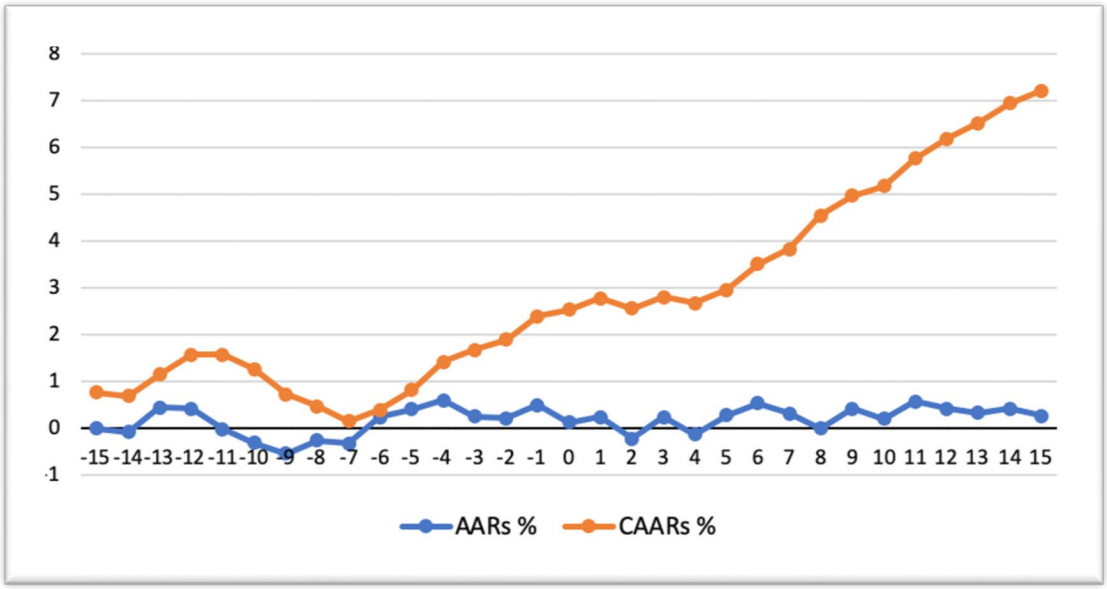

Figure 5.3: AARs and CAARs during the 31-day Event Window Around Bad Earnings Announcements

Table 5.4: AARs, CAARs and T-Statistics for Event Windows Around Bad Earnings Announcement Days

Panel A. AARs, CAARs and T-Statistics for Event Windows Around Bad Earnings Announcement Days									
N = 129 Bad News									
Days	AARs %	T-Stat	Rank Test	CAARs %	Days	AARs %	T-Stat	Rank Test	CAARs %
-15	0.769**	2.01	1.38	0.769	0	0.134	0.35	0.09	2.531
-14	-0.074	-0.19	-0.35	0.695	1	0.248	0.65	0.04	2.779
-13	0.456	1.19	0.72	1.151	2	-0.215	-0.56	-1.29	2.564
-12	0.431	1.13	0.84	1.582	3	0.241	0.63	0.62	2.805
-11	-0.007	-0.02	-0.39	1.575	4	-0.129	-0.34	-1.03	2.676
-10	-0.309	-0.81	-0.89	1.265	5	0.287	0.75	-0.04	2.963
-9	-0.540	-1.41	-0.95	0.726	6	0.545*	1.43	1.66	3.507
-8	-0.251	-0.66	-0.04	0.475	7	0.321	0.84	-0.20	3.828
-7	-0.317	-0.83	-1.05	0.158	8	0.719**	1.88	1.97	4.547
-6	0.245	0.64	0.39	0.403	9	0.425	1.11	0.93	4.972
-5	0.416	1.09	0.52	0.818	10	0.207	0.54	-0.59	5.179
-4	0.602	1.58	1.31	1.420	11	0.584	1.53	1.21	5.762
-3	0.258	0.68	0.30	1.678	12	0.425	1.11	1.05	6.188
-2	0.216	0.57	0.48	1.894	13	0.329	0.86	0.63	6.517
-1	0.502	1.31	1.01	2.396	14	0.421	1.10	1.10	6.937
0	0.134	0.35	0.09	2.531	15	0.270	0.71	0.00	7.208
Panel B. CAARs and T-Statistics for Selective Event Windows Around Bad Earnings Announcement Days									
Event Windows	CAARs %	T-Stat	Rank Test		Event Windows	CAARs %	T-Stat	Rank Test	
CAAR (-15, -1)	2.396***	1.62	3.28		CAAR (-15, +15)	7.208***	3.39	9.44	
CAAR (-10, -1)	0.821	0.68	1.09		CAAR (+1, +5)	0.432	0.51	0.82	
CAAR (-5, -1)	1.994***	2.33	3.62		CAAR (+1, +10)	2.648**	2.19	2.09	
CAAR (-15, +15)	7.208***	3.39	9.44		CAAR (+1, +15)	4.677***	3.16	6.07	

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.3 Determinants of Stock Price Reaction to Annual Earnings Announcements

To provide clearer insight into the different firm characteristics (size, government ownership and sector) that act as determinants of stock price reactions to annual earnings announcements, 11 regression analyses were conducted for the full sample of annual earnings announcements. The sample data were cross-sectional of abnormal returns and cover 15 days before and 15 days after the announcement was made, including the announcement day (with a total of 21,576 observations). The data were for 171 firms on different dates between 2014 to 2018 (each firm made announcements at a different time).

The following sections discuss the results of the 11 cross-sectional regression analyses. Section 5.3.1 presents the descriptive statistics for the abnormal returns of the earnings announcements event period (dependent variable) and the firm characteristics: size, government ownership and sectors (independent variables). Section 5.3.2 describes the correlations between the dependent variable and the independent variables. Section 5.3.3 provides a discussion of the cross-sectional regression analysis results.

5.3.1 Descriptive Statistics

Before undertaking the regression analysis, it is essential to understand the dataset and determine whether the sample is normally distributed. The central tendency measurement (median, mean and mode) and dispersion measurement (standard deviation) are two significant types of statistics. Table 5.5 presents the results of the descriptive statistics for the dependent and independent variables of the AARs relative to the earnings announcements during the 2014–2018 study period.

The data used for this analysis are obtained from the Saudi stock market. To empirically investigate the behaviour of the listed firms during the period 2014–2018, data were collected from firms that announced annual earnings during the study period. The following table presents the summary statistics of cross-sectional, minimum, maximum, means and standard deviations, alongside the skewness and kurtosis for the variables included in the sample firms in the given model over the five-year period.

Table 5.5: Descriptive Statistics for the Dependent and Independent Variables

Variables	N	Min.	Max.	Mean	Std. Deviation	Skewness	Kurtosis
ARs of Earnings Announcements	31	-0.0029	0.0034	0.0013	0.0017	-0.886	0.556
Size	31	-0.0021	0.0053	0.0010	0.0018	0.369	-0.584
Government Ownership	31	-0.0026	0.0063	0.0009	0.0020	0.529	0.503
Dummy	31	0	1	0.0323	0.1796	5.568	31.000
Dummy Trend	31	0	15	3.8710	5.0842	0.975	-0.525
Bank	31	-0.0083	0.0077	-0.0004	0.0040	-0.110	-0.378
Diversified Financials	31	-0.0063	0.0082	0.0009	0.0040	0.137	-0.678
Energy	31	-0.0101	0.0152	0.0015	0.0058	0.283	0.157
Food and Beverages	31	-0.0065	0.0067	0.0006	0.0028	-0.340	0.626
Insurance	31	-0.0078	0.0093	0.0020	0.0043	-0.465	0.309
Materials	31	-0.0011	0.0050	0.0018	0.0016	0.206	-0.640
Real Estate Management and Development	31	-0.0066	0.0068	0.0006	0.0040	-0.097	-1.014
Retailing	31	-0.0071	0.0108	0.0023	0.0040	0.077	0.202
Telecommunication Services	31	-0.0049	0.0131	0.0020	0.0047	0.703	0.124
Utilities	31	-0.0100	0.0172	0.0007	0.0048	1.161	3.965
Valid N (listwise)	31						

Source: Author's calculation.

5.3.2 Correlation Matrix

Pearson's correlation coefficient matrix requires two variables to be analysed simultaneously. It examines the relationship between sets of variables to determine whether or not there is a correlation and how robust it is. It also investigates whether there are variations between interval variables or ratio variables and if these variations are significant, with values ranging between -1.0 and +1.0. The results of the correlation matrix indicate whether or not a study has selected the correct variables. The research discusses the correlation between the independent and dependent variables.

Table 5.6 presents Pearson's correlation coefficient matrix for the dependent variable, the abnormal returns for the 31-day event period of companies that made earnings announcements, and the independent variables of firm size, government ownership and sector. In terms of the correlation between the regression, Pearson's analysis indicates that large companies and companies with government ownership of shares were significantly positively correlated with the dependent variable (ARs of earnings

announcements) with an '*r*' value of 0.473 and 0.569, at the 1% confidence level (2-tailed). Moreover, for the sector variables, there was a positive significant correlation between the banking, food and beverage, insurance and materials sectors and the abnormal returns with a '*r*' value of 0.666, 0.392, 0.774 and 0.620, respectively. However, the independent utilities sector was negatively associated with abnormal returns with an '*r*' value of -0.405.

In addition, large size was positively related to government ownership of shares and the materials sector with a '*r*' value of 0.764 and 0.437, respectively. The government ownership variable was positively correlated with the bank, food and beverage and materials sectors with a '*r*' value of 0.654, 0.516 and 0.496, respectively. However, the other variables did not seem to correlate with each other.

Table 5.6: Correlation Coefficients Between the AARs of Earnings Announcements and the Independent Variables

Variables	ARs of Earnings Announcements	Size	Government Ownership
ARs of Earnings Announcements	1	-	-
Size	0.473**	1	-
Government Ownership	0.569**	0.764**	1
Dummy	0.107	-0.314	-0.239
Dummy Trend	0.506**	0.450*	0.441*
Bank	0.666**	0.626**	0.654**
Diversified Financials	0.351	0.008	0.081
Energy	0.209	0.337	0.325
Food and Beverages	0.392*	0.336	0.516**
Insurance	0.774**	0.077	0.198
Materials	0.620**	0.437*	0.496**
Real Estate Management and Development	0.320	0.030	-0.040
Retailing	0.231	0.031	0.057
Telecommunication Services	0.247	0.322	0.202
Utilities	-0.405*	0.142	-0.017

Note: *, ** Correlations are significant at the 5% and 1% level (2-tailed), respectively.
Source: Author's calculation.

5.3.3 GMM Regression Results and Discussion

Table 5.7 presents the results for the GMM regression for abnormal returns of earnings announcements for the 31-day event window (15 days before, announcement day and 15 days after the announcement) for a total of 696 samples of annual earnings announcements with 21,576 observations (each firm made an announcement at a different time).

In this study, we employed the GMM estimator. The possibility of endogeneity in the predictor variables can be addressed by using orthogonal conditions between the dependent variable lag value and the error term. The GMM approach technique was employed when the explanatory variable is associated with the residual disturbance term to deal with endogeneity and simultaneity biases. The model is evaluated with a one-step GMM approach. As a result the estimate is constant and reliable.

The VIFs for each variable were less than five, indicating that no multicollinearity. The dependent variable was the abnormal returns in the 31-day event window for the whole sample of annual earnings announcements while the independent variables were large companies, government ownership of shares and sector (see Table 4.3). The formula used for the regression model was as follows:

$$\text{ARs} = \beta_0 + \beta_1 FSIZE_{it} + \beta_2 FGOV_{it} + \beta_3 FSEC_{it} + \beta_4 DAD_{it} + \beta_5 DTrend_{it} + \varepsilon_{it}$$

Table 5.7 presents the results for the GMM regression analysis for ARs responses to annual earnings announcements. The table shows the relationship between the abnormal returns related, the earnings announcements period and firm characteristics. The following paragraphs provide a detailed review of the regression findings with reference to the study hypotheses.

Model 1 in Table 5.7 shows the F-values of the regression analysis, indicating a high statistical significance ($p = 0.002$). The adjusted R^2 for the model indicates that large companies and government ownership of shares explain 39.7% of the variation in abnormal returns related to the earnings announcement period.

The coefficient of large firms was positive but not statistically significant at any level. It indicates a positive relationship with abnormal returns in earnings announcements,

suggesting that a firm's size is not a determinant of stock price reactions to the earnings announcements in the event window. The positive relationship for large firms is consistent with the findings of Al-Shawawreh and Al-Tarawneh (2015) and Cressy and Farag (2011), who found a positive correlation between abnormal returns and the characteristics of the company, including size. These results are also in line with Blandón et al. (2012), who found that the shareholders of large companies react favourably to constant company announcements by increasing their investments. Chan et al. (2005) indicated that firm size exerts no strong influence on earnings announcements within the three-day event window.

However, from the perspective of the performance of earnings announcements, Hypothesis 4a states that there is a positive relationship between abnormal returns and the announcements of annual earnings in large firms, and this appears to hold true. This means that larger companies listed on the Saudi stock market tend to have positive abnormal returns around the earnings announcement period. These findings are consistent with the finding of Alzahrani and Skerratt (2010), Chan et al. (2005), Christensen et al. (2004), Murphy et al. (2009) and Reynolds and Francis (2001), who demonstrated that a firm's size is a significant determinant of how its stock price reacts. Meek (1991) also found that the firm size is positively statistically significant correlated with the response of US securities markets to annual earnings announcements.

As can be observed in Table 5.7, the abnormal returns of firms whose shares are partly owned by government showed a significant (t = 1.92) and positive coefficient of 0.356 association with abnormal returns of earnings announcements at the 10% significance level. This result indicates that government ownership is statistically significant in explaining or determining abnormal returns on the event window (-15, +15) around the earnings announcement. Therefore, the findings support Hypothesis 5a, which holds that there is a positive relationship between abnormal returns and the announcement of annual earnings in firms with government ownership of shares. This means that firms whose shares are partly owned by government tend to experience positive statistically significant abnormal returns during the earnings announcement period. Moreover, larger Saudi stock market companies have higher government and institutional ownership and greater transparency, which minimises the asymmetry of information and the response to news for these stocks.

The significance of government ownership is inconsistent with the findings of Battalio and Mendenhall (2005), Bhattacharya (2001), Chen et al. (1997) and Su (2003), who found that individual investors play a significant role in the occurrence of inefficient reactions following earnings announcements. These outcomes are confirmed by Lim et al. (2014), who found that the largest shareholders' identity and corporate ownership are essential for the timeliness of the company's earnings and are important factors in the timely price discovery. Their findings show that companies with governments as their principal shareholders have a slightly shorter lag in earnings reporting and timely market discovery, as compared with the widely held belief that government-owned companies pursue a more obscure data climate to cover up their inefficiencies. Further, as previously stated, government-owned companies are associated with increased disclosure and transparency.

With regards to the relationship of abnormal returns around earnings announcements, the dummy variable on the announcement day and the dummy trend variable following the announcement day had a significant positive coefficient of 0.003 and 0.000 at the 1% and 1% confidence level, respectively. This result suggests that there were positive significant abnormal returns on the day of the earnings announcement and also a positive statistically significant trend of abnormal returns on the days following the earnings announcement (the post-announcement period).

Model 2 added the bank variable to establish whether the banking sector could explain or determine the abnormal returns around the annual earnings announcements. The model shows the F-values of the regression analysis, indicating a high degree of statistical significance ($p = 0.001$). The adjusted R^2 for the model indicates that the large size of the company, government ownership and bank sector explain approximately 44.7% of the variation in the abnormal returns around the announcement period of earnings. Further, the outcomes of the regression analysis presented in Table 5.7 indicate a positive coefficient of 0.156 correlation ($t = 1.58$) between the banking sector and abnormal returns at the time of earnings announcements.

Model 3 indicated whether there is a relationship between the sector of diversified financials and abnormal returns related to earnings announcements, along with size, government ownership and dummy variables. The results of the regression reflect a

highly significant positive correlation ($p = 0.001$) between the independent variables and the abnormal returns of earnings announcements. The adjusted R^2 indicates that all of the independent variables explain approximately 47.7% of the variation in abnormal returns around the earnings announcement period. The outcomes confirm a positive significant coefficient of 0.124 at $t = 2.79$ between the diversified financial sector and the abnormal returns. Moreover, this regression model confirms significant ($t = 2.31$) and positive ($\beta = 0.002$) abnormal returns on the announcement day as well as a significant ($t = 1.69$) and positive ($\beta = 0.000$) increasing trend in abnormal returns following the announcement day.

Models 4, 5, 8 and 10 confirm that there is no significant relationship between the energy, food and beverages, real estate management and development, and telecommunication services sectors and abnormal returns related to the earnings announcement event period. Moreover, there were positive significant abnormal returns on the announcement day and a positive trend of abnormal returns in the post-announcement event for the diversified financials, energy, food and beverages, materials, retailing and telecommunication services sectors.

The outcomes of Models 6, 7 and 9 presented in Table 5.7 suggest a highly significant positive ($\beta = 0.256$, $\beta = 0.421$ and $\beta = 0.095$) correlation ($t = 7.43$, $t = 2.54$ and $t = 1.89$) at the 1%, 5% and 5% significance level between the insurance sector, materials sector and retailing sector, respectively, and the abnormal returns of the earnings announcements. This also means that the share prices of the companies operating in these sectors experienced positive abnormal returns during the earnings announcement period. Regarding Model 11, the coefficient of the utilities sector ($\beta = -0.131$) was negative and statistically significant at the 5% level ($t=- 2.56$), suggesting that the stock prices of companies operating in this sector are negatively correlated with abnormal returns around earnings announcements.

These results provide empirical support for Hypothesis 6a, suggesting that there is a relationship between abnormal returns and the announcements of annual earnings by sector. This means that the share prices of companies operating in these sectors experience positive (negative) abnormal returns during the annual earnings announcement period. Overall, we conclude that there are some characteristics

associated with certain sectors, indicating a highly significant price reaction to annual earnings announcement by sector containing larger companies with government ownership of shares. This implies that earnings announcements within these sectors include highly informative information to the market. Therefore, the sector is the determinant of stock price reactions to the earnings announcements event window.

Table 5.7: GMM Regression Results for ARs of Earnings Announcements

Parameter Estimations (t-statistics)											
Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
(Constant)	0.000 (1.03)	0.001 (1.63)	0.000 (0.92)	0.000 (1.01)	0.000 (0.99)	0.000 (1.14)	-0.000 (-0.41)	0.000 (1.18)	0.000 (0.34)	0.000 (1.01)	0.001* (1.74)
Size	0.086 (0.55)	-0.027 (-0.17)	0.141 (0.91)	0.114 (0.65)	0.123 (0.84)	0.220** (2.25)	0.026 (0.16)	0.054 (0.32)	0.085 (0.57)	0.095 (0.64)	0.251 (1.54)
Government Ownership	0.356* (1.92)	0.239 (1.19)	0.321* (1.81)	0.369* (1.87)	0.249* (1.67)	0.224** (2.33)	0.224 (1.26)	0.399** (2.08)	0.335* (1.84)	0.347* (1.87)	0.287* (1.69)
Dummy	0.003*** (4.93)	0.002** (2.31)	0.003*** (5.86)	0.003*** (3.65)	0.003*** (5.00)	0.001*** (3.72)	0.002*** (5.08)	0.002*** (3.59)	0.003*** (4.97)	0.003*** (4.25)	0.003*** (5.89)
Dummy Trend	0.000*** (2.97)	0.000* (1.69)	0.000** (2.39)	0.000*** (2.87)	0.000*** (2.70)	0.000 (0.60)	0.000** (2.49)	0.000* (1.88)	0.000*** (3.27)	0.000** (2.34)	0.000 (1.24)
Bank		0.156 (1.58)									
Diversified Financials			0.124*** (2.79)								
Energy				-0.028 (-0.45)							
Food and Beverages					0.120 (1.37)						
Insurance						0.256*** (7.43)					
Materials							0.421** (2.54)				
Real Estate Management and Development								0.098 (1.56)			
Retailing									0.095* (1.89)		
Telecommunication Services										-0.016 (-0.25)	
Utilities											-0.131** (-2.56)
Adj. R-Squared	0.397	0.447	0.477	0.382	0.408	0.783	0.525	0.432	0.436	0.374	0.521
Prob J-statistics	0.002	0.001	0.001	0.004	0.002	0.000	0.000	0.001	0.001	0.004	0.000

Note: *, **, and *** indicate significance at 10%, 5% and 1%; t-values are in parentheses.

Source: Author's calculation.

5.3.4 Cumulative Average Abnormal Returns and Firm Characteristics

5.3.4.1 Firm Size

The sample was ranked and the findings were split by company size to refine the analysis. The industries were ordered by market capitalisation. We collected the CAARs around the annual earnings announcements event period along with good and bad news for large and small firms to confirm whether the size of the firm is a determinant of stock price reaction. Table 5.8 displays the CAARs based on firm size in various event windows around the annual earnings announcements.

Table 5.8 shows that on the days before the earnings announcements, there was no evidence to expect earnings news information in the case of large and small firms for the whole sample of the earnings and good news. However, large firms, especially five days before the announcements, indicated some anticipation of bad news with 3.23% CAARs, which could raise concerns of information leaking from those firms, although the CAARs were not statistically significant. Meanwhile, for good news announcements, small firms reported positive CAARs on the event (-15, -1), However, they reported negative CAARs on event (-10, -1) and positive CAARs on event (-5, -1), indicating that there is no clear sign of anticipation of good news for either large or small companies.

The reactions on the event day were not constant among large and small companies, as illustrated in Appendix 5.1. It is apparent that the reactions of the AARs on the day of the earnings announcement were negative for large companies for the whole sample and the good news, whereas they were positive for small firms. In the case of bad news, large companies performed much better on abnormal returns than smaller ones on the announcement date.

Following the announcements, the CAARs led to a greater underreaction to good announcements and a stronger overreaction to bad announcements for large companies. In terms of bad news, the large companies started to drift earlier than the small companies, with significant CAARs of 5.42% on the days (+1, +10) following the announcements, compared with 2.49% for the small firms. Over the following five days, large companies continued to underreact with 9.56% of CAARs in the period (+1,

+15), which was significant at the 1% confidence level. Small companies showed a strong underreaction in terms of bad news for the period (+10, +15), which contributed to the CAARs of days (+1, +15), this being 4.4%, which was statistically significant at the 1% level.

Moreover, large firms indicated a greater degree of underreaction to good news with 2.66% CAARs on days (+1, +15), which was significant at the 1% confidence level. Small firms noted an apparent overreaction to bad news with 4.39% CAARs in the 15 days following the event, which was significant at a 1% level. This suggests that investors in the Saudi stock market lose trust regarding the risk posed by small companies following bad announcements. These results tally with those of a study on the Egyptian stock market by Cressy and Farag (2011). The study revealed that a negative relationship between the size of a firm and the overreaction to bad announcements.

Moreover, smaller firms had higher CAARs than larger firms both for the whole sample and for the good news sample. These results correspond to the findings of Alzahrani (2010) in the Saudi stock market. A large firm that announces bad news has higher CAARs with 9.56% than a smaller firm, with 4.4% for the period (+1, +15). Moreover, large and small firms announcing bad news have higher CAARs than large and small firms announcing good news. The size results may support the argument of Fama and French (1992) that the smaller the company, the higher the expected return. This means that using the Fama–French three-factor model to calculate the expected returns will increase the expected returns of small firms and thus, reduce their CAARs to the level of large firms around earnings announcements.

Table 5.8: CAARs and T-Statistics for Different Event Windows Around Annual Earnings Announcements by Firm Size

	Whole Sample				Good News				Bad News			
	N = 120 Large Firms		N = 576 Small Firms		N = 113 Large Firms		N = 454 Small Firms		N = 7 Large Firms		N = 122 Small Firms	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	0.139	0.16	0.596	0.55	0.009	0.01	0.109	0.10	2.234	0.61	2.405	1.57
CAAR (-10, -1)	-0.226	-0.33	-0.307	-0.35	-0.512	-0.72	-0.555	-0.64	4.386	1.46	0.617	0.49
CAAR (-5, -1)	-0.208	-0.43	0.608	0.97	-0.420	-0.83	0.255	0.42	3.225	1.52	1.923**	2.17
CAAR (-15, +15)	2.991**	2.47	4.086***	2.62	2.428*	1.93	3.323**	2.18	12.083**	2.29	6.928***	3.14
CAAR (+1, +5)	0.709	1.45	0.528	0.84	0.765	1.51	0.544	0.89	-0.203	-0.10	0.468	0.53
CAAR (+1, +10)	2.447***	3.55	1.931**	2.18	2.263***	3.16	1.781**	2.06	5.421*	1.81	2.489**	1.98
CAAR (+1, +15)	3.061***	3.63	3.179***	2.93	2.659***	3.03	2.852***	2.69	9.556***	2.60	4.397***	2.86

Notes: This table presents the cumulative average abnormal returns (CAARs) and t-statistics for different event windows around the annual earnings announcement date (t = 0) by firm size using the Fama–French three-factor model. The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.3.4.2 Government Ownership of Firms

The Saudi government has considerable investments in companies listed on the Saudi stock market but also invests via other governmental agencies such as the Public Investment Fund (PIF), Public Pensions Agency (PPA) and the General Organization for Social Insurance (GOSI). We investigated how government ownership can influence stock price efficiency at the time of earnings announcements. We obtained the CAARs for good news and bad news for firms whose shares are owned by the government, including the associated pension funds, in different event windows, as shown in Table 5.9.

Table 5.9 demonstrates that firm ownership is an important consideration for evaluating the efficiency of stocks in the period around the announcements of annual earnings, as previously discussed in the literature review. Stocks in firms with high government ownership of their shares exhibited a much greater underreaction to good news with CAARs of 0.82%, 2.51% and 2.82% on the periods (+1, +5), (+1, +10) and (+1, +15), with a significant confidence level of 10%, 1% and 1%, respectively. Further, there was a high level of underreaction in the case of firms without government ownership, with significant CAARs of 1.65% and 2.81% in the periods (+1, +10) and (+1, +15), respectively.

Stocks with government ownership exhibited a high degree of overreaction to bad news announcements, with CAARs of 4.5% and 7.26% in the 10 days and 15 days following the announcements, which were statistically significant at the 10% and 1% levels, respectively. Moreover, stocks without government ownership showed a high level of overreaction to bad news, with significant CAARs of 2.42% and 4.36% for the periods (+1, +10) and (+1, +15), which are significant at the 10% and 1% levels, respectively. Still, it does not exceed those with government ownership of shares for the announcement of bad news. A possible explanation for these findings is that companies with government ownership receive greater media attention and are tracked by a significantly greater number of financial analysts relative to other stocks on the Saudi stock market.

The reactions on the event day were not constant among the companies without government ownership of shares, as illustrated in Appendix 5.2. The reactions of AARs

on the day of the earnings announcements, both for the whole sample and for the good news sample, were negative insignificant for companies with government ownership. In contrast, they were positive insignificant for companies without shares held by the government. In the case of the bad news, companies with shares held by the government showed many more positive abnormal returns than companies without government ownership of shares.

The results for government ownership of firm shares are in line with those of Su (2003), whose results reveal that the Chinese stock market is comparable to the Saudi stock market in terms of effect on stock efficiency in the earnings announcements period. The findings of the current study and Su's (2003) indicate that individual investors play a major role in inefficient reactions following earnings announcements. Moreover, the results are in line with the findings of Battalio and Mendenhall (2005), Bhattacharya (2001) and Chen et al. (1997). In contrast, Bartov et al. (2000) and B. Ke and Ramalingegowda (2005) claim that institutional investors are largely responsible for any underreaction to good news announcements, which is not the case in the Saudi stock market. Moreover, Hirshleifer et al. (2008) and Trueman et al. (2003) studied this phenomenon in PEAD, concluding that no individual investors or their subgroups are responsible for an underreaction to earnings announcements.

Table 5.9: CAARs and T-Statistics for Different Event Windows Around Annual Earnings Announcements by Government Ownership of Shares

	Whole Sample				Good News				Bad News			
	N = 162 With Government Ownership		N = 534 Without Government Ownership		N = 148 With Government Ownership		N = 419 Without Government Ownership		N = 14 With Government Ownership		N = 115 Without Government Ownership	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	-0.393	-0.47	0.793	0.72	-0.68	-0.81	0.361	0.34	2.64	0.87	2.366	1.54
CAAR (-10, -1)	-0.893	-1.32	-0.111	-0.12	-1.213*	-1.76	-0.311	-0.36	2.492	1.00	0.618	0.49
CAAR (-5, -1)	-0.472	-0.99	0.753	1.19	-0.807*	-1.66	0.448	0.72	3.073*	1.75	1.862**	2.10
CAAR (-15, +15)	2.643**	2.22	4.278***	2.71	1.938	1.6	3.570**	2.32	10.105**	2.31	6.855***	3.11
CAAR (+1, +5)	0.763	1.59	0.497	0.78	0.822*	1.69	0.505	0.82	0.144	0.08	0.467	0.53
CAAR (+1, +10)	2.684***	3.96	1.819**	2.03	2.513***	3.65	1.653*	1.89	4.498*	1.81	2.423*	1.93
CAAR (+1, +15)	3.205***	3.87	3.145***	2.86	2.822***	3.35	2.811***	2.62	7.261**	2.39	4.363***	2.84

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.3.4.3 Firm Sector

The CAARs of different sectors in the case of annual earnings announcements in the Saudi stock market were investigated to confirm whether certain sectors responded more effectively to earnings announcements than others. Table 5.10 below displays the CAARs for the earnings announcement days for the 10 largest industry sectors on the Saudi stock market.

Table 5.10 clearly indicates that in the period of earnings announcements, some sectors tend to be more efficient than others. In the pre-announcement period, during the last five days before earnings announcements, differences were observed in terms of the CAARs, demonstrating variations in the degree of anticipation of earnings announcements across the various sectors. Although there were negative CAARs for the banking, energy, food and beverage, real estate management and development and utilities sectors five days before earnings announcements, the other sectors exhibited positive CAARs, which may indicate that a few days before the earnings announcements there is a risk of information leaking in these sectors. In the pre-announcement period, the banking sector had significantly negative CAARs in the period -15, -10 and -5 before the announcement day at -3.69%, -4.10% and -1.42%, respectively. Moreover, there were significant positive CAARs five days before the event at 1.77% at the 10% level.

Reactions on the event day were not consistent across the various sectors, as illustrated in Appendix 5.3. The reactions of AARs on the day of earnings announcements were weaker among the banking, diversified financials, materials and utilities sectors. Following the announcement day, the reactions of the diversified financials, real estate management and development and utilities sectors to earnings announcements were fully efficient without any significant CAARs. The food and beverage sector also reacted in a more efficient manner than the other sectors. Traditional sectors such as the energy, insurance and telecommunications sectors exhibited stronger underreaction to earnings announcements compared with other sectors and the market as a whole. The telecommunication services sector, which is associated with high price volatility, exhibited the greatest underreaction to earnings announcements with a CAAR of 5.89% on days (+1, +15).

The results indicate that Saudi Arabia's growth sectors, such as the diversified financial, real estate management and development and utilities sectors, are more efficient than the rest of the market. These findings may indicate that undervalued stocks or stocks that represent good long-term investment opportunities behave efficiently in response to earnings announcements, especially on the days following the announcements. In contrast, stocks that are overvalued or do not have significant possibilities for future growth exhibit greater underreaction or overreaction following earnings announcements.

In general, the findings for the individual sectors are consistent with the results of Alzahrani and Skerratt (2010). Their findings revealed that growth industries on the Saudi stock market respond more efficiently than those industries with greater volatility in earnings and less promising opportunities for future growth. We conclude that high significant price reaction to earnings announcements by sectors containing larger companies and higher government ownership implies that earnings announcements contain highly informative information.

Table 5.10: CAARs and T-Statistics for Different Event Windows Around Annual Earnings Announcements by Sector

CAARs and T-Statistics for Different Event Windows Surrounding Annual Earnings Announcement Days by Sector – Pre-Event and Post-Event Windows										
	Banks N = 57		Diversified Financials N = 16		Energy N = 18		Food and Beverages N = 10		Insurance N = 144	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	-3.685***	-3.05	1.245	0.58	-1.468	-0.55	-0.251	-0.16	1.274	0.70
CAAR (-10, -1)	-4.100***	-4.16	-0.019	-0.01	-0.622	-0.28	-1.086	-0.87	-0.342	-0.23
CAAR (-5, -1)	-1.415**	-2.03	1.605	1.30	-1.514	-0.98	-0.304	-0.34	1.765*	1.68
CAAR (-15, +15)	-1.171	-0.67	2.841	0.93	4.530	1.18	1.875	0.85	6.265**	2.40
CAAR (+1, +5)	-0.088	-0.13	-0.220	-0.18	1.886	1.22	0.632	0.71	0.013	0.01
CAAR (+1, +10)	1.716*	1.74	0.797	0.46	5.114**	2.34	2.067*	1.65	1.423	0.96
CAAR (+1, +15)	2.470**	2.05	1.659	0.78	5.272**	1.97	2.462	1.60	4.417**	2.43
	Materials N = 144		Real Estate Management and Development N = 29		Retailing N = 22		Telecommunication Services N = 16		Utilities N = 10	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	1.625	1.62	-0.934	-0.51	3.841**	2.00	0.480	0.24	1.892	0.85
CAAR (-10, -1)	0.601	0.73	-1.078	-0.73	1.583	1.01	-0.498	-0.31	2.688	1.47
CAAR (-5, -1)	0.362	0.63	-0.515	-0.49	1.527	1.38	0.307	0.27	-0.617	-0.48
CAAR (-15, +15)	5.485***	3.80	2.004	0.77	7.243***	2.62	6.131**	2.14	2.204	0.69
CAAR (+1, +5)	1.054*	1.82	1.315	1.25	0.971	0.87	0.168	0.15	1.060	0.82
CAAR (+1, +10)	2.879***	3.51	1.299	0.87	2.517	1.60	1.471	0.90	1.883	1.03
CAAR (+1, +15)	3.740***	3.73	2.412	1.32	3.178*	1.65	5.893***	2.96	0.350	0.16

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.4 Empirical Findings on Top Management Change Announcements

One of the primary purposes of the study was to examine how announcements of top management changes made by companies listed on the Saudi stock market affect stock returns. The study determined the efficiency level of the Saudi stock market by examining the stock price adjustment to the announcements to establish whether or not the market was efficient in semi-strong form. Moreover, the study investigated whether or not firm characteristics (size, government ownership and sector) were determinants of stock price reactions to top management change announcements on the Saudi stock market.

The study sought to establish the impact of top management change announcements on stock returns. Top management changes were defined as a change in the management team consisting of the CEO, the board chairman and the president. These distinct kinds of board of directors/executive changes were examined separately to assess the effect on company share prices for each type of change (i.e. forced resignation, age-related retirement, voluntary departure and new appointment). This categorisation was crucial to achieve more accurate results regarding how each board change affects stock prices. More than one signal may be conveyed with each form of change to the board because, for instance, investors may feel that the resignation of a particular director is indicative of the company's current situation, and this may not be optimistic for the future. Meanwhile, the resignation of a manager may play an essential role in the company's future. Thus, anticipating bad management or better expectations will have a direct impact on stock prices. Boards of directors are able to influence strategic decisions, objectives and policies and consequently, a change will indicate a new perspective that would take the organisation to the next level.

The study was based on the EMH theory, which claims that stock prices already reflect the information available in the market. Consequently, the chosen approach entailed an examination of the Saudi stock market in the semi-strong form of the EMH and the determinants of stock return reactions to top management change announcements based on firm characteristics. To achieve these objectives, three research questions were addressed regarding the information content of top management change

announcements, as stated in the methodology chapter. The answers to these questions reflect the findings of previous studies, which indicate a correlation between top management change announcements and stock returns.

Abnormal returns were calculated in the form of cross-sectional abnormal returns and cross-sectional cumulative abnormal returns. The resulting statistics displayed mixed signals (i.e. positive and negative) appearing in all types of top management change announcements. The performance of abnormal stocks was estimated by daily AAR adjustments and CAAR values.

This section is divided according to different themes and sub-headings for greater clarity. Section 5.4.1 describes the impact of top management change announcements on stock prices in section 5.4.1. Section 5.4.2 examines the category of forced resignation, Section 5.4.3 examines the category of age-related retirement, Section 5.4.4 examines the category of voluntary departure and Section 5.4.5 examines the category of new appointments. Lastly, Section 5.4.6 discusses firm characteristics affecting the determination of abnormal returns related to the top management change announcements event period.

5.4.1 Share Price Reactions to Top Management Change Announcements

This section analyses and discusses the full sample findings for the top management change announcements. Two significance tests were conducted: a parametric t-test and a non-parametric Corrado rank test. One of the advantages of using the non-parametric test in event analysis is that this test is less responsive to outliners (McWilliams & Siegel, 1997). The findings show that the rank test significance was greater than that of the t-test. Thus, this section addresses the Corrado rank test significance in more detail, as well as the significant findings of the t-test. The second hypothesis addressed the question of how the information content of top management change announcements affects the stock returns of Saudi Arabian listed companies. As an initial investigation, Table 5.11 presents the descriptive statistics of AARs and CAARs for companies over a 31-day window around the announcements event period.

Before performing the regression analysis, it is necessary to better understand the dataset and determine whether the sample is normally distributed. The central tendency

measurement (median, mean and mode) and dispersion measurement (standard deviation) are two significant types of statistics. Median and mean abnormal returns were computed in the case of outliers in the data that cause bias in the reported average values. To provide insights into the distribution of the abnormal returns across the mean values, standard deviations were provided. Abnormal returns were measured using the Fama–French three-factor model. Panel A of Table 5.11 summarises the descriptive statistics for the abnormal returns of the firms in different event windows (pre-event, event day and post-event) for the whole sample of top management change announcements.

The study found a total of 13,950 observations of ARs for the 171 listed companies during the 2014–2018 study period. Overall, the results for the AARs of the whole sample suggest that recorded daily AARs did not deviate significantly from the sample mean. This suggests that the market experienced a symmetrical flow of information; hence, investors may experience positive (negative) abnormal returns because of the announcements. Moreover, Table 5.11 reveals that the standard deviation value for all AAR event windows was greater than the average. This means that there was no considerable variation for any of the AARs. In other words, the study sample presented reasonable variance. The same assertion can be made for the cases presented in panels B, C, D and E in Table 5.11.

Panel F presents the descriptive statistics for the differences in the mean and median values of the CAARs for each event window during the 31 days surrounding the announcement day. The mean value of the CAARs ranged from 0.544% for the (-15, -1) window to 0.940% for the (+1, +5) window. Considering the standard deviation, CAARs appeared to fluctuate considerably, especially for the (-5, -1), (-15, +15), (+1, +5), (+1, +10) and (+1, +15) windows where the differences between minimum and maximum values stood at 0.22, 0.71, 0.20, 0.39 and 0.71, respectively. Further, the skewness of the CAARs for the selected event windows around earnings announcements was close to zero, indicating that the CAARs were normally distributed.

Table 5.11: Descriptive Statistics of AARs and CAARs of Top Management Change Announcements

	N	Mean	Median	Max.	Min.	Std. Dev.	Skewness	Kurtosis
Panel A. AARs of Whole Sample								
AAR (-15, -1)	6750	0.00060	-0.00047	0.11618	-0.11918	0.02415	0.06233	4.71728
AAR (0)	450	0.00131	-0.00012	0.09645	-0.10171	0.02237	0.21671	3.52348
AAR (+1, +15)	6750	-0.00017	-0.00063	0.11632	-0.11513	0.02374	0.03589	5.11332
Valid N (listwise)	13950							
Panel B. AARs of Forced Resignation								
AAR (-15, -1)	660	0.00151	-0.00019	0.10130	-0.10929	0.00120	0.14685	3.43582
AAR (0)	44	0.00929	0.00473	0.09059	-0.04866	0.02801	0.83955	1.54810
AAR (+1, +15)	660	0.00185	0.00033	0.11632	-0.10475	0.02492	0.42423	5.47634
Valid N (listwise)	1364							
Panel C. AARs of Age-related Retirement								
AAR (-15, -1)	75	-0.00226	-0.00344	0.03523	-0.02810	0.01387	0.53921	0.32577
AAR (0)	5	-0.00530	-0.00368	0.00504	-0.01721	0.00803	-0.46717	1.48223
AAR (+1, +15)	75	-0.00068	-0.00183	0.08492	-0.08560	0.02418	0.38418	5.03396
Valid N (listwise)	155							
Panel D. AARs of Voluntary Departure								
AAR (-15, -1)	1935	0.00097	0.00020	0.11085	-0.11211	0.02347	0.16855	5.11721
AAR (0)	129	-0.00263	-0.00235	0.08425	-0.10171	0.02324	-0.60681	4.72474
AAR (+1, +15)	1935	0.00049	-0.00046	0.11249	-0.10560	0.02510	0.27523	4.62870
Valid N (listwise)	3999							
Panel E. AARs of New Appointment								
AAR (-15, -1)	4080	0.00033	-0.00073	0.11618	-0.11918	0.02339	-0.04093	4.51000
AAR (0)	272	0.00201	0.00054	0.09645	-0.06197	0.02073	0.43661	2.61336
AAR (+1, +15)	4080	-0.00080	-0.00086	0.10512	-0.11513	0.02284	-0.21991	5.21810
Valid N (listwise)	8432							
Panel F. CAARs of Selective Event Windows Around Top Management Change Announcements								
CAAR (-15, -1)	6750	0.00544	0.00301	0.71108	-0.49094	0.08315	0.51973	8.59208
CAAR (-10, -1)	4500	0.00705	0.00530	0.71108	-0.49094	0.09608	0.46800	6.43889
CAAR (-5, -1)	2250	0.00762	0.00487	0.71108	-0.49094	0.10822	0.37386	5.36579
CAAR (-15, +15)	13950	0.00684	0.00092	1.42519	-0.71865	0.12416	0.89957	8.15468
CAAR (+1, +5)	2250	0.00940	-0.00034	0.72400	-0.52034	0.13143	0.50031	3.45663
CAAR (+1, +10)	4500	0.00863	-0.00307	0.94581	-0.55084	0.14221	0.68229	3.53206
CAAR (+1, +15)	6750	0.00801	-0.00478	1.42519	-0.71865	0.15492	0.85386	5.38736
Valid N (listwise)	13950							

The results presented in Table 5.12 indicate that during the window periods (31-day window), the market reaction to top management change announcements was statistically significantly positive on days -9, -4 and +15 with AARs of 0.196%, 0.170% and 0.229% at the 10%, 10% and 5% significance level, respectively. However, the market reacted significantly negatively at days -5, +1, +6 and +13 with AARs of -0.129%, -0.063%, -0.098% and -0.201% at the 10%, 10%, 5% and 5% levels in terms of both the t-test and rank test, respectively. These results provide empirical support for Hypothesis 2 which states that top management change announcements have a positive relation with abnormal returns around the announcement date. This means that the share prices of companies listed on the Saudi stock market experience positive abnormal returns during the announcement period of top management changes.

The significant negative abnormal returns following the announcements on days 1, 6 and 13 indicate that investors continue to respond negatively to top management change announcements, but there is no immediate response. Thus, the market is not working efficiently. These results are in line with those of Lassoued and Attia (2013) and Warner et al. (1988), who indicated that logit analysis of the effects of transformation in leadership and stock prices show a negative relationship between the probability of change in top management and share price performance. Moreover, the negative abnormal returns following top management change announcements are consistent with the findings of Bae and Joo (2021) and Utami et al. (2020), which indicated that negative abnormal returns were observed following CEO turnover. However, there were significantly positive AARs on day 15 following the announcements. This reaction of abnormal returns can lead to investors re-estimating the top management changing information. These negative observations on the post-announcement period reduce the value of the CAARs. As illustrated in Panel B in Table 5.12, the CAARs of the period (+1, +15) indicated a significant negative value of abnormal returns. The market did not show any reaction on the other days. The day of the announcement had a positive effect on stock returns, but it was insignificant at all levels.

There was a decline in abnormal returns even before the top management changes were announced, as shown in Figure 5.4, starting approximately 11 days before and continuing until around two days before the event. From the obtained abnormal returns declining, we can only conclude that the observed decline in abnormal returns is

possibly the so-called signalling effect (Zhang & Wiersema, 2009). The information coming from the company before the top management change announcements is a message to investors that the performance and prospects of the company are worse than anticipated, which is expressed by the decline in share prices prior to the announcement day. The decline in the abnormal returns persisted for nearly 13 days after the announcement day, leading to the assumption that top management changes are not well received by shareholders, who do not see them as potentially improving management efficiency or the performance of the company. Moreover, an increase in abnormal returns started with a time delay, 13 days after the announcement day, continuing to the end of the observation period. Such results may be attributed to the first decisions taken by the new board members, to which the market responds favourably and revises its previous evaluation about the future of the company.

Overall, Panel B in Table 5.12 indicates that the stock market reacted positively at windows (-15, -1) and (-10, -1), yielding CAARs of 0.898% and 0.637% at the 5% and 10% level in terms of the t-test and the rank test, respectively. In the pre-announcement period, the market response suggests that it was aware of relevant information in advance. Meanwhile, the long-term reaction witnessed 15 days after the announcement is made indicates that investors learned about the board changes information content (Setiawan, 2008). In the post-announcement period, there were negative CAARs for (+1, +5), (+1, +10) and (+1, +15) with -0.145%, -0.224% and -0.225% at the 5%, 1% and 1% significance levels, respectively. Therefore, the above results provide empirical evidence suggesting that top management change announcements inform investors' decisions. The abnormal returns for the post-announcement period were negative, leading to the negative value of the CAARs for the event windows following the announcements. Overall, the CAARs for the event period (-15, +15) indicate that the overall impact of top management change announcements on stock returns was positive statistically significant with 0.774% at the 1% level in terms of the rank test.

Top management change announcements provide useful information for investors. Previous research has revealed that investors rely on information relating to the board of directors/CEO turnover to make investment decisions (Almadi, 2016; Bae & Joo, 2021; Bonnier & Bruner, 1989; Buallay et al., 2017; Cheung & Jackson, 2012; Davidson et al., 1990; Lubatkin et al., 1989; Machdar, 2019; Nthoesane & Kruger,

2014; Pessarossi & Weill, 2013). The significant positive reactions to top management turnover announcements, like the ones recorded on day 15 following the announcement, are an indication that the market perceives such announcements favourably. As noted by Setiawan (2008), changes to a firm's board of directors/CEO succession are often perceived by investors as affecting the company's organisational and financial performance. Similar observations have also been made by Buallay et al. (2017) and Fallatah and Dickins (2012).

From a corporate governance standpoint, an entity's board plays a leading role in shaping its policy direction (Falato, Kadyrzhanova, & Lel, 2014; Gupta & Fields, 2009; Perry & Peyer, 2005). The board also controls the actions of management (Rossi & Cebula, 2015). Similarly, the CEO is critical for the company's day-to-day management; hence, the CEO's competence and background are often a significant consideration for investors (Bonazzi & Islam, 2007; Zhang & Wiersema, 2009). Moreover, the empirical corporate management literature suggests that senior management is critical for ensuring excellent corporate results (Quigley & Hambrick, 2015; Quigley et al., 2017). The results presented in Table 5.12 contrast with the findings of Rose (2019), who found that CEO turnover has a significant positive effect on stock market performance. Instead, the results confirm the findings of Bilgili et al. (2017), who established that changes to a firm's directors adversely influence stock market performance. It is worth noting that changes to the board of directors or senior management on listed firms can take various forms, and depending on the forms, the wealth of stakeholders may either increase or decrease.

Figure 5.4 graphically represents the AARs and CAARs shown in Table 5.12, obtained in the entire window around the announcement day. This illustration of the results demonstrates how the shareholders' response is formed. Shortly after the announcement, there was a decline in the CAARs to approximately 0.545% over 14 days. The ARs then increased and stayed at slightly above zero at 0.229%. The nature of this reaction can be explained by the fact that initially, investors do not support the top management changes, expressed by a decline in market value. After approximately 14 days, abnormal returns started to increase as the expectations of future operations of the company seemed more than likely to be on the increase for investors.

Based on the results of the 450 announcements of top management changes (13,950 observations), it is clear that, in general, the Saudi stock market is not semi-strong efficient during such periods. These findings lead us to confirm that the Saudi stock market does not respond efficiently to corporate announcements on top management changes. Generally speaking, the above findings are not surprising and, to some extent, entirely consistent with the expectations set out in the hypothesis. It also indicates that some of the theories about announcements of board changes may be valid (i.e. agency and signalling theories), particularly the efficiency theory, which assumes that the motivation comes from the maximisation of shareholder value. Based on the study results, it is critical for listed companies to prepare top management changes carefully and to provide stakeholders with appropriate and timely information about the new successors, their experience and the value they will bring to the company to mitigate any negative effect on the stock prices. Doing so would alleviate the negative effect of top management change announcements on firm value.

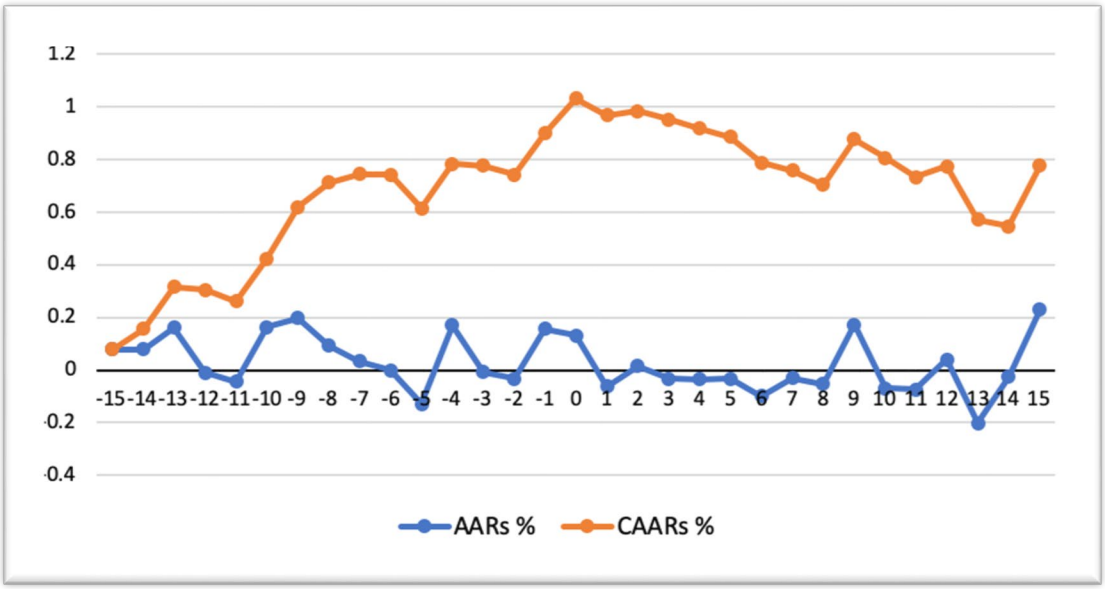

Figure 5.4: AARs and CAARs during the 31-day Event Window Around Top Management Change Announcements

Table 5.12: AARs, CAARs and T-Statistics for Event Windows Around Top Management Change Announcements

Panel A. AARs, CAARs and T-Statistics for Event Windows Around Top Management Change Announcement Days									
N = 450 Whole Sample									
Days	AARs %	T-Stat	Rank Test	CAARs %	Days	AARs %	T-Stat	Rank Test	CAARs %
-15	0.078	0.69	-0.07	0.078	0	0.131	1.16	1.27	1.030
-14	0.078	0.69	0.80	0.156	1	-0.063*	-0.55	-1.65	0.967
-13	0.160	1.41	1.29	0.315	2	0.016	0.14	0.29	0.983
-12	-0.010	-0.09	-0.11	0.305	3	-0.032	-0.28	-0.36	0.951
-11	-0.044	-0.39	-1.54	0.261	4	-0.035	-0.31	0.10	0.916
-10	0.162	1.43	1.10	0.423	5	-0.032	-0.28	-0.35	0.884
-9	0.196*	1.74	1.28	0.619	6	-0.098**	-0.86	-2.12	0.787
-8	0.092	0.81	0.10	0.711	7	-0.030	-0.27	-0.87	0.756
-7	0.032	0.29	-1.20	0.744	8	-0.054	-0.48	-0.79	0.702
-6	-0.002	-0.02	-0.32	0.742	9	0.173	1.53	1.47	0.875
-5	-0.129*	-1.14	-1.89	0.613	10	-0.070	-0.62	-1.35	0.805
-4	0.170*	1.50	1.64	0.783	11	-0.074	-0.66	-1.35	0.731
-3	-0.008	-0.07	-0.14	0.775	12	0.041	0.36	-0.11	0.772
-2	-0.033	-0.30	-0.35	0.741	13	-0.201**	-1.77	-2.03	0.571
-1	0.157	1.39	1.05	0.898	14	-0.025	-0.22	-0.07	0.545
0	0.131	1.16	1.27	1.030	15	0.229**	2.02	0.72	0.774

Panel B. CAARs and T-Statistics for Selective Event Windows Around Top Management Change Announcement Days							
Event Windows	CAARs %	T-Stat	Rank test	Event Windows	CAARs %	T-Stat	Rank test
CAAR (-15, -1)	0.898**	2.05	1.65	CAAR (-15, +15)	0.774***	1.23	-5.55
CAAR (-10, -1)	0.637*	1.78	1.29	CAAR (+1, +5)	-0.145**	-0.57	-1.97
CAAR (-5, -1)	0.157	0.62	0.32	CAAR (+1, +10)	-0.224***	-0.63	-5.63
CAAR (-15, +15)	0.774***	1.23	-5.55	CAAR (+1, +15)	-0.255***	-0.58	-8.47

Notes: This table presents the average abnormal returns (AARs), the cumulative average abnormal returns (CAARs) and t-statistics for 31 days around top management change announcement date (t = 0) using the Fama–French three-factor model. T-statistics are for the hypothesis that top management change announcements have a positive relation with ARs around the announcement date. N shows the number of announcements. The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.4.2 Share Price Reactions to Forced Resignation Announcements

As mentioned in Chapter 4, the forced resignation announcements study sample contained only announcements in which the words 'dismissed,' 'fired' and 'asked for resignation' appeared. Consequently, the sample did not involve forced resignations whereby top directors or CEOs were permitted to 'save face' through resignation or retirement.

Table 5.13 presents the AARs, CAARs, the t-test and the Corrado rank test for the event windows around forced resignation announcements affecting top management changes. We observe that as the event day neared, investors' perceptions of the announcement began to change favourably. A positive statistically significant abnormal return was observed on the day of a forced resignation announcement with 0.929% at the 5% significance level in terms of both the t-test and the rank test. Thus, the market receives forced resignation announcements favourably. As previously mentioned in terms of the agency theory, when executives fail to represent shareholders' interests, there is the likelihood of forced dismissal. The forced resignation of the CEO is likely to result in substantial increases in share price. A similar response was observed in the post-event window, particularly on days 1 and 2 with 0.756% and 0.999%, at the 5% and 1% levels, respectively. This result suggests that the announcement of a forced resignation enhances investors' confidence in the company, supporting the prompt upward trend of the CAARs after the news of a forced resignation. These results are consistent with Dherment-Ferere and Renneboog (2000), Furtado and Rozeff (1987), Garigloff et al. (2016) and Weisbach (1988), who confirmed the market favourably receives the news of a forced resignation of top managers. Also, Pukthuanthong et al. (2017) confirmed that a delay in removing the CEO triggers a negative abnormal return on the day of the announcement when the dismissal is due to financial wrongdoing.

In the pre-forced resignation period, a negative statistically significant abnormal return was observed on day -11 with -0.727% at the 5% significance level. Moreover, the stock market reacted negatively on days -14, -13, -12, -5, -4 and -3, albeit these results were not significant. These findings suggest that investors already discerned the company's previous performance as poor and may have anticipated the dismissals.

However, in the same period, there were positive statistically significant abnormal returns on days -9 and -7 before the announcement, with 0.661% and 1.171% at the 10% and 1% significance level. Further, positive abnormal returns were observed on days -2 and -1 before the announcement, although these were insignificant at any level. This result may indicate systematic information leaks on those days regarding the dismissal of top directors/executives, leading to the official dismissal announcements. Thus, investors perceive this news to be in the interest of shareholders.

Friedman and Singh (1989) indicated that the results of favourable investor responses to top directors being replaced as a result of forced resignations are further correlated with the realistic perception of organisational change in adaptation. Forced resignation announcements of the board of directors connected with poor performance can be regarded as adaptive responses that imply strategic redirection. Such announcements can be viewed by shareholders as reflecting strategic reorientations in the company's evolution (Tushman, Virany, & Romanelli, 1985). This argument is based on the assumption that companies move through cycles of gradual change, punctuated by obvious discontinuities. The dismissal and selection of new leaders are significant turning points in the development of companies and their adaptation to changing circumstances. According to Bonnier and Bruner (1989), abnormal returns resulting from the dismissal of a key executive board member are the total of two components. First, there is an 'information component', which is neutral if no new managerial performance information is expressed in the forced resignation announcement. Second, there is a 'real component', which has an effect if investors feel that the announcement is in the interest of shareholders.

The above findings are in keeping with the results of previous studies. For instance, Dherment-Ferere and Renneboog (2000) found that market-anticipated forced resignation events are associated with significantly positive stock returns. Cheung and Jackson (2012) confirmed that the volatility in stock returns rises promptly as the CEO resignation is announced. Moreover, this rise is substantially greater if a forced resignation is announced rather than a voluntary departure. The findings are also in keeping with those of Bhana (2003, 2016), Clayton et al. (2005) and Intintoli (2013).

However, the results contradict those of Gurgul and Majdosz (2007), who found that the stock market reacts positively immediately before the forced resignation announcement but negatively in the post-announcement period. Mahajan and Lummer (1993) also documented a negative abnormal return on the day before and the day after reports of a forced resignation. Warner et al. (1988) further corroborated this finding, reporting negative abnormal returns 5 to 30 days after a forced resignation announcement. In another study, Dedman and Lin (2002) found that the market reacts negatively to top executives being dismissed, which again, contrasts with our results. Meanwhile, Worrell et al. (1993) found no market reaction to top management dismissal announcements, although they did observe a positive market reaction when the board of directors comprises a majority of independent external managers.

Panel B of Table 5.13 presents the value of CAARs for various event periods. We tested the statistical significance of CAARs in different event periods. According to the t-test and the rank test, CAARs were positive but not statistically significant for the periods (-15, -1) and (-5, -1). There were positive and statistically significant CAARs for the periods (-10, -1), (+1, +5), (+1, +10) and (+1, +15) at the 1%, 1%, 5% and 5% significance levels in terms of the t-test and the rank test. Overall, the results show that forced resignations have a significant positive impact on stock returns, yielding a CAAR of 5.979% for the period (-15, +15). The findings corroborate the notion that forced resignations have a significant positive effect on stock returns, with the market continuing to record substantial positive values for the CAAR in the post-announcement period. As shown in Figure 5.5, the CAAR values increased gradually, staying above the AARs during the study event period. However, these results are inconsistent with those of Cheung and Jackson (2012), who found that forced CEO departures are associated with negative CAARs.

The results corroborate the signalling effect theory, which posits that forced resignations enhance information asymmetry in the market by conveying previously unknown content (Cheung & Jackson, 2012; Connelly et al, 2011; Gangloff et al, 2016; Garcia, Arora, Reese, & Shain, 2020). The significant positive reactions observed in the current study may suggest that the forced resignations involved senior internal management; hence, they inspired stockholder confidence. By examining the CAARs within the window period of (-15, +15), a better idea emerges of the overall effect of

forced resignation announcements on stock returns, including the upward and downward trends around announcements. The CAAR for the event period (-15, +15) is 5.979% and statistically significant at the 1% significance level in terms of both the t-test and rank test. This indicates that the overall effect of forced resignations on stock returns is positive and significant, thereby endorsing our main conclusion following the examination of the AARs.

Public perceptions of the dismissal reaction are not always centred on whether the dismissal will contribute to better performance and increase the wealth of shareholders. It can still be a significant indication of inefficiency in companies. The announcement could signal the uncovered poor returns and inefficiency within the company (Bonnier & Bruner, 1989). Investors and shareholders may perceive that despite the improvements, the inefficiency would continue. They would thus decide not to invest in the company, contributing to a decrease in shareholder wealth (Almadi, 2016). Numerous sources record a significant positive impact following forced resignation announcements, suggesting that stock prices are expected to rise. The anticipated excess returns are primarily because of shareholders who have confidence in the board of directors' decisions and that the change is for the company's good.

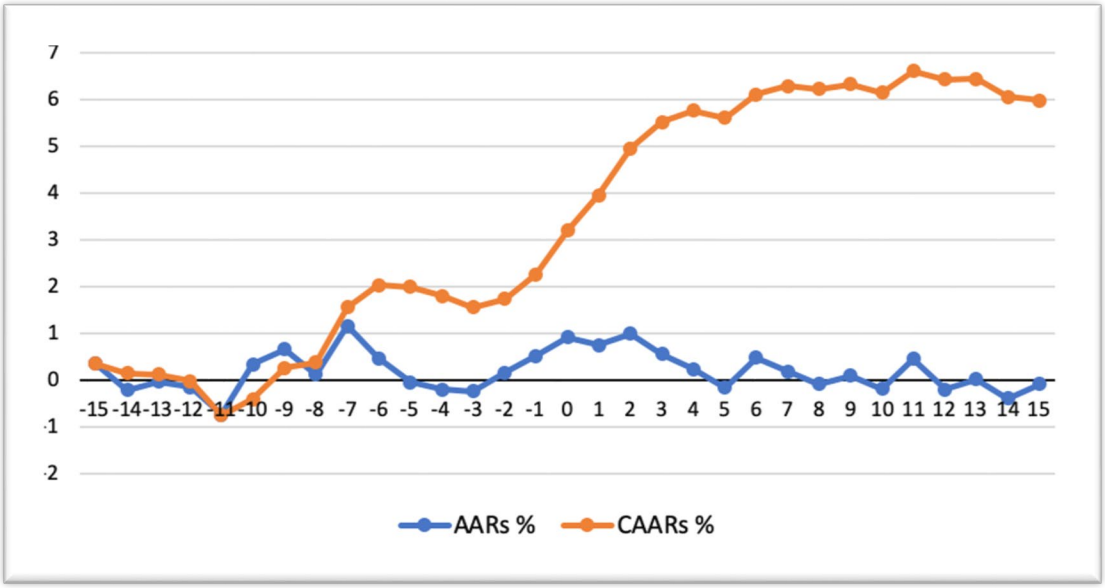

Figure 5.5: AARs and CAARs during the 31-day Event Window Around Forced Resignation Announcements

Table 5.13: AARs, CAARs and T-Statistics for Event Windows Around Forced Resignation Announcements

Panel A. AARs, CAARs and T-Statistics for Event Windows Around Forced Resignation Announcement Days									
N = 44 Forced Resignation									
Days	AARs %	T-Stat	Rank Test	CAARs %	Days	AARs %	T-Stat	Rank Test	CAARs %
-15	0.359	0.98	-0.02	0.359	0	0.929**	2.55	2.48	3.199
-14	-0.207	-0.57	-0.35	0.152	1	0.756**	2.07	2.54	3.955
-13	-0.023	-0.06	0.62	0.129	2	0.999***	2.74	2.45	4.954
-12	-0.143	-0.39	0.15	-0.014	3	0.565	1.55	0.73	5.519
-11	-0.727**	-1.99	-2.37	-0.741	4	0.242	0.66	0.29	5.76
-10	0.343	0.94	1.06	-0.397	5	-0.147	-0.40	-0.16	5.613
-9	0.661*	1.81	0.57	0.264	6	0.490	1.34	1.20	6.104
-8	0.124	0.34	-0.52	0.388	7	0.188	0.51	0.86	6.291
-7	1.171***	3.21	1.15	1.559	8	-0.074	-0.20	-0.90	6.217
-6	0.479	1.31	0.16	2.038	9	0.103	0.28	-0.44	6.32
-5	-0.042	-0.11	-1.42	1.996	10	-0.173	-0.47	-1.33	6.147
-4	-0.19	-0.52	-0.15	1.806	11	0.465	1.27	0.11	6.612
-3	-0.236	-0.65	-0.18	1.569	12	-0.185	-0.51	-0.97	6.426
-2	0.170	0.47	0.68	1.740	13	0.020	0.05	0.50	6.446
-1	0.529	1.45	1.38	2.269	14	-0.388	-1.06	-1.28	6.058
0	0.929**	2.55	2.48	3.199	15	-0.079	-0.22	-0.30	5.979

Panel B. CAARs and T-Statistics for Selective Event Windows Around Forced Resignation Announcement Days							
Event Windows	CAARs %	T-Stat	Rank test	Event Windows	CAARs %	T-Stat	Rank test
CAAR (-15, -1)	2.269	1.60	0.78	CAAR (-15, +15)	5.979***	2.94	6.55
CAAR (-10, -1)	3.010***	2.61	2.75	CAAR (+1, +5)	2.415***	2.96	5.84
CAAR (-5, -1)	0.232	0.28	0.32	CAAR (+1, +10)	2.948***	2.55	5.22
CAAR (-15, +15)	5.979***	2.94	6.55	CAAR (+1, +15)	2.781***	1.97	3.29

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.4.3 Share Price Reactions to Age-related Retirement Announcements

Table 5.14 shows the market reaction to age-related retirement news, presenting the AARs and CAARs for the event period. The fact that on the day of the retirement announcement, no significant abnormal returns were realised suggests that the market anticipated the informative implications. This is not unexpected because age-related retirement details are typically published well in advance of any official announcement. Moreover, the retirement of the board of directors/executives at the usual age of retirement is typically expected, and investors are always aware of such an event even before the official announcement (Bhana, 2016). Overall, the results indicate that announcements of the retirement of directors/executives have a significant negative impact on stock returns, yielding a CAAR of -4.931%. Unexpectedly, the findings indicate that shareholders experienced significant negative abnormal returns on the first day before age-related retirement announcements, with a value of -1.683% at the 5% and 1% confidence levels in terms of the t-value and rank test, respectively. This may suggest that the market is expecting a formal announcement.

The results indicate that the response of the market following senior management retirement announcements is not static, but erratic, as reflected in the negative and positive market reactions in the post-announcement period. The AARs showed a significant negative reaction to the news before the event day on days -12 and -1, leading to a reduction in the AARs of -1.169% and -1.683% at the 10% and 1% in terms of the rank test, respectively. Moreover, significant negative market reactions were observed in the post-announcement period, partially on the days 6 and 13, with AARs of -2.265% and -3.006% at the 1% level, respectively. However, in the same period, a significant positive statistical reaction was evident on days 7 and 15, increasing the AARs by 1.698% and 1.826% at the 5% significance level.

The negative effects on shareholder wealth can be attributed to the fact that the retired senior manager had guided the company well. Retirements can be used to select a new board executive, but replacing such a person with someone equally competent might not be easy. Thus, investors may be worried about the company's future. These results are consistent with those of Bilgili et al. (2017), Dherment-Ferere and Renneboog

(2000) and Güner et al. (2008), who found that age-related retirement announcements of top managers cause a negative price reaction, with investors believing that the company will be unlikely to recruit an experienced person to fit such a role. These negative responses in stock prices can be explained by future uncertainties, which could occur when appointing a successor.

Panel B of Table 5.14 presents CAARs for different event periods. The statistical significance of CAARs in different event periods was also tested. According to the rank test, negative and statistically significant CAARs were observed for all periods (-15, -1), (-10, -1), (-5, -1), (+1, +10) and (+1, +15) at the 1% significance level, with the only exception being period (+1, +5), which had a negative CAAR value of -0.214%. These negative results may suggest that the retiring senior manager had steered the company well and investors are worried about the future of the company.

The findings do not corroborate the notion that age-related retirement announcements do not have a significant impact on stock returns because senior executives are typically expected to retire at the usual retirement age. Thus, there would not be a price reaction to the announcement of a top director/executive retiring at the normal retirement age (Friedman & Singh, 1989; Setiawan, 2008; Weisbach, 1988, 1995). These authors argue that investors are conscious that the existing strategies and policies will not be modified by successors. The new directors appointed after the announcement of age-related retirement may not have the mandate to make strategic changes. Consequently, the probability is that the price of the company's stock will not change. However, this argument would not recognise a scenario in which the organisation had to change direction. For instance, where the strategic decision made by the retired director has become an obstacle to the growth of the company, announcing retirement is likely to draw more interest from investors since the board of directors would encourage the new director/executive to make strategic changes.

Further, the announcement of a CEO's retirement leads to a minimal reaction in the stock market because investors are always aware of such an event even before the actual release of the announcement (Bhana, 2016). This supports the findings of Mahajan and Lummer (1993) and Weisbach (1988), who mentioned that there are no price reactions to age-related retirement news. Nonetheless, Denis and Denis (1995) and Dherment-

Ferere and Renneboog (2000) found a positive abnormal return of nearly 1%, particularly when some executive directors remain on the board beyond their normal retirement age. This may be significant in light of other factors, as with the announcement of the appointment of a new director/executive. Moreover, Weisbach (1995) found that where the retirement announcement is combined with the appointment of a successor, the market reaction is significant.

By examining the CAARs within the window period of (-15, +15), it is possible to gain a better understanding of the overall effect of retirement announcements on stock returns, including both the upwards and downwards trends around the announcements. The CAAR of the event period (-15, +15) was negative at -4.931% and significant at the 1% level. This indicates that the final effect of retirement news on stock returns was significant and negative, thereby endorsing our main conclusion after examining the AARs. Age-related retirement is anticipated by boards of directors well before the actual announcement; to serve the interests of shareholders, the board of directors should look for a replacement well in advance and announce a combined announcement of both the retiree and the appointed successor.

Figure 5.6 shows the AARs and CAARs obtained over the entire window around the announcement of age-related retirement. The graphical illustration of the results demonstrates how the shareholders' response was formed. The CAAR values decreased gradually, staying below the AARs during the study period. Shortly after the announcement day, there was a decline in the CAARs to approximately -6.758% over 15 days. The AARs then increased, staying at 1.826%. The nature of this reaction can be explained by the fact that investors do not initially support the retirement news, which is expressed by a decline in market value. After approximately 13 days, abnormal returns started to increase as the expectations for further operations of a company seemed more than likely to be on the increase for investors.

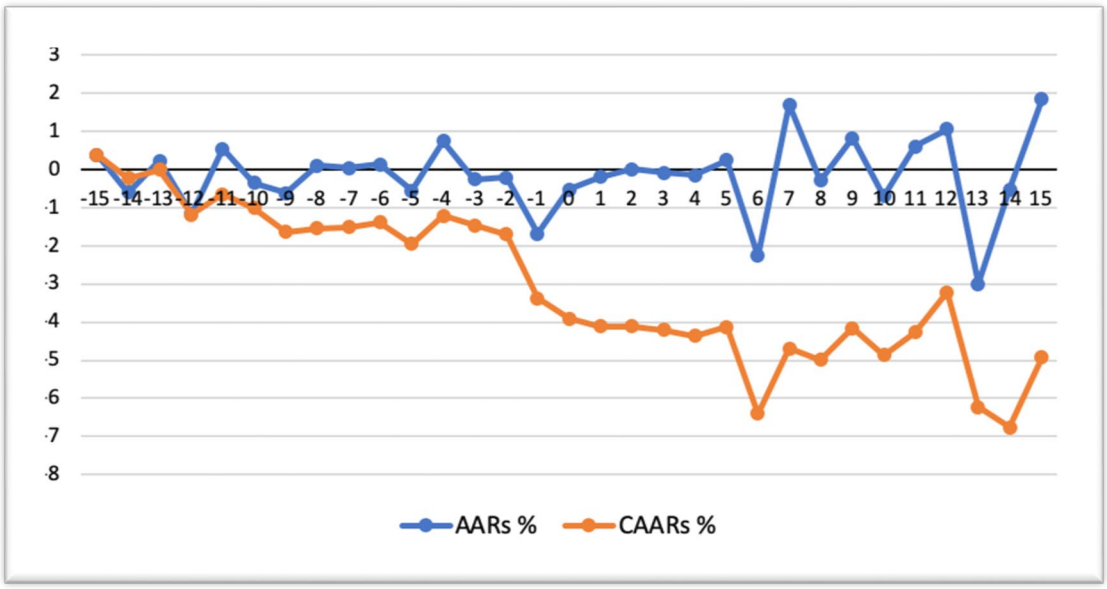

Figure 5.6: AARs and CAARs during the 31-day Event Window Around Age-related Retirement Announcements

Table 5.14: AARs, CAARs and T-Statistics for Event Windows Around Age-related Retirement Announcements

Panel A. AARs, CAARs and T-Statistics for Event Windows Around Age-related Retirement Announcement Days									
N = 5 Age-related Retirement									
Days	AARs %	T-Stat	Rank Test	CAARs %	Days	AARs %	T-Stat	Rank Test	CAARs %
-15	0.374	0.46	0.10	0.374	0	-0.530	-0.65	-0.95	-3.914
-14	-0.612	-0.75	-0.74	-0.238	1	-0.201	-0.25	-0.21	-4.115
-13	0.219	0.27	-0.56	-0.019	2	-0.004	0.00	0.65	-4.118
-12	-1.169*	-1.43	-1.74	-1.188	3	-0.087	-0.11	0.17	-4.206
-11	0.532	0.65	0.54	-0.656	4	-0.158	-0.19	0.26	-4.363
-10	-0.365	-0.45	-0.74	-1.022	5	0.236	0.29	-0.61	-4.128
-9	-0.624	-0.76	-1.21	-1.645	6	-2.265***	-2.77	-1.85	-6.393
-8	0.095	0.12	0.44	-1.551	7	1.698**	2.08	0.45	-4.695
-7	0.037	0.05	-0.04	-1.513	8	-0.291	-0.36	-0.56	-4.986
-6	0.119	0.15	0.57	-1.395	9	0.817	1.00	0.33	-4.169
-5	-0.558	-0.68	-0.69	-1.953	10	-0.697	-0.85	-0.82	-4.866
-4	0.735	0.90	0.58	-1.218	11	0.596	0.73	0.98	-4.270
-3	-0.259	-0.32	-0.32	-1.477	12	1.054	1.29	1.58	-3.216
-2	-0.224	-0.27	0.03	-1.701	13	-3.006***	-3.68	-3.06	-6.222
-1	-1.683***	-2.06	-2.70	-3.384	14	-0.536	-0.66	-0.83	-6.758
0	-0.530	-0.65	-0.95	-3.914	15	1.826**	2.24	0.66	-4.931
Panel B. CAARs and T-Statistics for Selective Event Windows Around Age-related Retirement Announcement Days									
Event Windows	CAARs %	T-Stat	Rank test	Event Windows	CAARs %	T-Stat	Rank test		
CAAR (-15, -1)	-3.384***	-1.07	-6.47	CAAR (-15, +15)	-4.931***	-1.08	-10.29		
CAAR (-10, -1)	-2.728***	-1.06	-4.08	CAAR (+1, +5)	-0.214	-0.12	0.25		
CAAR (-5, -1)	-1.989***	-1.09	-3.10	CAAR (+1, +10)	-0.952***	-0.37	-2.20		
CAAR (-15, +15)	-4.931***	-1.08	-10.29	CAAR (+1, +15)	-1.017***	-0.32	-2.87		

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.4.4 Share Price Reactions to Voluntary Departure Announcements

Table 5.15 shows the market reaction to voluntary departure announcements by presenting the AARs and CAARs. The results indicate that the response of the market was erratic. This is evident from the mixed results, showing a significant negative and positive reaction at the post-announcement period. The market assumes that there is good and bad news conveyed in top management changes. Warner et al. (1988) claimed that announcements of board of director/executive changes are a less visible indication. Executive change announcements are complex: investors assume that changes are bad news since they are aware that the company was performing poorly; at the same time, they may view the changes as good news since the company's management will be replaced.

The AARs reacted significantly positively to the news before the event day on days -15, -14, -9 and -1, leading to an AAR increase of 0.386%, 0.464%, 0.491% and 0.265% at the 10%, 5%, 5% and 10% levels in terms of the t-test and the rank test, respectively. Significant positive AARs on the last trading day before the announcement of a voluntary departure may indicate that the market had prior knowledge of the relevant details. Moreover, on the announcement day, the market reacted negatively to the voluntary departure news with AARs of -0.263%, but insignificantly at any level. Moreover, a negative statistically significant market reaction was observed in the post-announcement period, particularly on the first day after the announcement is made and on day 6 with AARs of -0.225% and -0.281% at the 10% and 5% levels in terms of the rank test, respectively. The findings are in line with those of Bhana (2016), Dedman and Lin (2002), Gurgul and Majdosz (2007), Lubatkin et al. (1989), Mahajan and Lummer (1993), Rossi and Cebula (2015) and Setiawan (2008), who found a significantly negative stock price reaction to the announcements of voluntary departures. A negative market reaction is expected when important human capital is lost (Bauer et al., 2004; Lubatkin et al., 1989). However, Furtado and Rozeff (1987) indicated that the announcements of board of directors/executive changes have a positive impact on shareholder wealth unless it is a resignation. This is because resignations are often connected with pressures from the organisation or they indicate adverse outcomes in the future. These negative results suggest that investors disapprove

of the executive's decision to resign voluntarily, suggesting that market participants interpret such announcements as the corporation's loss of a valuable employee as well as a sign of the company failing. Moreover, the negative results on the first day following the announcement may reflect some disquiet about what is happening within the company. It may further be viewed as public criticism of the company's policies.

These results are inconsistent with those of Mahajan and Lummer (1993) and Worrell et al. (1993) who found that the market reacted positively in poorly performing firms following a CEO's voluntary resignation. Such investors and shareholders tend to view a voluntary resignation as the departure of an underperforming top manager, suggesting approval of the CEO's decision. However, Dherment-Ferere and Renneboog (2000) indicated that the announcement of a non-conflictual resignation by the CEO causes a relatively insignificant reaction in share price. They also confirmed a substantial impact of non-conflictual resignation on share prices when combining the notice with information about a successor. In contrast, Lubatkin et al. (1989) found no significant share price reaction to a voluntary resignation if a new successor is named in the same announcement. The voluntary departure of a top director/executive without a successor appointed in their position is a significant cause of concern for investors and shareholders. As previously mentioned, the choice of successor will affect how investors and shareholders perceive the company's future (Friedman & Singh, 1989). Thus, the results suggest that announcing a successor at the same time as announcing voluntary executive departures will ease any concerns completely.

However, in the same period, a positive significant statistical reaction was evident on days 9 and 12, increasing the AARs by 0.445% and 0.364% at the 5% and 10% significance levels, respectively. This finding suggests that the market may consider the resignation as leading to the appointment of a new board member to replace the board vacancy, thereby giving the company fresh and competitive impetus. The market's average view is that voluntary top management departures are likely to reflect some disquiet about what is happening within the company. Top management resignations can also be interpreted as a public expression of criticism of the company's policies. However, the findings appear to reflect a different opinion, which suggests that voluntary resignations of top management may actually be good for the company. This result is in accordance with the findings of Mahajan and Lummer (1993), who

confirmed that a significant positive abnormal return was observed when a CEO voluntarily resigns but continues to hold a managerial role in the company.

An executive's voluntary resignation can be viewed as good or bad news based on whether or not it is felt that this will bring about an improvement in the performance of the company (Bhana, 2016; Warner et al., 1988; Worrell et al., 1993). Accordingly, the effect of a voluntary departure may be positive or negative, based on the circumstances. A voluntary resignation may not be related to the company itself; it may result from entirely personal considerations and may deprive the company of a beneficial member of the board. Typically, this would be expected to produce a negative market reaction.

By examining the CAARs within the window period of (-15, +15), it was possible to obtain a better idea of the overall effect on the stock returns of voluntary departure announcements concerning the top management, including both the upward and downward trends around the announcements. The findings in Panel B of Table 5.15 indicate that the CAAR of the event window (-15, +15) was 1.929%. This was positive and significant at the 10% significance level in terms of the t-test, indicating that the overall effect of voluntary departure announcements on stock returns was positive and significant. Therefore, this finding confirms our main conclusion after examining the AARs and strongly supports the view that voluntary resignations are commonly viewed as a positive development. Voluntary departure as well as age-related retirement are scenarios that the board of directors anticipates well before the announcement is made. To serve the interests of shareholders, the board should look for a replacement well in advance and announce a successor at the same time of announcing voluntary executive departures.

Figure 5.7 shows the AARs and CAARs obtained in the entire window around the voluntary departure announcements. The graphical illustration of the results demonstrates how the shareholders' response is formed. The CAAR values increase gradually, staying above the AARs during the study period. Shortly after the announcement day, there is a decline in the CAARs to approximately 0.555% over six days. The AARs then increase and stay at 0.445%. The nature of this reaction can be justified by the fact that investors initially do not support the voluntary departure news, which is expressed by the decline in market value. After approximately 15 days,

abnormal returns start to increase to 0.216% as expectations for the future operations of the company seem more than likely to be improving for investors.

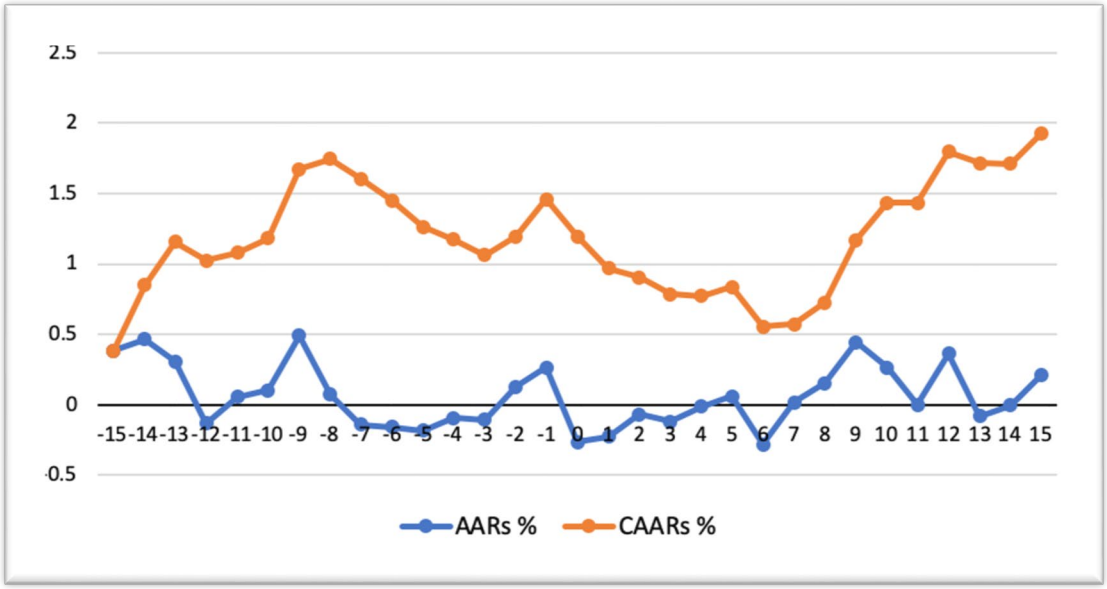

Figure 5.7: AARs and CAARs during the 31-day Event Window Around Voluntary Departure Announcements

Table 5.15: AARs, CAARs and T-Statistics for Event Windows Around Voluntary Departure Announcements

Panel A. AARs, CAARs and T-Statistics for Event Windows Around Voluntary Departures Announcement Days									
N = 129 Voluntary Departures									
Days	AARs %	T-Stat	Rank Test	CAARs %	Days	AARs %	T-Stat	Rank Test	CAARs %
-15	0.386*	1.93	1.53	0.386	0	-0.263	-1.32	-1.27	1.196
-14	0.464**	2.33	2.33	0.85	1	-0.225*	-1.13	-1.64	0.971
-13	0.306	1.53	1.54	1.155	2	-0.068	-0.34	-0.57	0.904
-12	-0.130	-0.65	-0.21	1.025	3	-0.119	-0.60	-1.07	0.785
-11	0.056	0.28	-0.21	1.081	4	-0.011	-0.06	0.14	0.774
-10	0.101	0.50	0.02	1.182	5	0.062	0.31	0.11	0.836
-9	0.491**	2.46	1.80	1.673	6	-0.281**	-1.41	-2.17	0.555
-8	0.074	0.37	-0.36	1.746	7	0.016	0.08	-0.99	0.571
-7	-0.140	-0.70	-1.57	1.606	8	0.154	0.77	1.23	0.725
-6	-0.157	-0.79	-1.23	1.450	9	0.445**	2.23	2.37	1.170
-5	-0.184	-0.92	-0.80	1.265	10	0.265	1.33	0.70	1.435
-4	-0.093	-0.47	-0.29	1.172	11	0.000	0.00	-0.40	1.435
-3	-0.108	-0.54	-0.36	1.064	12	0.364*	1.83	1.39	1.799
-2	0.130	0.65	0.55	1.194	13	-0.081	-0.41	-1.02	1.718
-1	0.265*	1.33	1.92	1.459	14	-0.005	-0.03	-0.26	1.713
0	-0.263	-1.32	-1.27	1.196	15	0.216	1.08	-0.06	1.929
Panel B. CAARs and T-Statistics for Selective Event Windows Around Voluntary Departures Announcement Days									
Event Windows	CAARs %	T-Stat	Rank test	Event Windows	CAARs %	T-Stat	Rank test		
CAAR (-15, -1)	1.459***	1.89	4.65	CAAR (-15, +15)	1.929*	1.74	1.15		
CAAR (-10, -1)	0.378	0.60	-0.33	CAAR (+1, +5)	-0.36***	-0.81	-3.02		
CAAR (-5, -1)	0.009	0.02	1.01	CAAR (+1, +10)	0.238*	0.38	-1.88		
CAAR (-15, +15)	1.929*	1.74	1.15	CAAR (+1, +15)	0.733**	0.95	-2.24		

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.4.5 Share Price Reactions to New Appointment Announcements

As previously mentioned, a contingency perspective of board succession indicates that whether a new executive appointment has a positive, neutral, or negative performance influence varies depending upon whether the leader's characteristics meet the requirement set by a job context. Share prices are responsive to the newly appointed executive's professional qualifications and occupation since this determines the potential financial prospects of the company.

Table 5.16 presents the market reaction to new appointment announcements in top management changes by presenting the AARs and CAARs. The AARs reacted significantly positively to the news in the pre-announcement period on day 4, leading to an AAR increase of 0.342% at the 5% level in terms of the t-test and the rank test. However, as the event day neared, investors' perceptions of the announcement began to change unfavourably. The results indicate that the response of the market in the pre-announcement period was erratic, as can be observed from the negative and positive reaction before the new appointment announcement is made.

We observed a significant positive abnormal return on the announcement day of new director/executive appointment with 0.201% at the 10% level in terms of the rank test. This result supports the findings of Bhana (2016), Davidson et al. (2004) and Rose (2019), who confirmed a statistically significant positive abnormal return on the event day when a new executive appointment is announced. Nguyen et al. (2015) also found a positive change in share prices in poorly performing firms following a new appointment of the board of directors/CEO. They concluded a positive or no stock market reaction following a new appointment in well-performing firms, with the chance of negative reaction being low.

A statistically significant negative market reaction was also observed in the post-announcement period, particularly on the +1, +11 and +13 days with -0.116%, -0.210% and -0.242% at the 5%, 1% and 1% levels, respectively. The results suggest that the announcement of a new executive appointment does not enhance investors' confidence in companies. It supports the prompt downward trend of the CAARs after the news of a new executive appointment, as illustrated in Figure 5.8. Nguyen et al. (2015) argued

that any change in market reaction following the new appointment announcements depends on the quality of the director being appointed. These results suggest that new appointments may not inspire investor confidence; hence, the negative reactions observed in the post-announcement window. These findings are in line with Byrka-Kita et al. (2017) and Lassoued and Attia (2013), who found that appointing a new executive is associated with a negative market reaction. Moreover, Nthoesane and Kruger (2014) confirmed a negative or no stock market reaction to the appointment of CEOs without previous experience.

The negative reactions could be attributed to better pre-appointment performance. In this regard, shareholders may have felt anxious about the new appointment's ability to maintain good performance. A study by Friedman and Singh (1989) found that pre-succession performance influenced investors' reactions to CEO turnover. The new appointments may also have involved busy directors. A study by Mak et al. (2003) found that the appointment of busy directors triggers negative market reactions. These results are consistent with those of Lubatkin et al. (1989), who confirmed that appointing new executives can lead to negative price reactions if significant human capital is lost. These findings also contradict those of Bhana (2016), Charitou et al. (2010), Davidson et al. (2004), Kang et al. (2010), Nguyen et al. (2015), Rhim et al. (2006), Rose (2019) and van Doom (2011), who observed a positive market response following the announcements of a new executive appointment. Moreover, Al-Ahmad (2018) found no effect on stock prices regarding the appointment of new CEOs.

Figure 5.8 shows the AARs and CAARs obtained in the entire window around the announcements of the new appointment. The graphical illustration of the results demonstrates how the shareholders' response was formed. The CAAR values decreased gradually following the announcement day, staying below the AARs during the post-announcement period. Shortly after the announcement, there was a decline in the CAAR to -0.799% over 13 days. The AARs then increased significantly, staying at 0.255%. The nature of this reaction can be justified by the fact that investors do not initially support the announcement of the appointment of a new director/executive, which is evident from the decline in market value. After approximately 15 days, abnormal returns started to significantly increase to 0.255% as the expectations for further operations of a company seemed to be on the increase for investors.

The fall in abnormal returns on the first day after the event and for nearly 13 days indicates that the new appointment is not well received and thus, shareholders do not see prospects for improving the quality of management or the company's results. Therefore, the so-called real effect probably does not occur. It is possible to state this definitively because there were statistically significant negative AARs after the announcement was made. However, it should be noted that an increase in abnormal returns was insignificant on day 14 but significant on day 15 at the 10% level, beginning with a time delay of 14 days after the event and continuing to the end of the observation window. This could be related to the first decisions taken by the newly appointed executive, to which the market reacts positively and revises its previous assessment and uncertainty regarding the company's prospects.

It is possible to obtain a better idea of the overall effect on stock returns from the new appointment announcement by examining the CAARs within the window period of (- 15, +15), including both the upward and downward trend around the announcements. The CAAR for the event period (-15, +15) is -0.511%, which was negatively significant at the 1% significance level in terms of the rank test, indicated that the final effect of announcing new appointments on stock returns was significant. This endorses the main conclusion after the examination of the AARs.

Announcements of new appointments are scenarios that the board of directors anticipate well before the event. It is important for the board of directors to carefully prepare the new board of directors/executive appointment and provide stakeholders with appropriate and timely information about the new successor, their experience and the value they will bring to the company to minimise any negative impact on stock price and to serve the interests of shareholders. The appointment of a new executive without previous experience in the industry or in that particular role will either cause the market to react negatively or will not have any effect on the market (Nthoesane & Kruger, 2014).

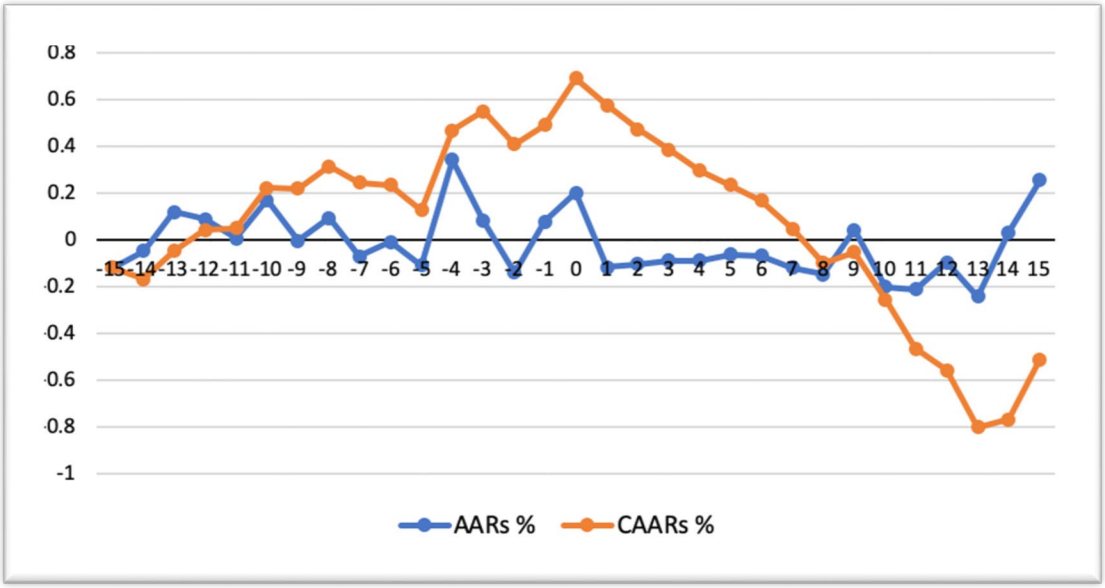

Figure 5.8: AARs and CAARs during the 31-day Event Window Around New Appointment Announcements

Table 5.16: AARs, CAARs and T-Statistics for Event Windows Around New Appointment Announcements

Panel A. AARs, CAARs and T-Statistics for Event Windows Around New Appointments Announcement Day									
N = 272 New Appointments									
Days	AARs %	T-Stat	Rank Test	CAARs %	Days	AARs %	T-Stat	Rank Test	CAARs %
-15	-0.119	-0.85	-1.19	-0.119	0	0.201*	1.44	1.70	0.691
-14	-0.046	-0.33	-0.38	-0.166	1	-0.116**	-0.83	-1.96	0.575
-13	0.119	0.85	0.42	-0.047	2	-0.103	-0.74	-0.28	0.472
-12	0.090	0.64	0.18	0.043	3	-0.087	-0.62	-0.02	0.385
-11	0.008	0.06	-1.00	0.051	4	-0.088	-0.63	-0.12	0.297
-10	0.171	1.22	1.10	0.222	5	-0.062	-0.45	-0.39	0.234
-9	-0.003	-0.02	0.33	0.219	6	-0.066	-0.47	-1.44	0.168
-8	0.095	0.68	0.53	0.314	7	-0.119	-0.85	-0.83	0.049
-7	-0.070	-0.50	-0.90	0.244	8	-0.146	-1.04	-1.47	-0.097
-6	-0.009	-0.06	0.33	0.236	9	0.044	0.31	0.36	-0.053
-5	-0.109	-0.78	-1.24	0.127	10	-0.200	-1.43	-1.62	-0.253
-4	0.342**	2.44	2.33	0.469	11	-0.210*	-1.50	-1.65	-0.463
-3	0.081	0.58	0.19	0.550	12	-0.095	-0.68	-0.96	-0.557
-2	-0.140	-1.00	-1.12	0.410	13	-0.242*	-1.73	-1.71	-0.799
-1	0.080	0.57	-0.18	0.490	14	0.033	0.24	0.71	-0.766
0	0.201*	1.44	1.70	0.691	15	0.255*	1.82	1.01	-0.511

Panel B. CAARs and T-Statistics for Selective Event Windows Around New Appointments Announcement Day							
Event Windows	CAARs %	T-Stat	Rank test	Event Windows	CAARs %	T-Stat	Rank test
CAAR (-15, -1)	0.490	0.90	-0.59	CAAR (-15, +15)	-0.511***	-0.66	-9.28
CAAR (-10, -1)	0.439	0.99	1.38	CAAR (+1, +5)	-0.456***	-1.46	-2.78
CAAR (-5, -1)	0.254	0.81	-0.01	CAAR (+1, +10)	-0.944***	-2.13	-7.79
CAAR (-15, +15)	-0.511***	-0.66	-9.28	CAAR (+1, +15)	-1.201***	-2.22	-10.38

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.5 Determinants of Stock Price Reactions to Top Management Change Announcements

To provide clearer insights into which factors influence stock price reactions to top management change announcements, 11 cross-sectional regression analyses were conducted for the whole sample of the top management change announcements. The sample data were cross-sectional of abnormal returns, the data were 15 days before and 15 days after the announcement was made, including the announcement days (with a total of 13,950 observations), for 171 firms on a different date between 2014 and 2018 (each firm has announced at a different time).

The following subsections analyse and discuss the results of the developed models. Section 6.5.1 presents the descriptive statistics for dependent and independent variables. Section 6.5.2 describes the correlations between the dependent and independent variables. Section 6.5.3 discusses the cross-sectional regression results analysis.

5.5.1 Descriptive Statistics

Before performing the regression analysis, it is necessary to understand the dataset and determine whether the sample is normally distributed. Therefore, measurements of central tendency, mean, dispersion and standard deviation were generated alongside skewness and kurtosis for the variables included for the sample firms in the given model over the five years. The results were achieved for the descriptive statistics for the cross-sectional dependent variable—ARs around the announcements of top management changes, and the independent variables—large companies, companies with government ownership of shares and the various sectors of companies listed on the Saudi stock market during the 2014–2018 study period.

The data used for this analysis were obtained from the Saudi stock market. To empirically investigate the behaviour of the Saudi stock market during the period 2014–2018, data were collected for companies that announced changes to their top management during the study period. The results in Table 5.17 indicate that the data used to compute the correlation and regression for the determinants of stock price

reaction are normally distributed. A skewness value of zero for all of the variables indicates normal skewness.

Table 5.17: Descriptive Statistics for the Dependent and Independent Variables

Variables	N	Min.	Max.	Mean	Std. Deviation	Skewness	Kurtosis
ARs of Top Management Change Announcements	31	-0.0020	0.0023	0.0002	0.0011	0.219	-0.649
Size	31	-0.0023	0.0031	0.0003	0.0016	0.126	-1.124
Government Ownership	31	-0.0057	0.0040	-0.0000	0.0021	-0.492	0.537
Dummy	31	0	1	0.03	0.180	5.568	31.000
Dummy Trend	31	0	15	3.87	5.084	0.975	-0.525
Bank	31	-0.0065	0.0039	-0.0002	0.0026	-0.502	-0.012
Diversified Financials	31	-0.0146	0.0136	-0.0002	0.0069	-0.122	0.033
Energy	31	-0.0112	0.0086	-0.0006	0.0051	0.055	-0.713
Food and Beverages	31	-0.0069	0.0057	-0.0003	0.0030	-0.063	0.070
Insurance	31	-0.0048	0.0062	0.0003	0.0026	-0.001	0.243
Materials	31	-0.0037	0.0049	0.0006	0.0024	0.384	-0.795
Real Estate Management and Development	31	-0.0073	0.0107	0.0002	0.0038	0.168	0.106
Retailing	31	-0.0178	0.0103	-0.0005	0.0066	-0.250	0.060
Telecommunication Services	31	-0.0103	0.0127	-0.0002	0.0057	0.080	-0.099
Utilities	31	-0.0102	0.0109	-0.0002	0.0052	0.094	-0.418
Valid N (listwise)	31						

Source: Author's calculation.

5.5.2 Correlation Matrix

Pearson's correlation coefficient matrix examines the relationship between sets of variables to determine whether or not there is a correlation and how robust it is. It also investigates whether there are variations between interval variables or ratio variables and if these variations are significant, with a value between -1 and +1. The results of the correlation matrix indicate whether or not a study has selected the correct variables. This section discusses the correlation between the independent and dependent variables.

Table 5.18 presents the Pearson correlation coefficient matrix for dependent variables, the abnormal returns of companies that announced changes to their top management, and the independent variables, large companies, government ownership of shares and sector (a total of 10 sectors). In terms of the correlation between the regressions,

Pearson analysis indicates that large companies are significantly positively correlated with the abnormal returns related to the top management change announcements with an '*r*' value of 0.521 at the 1% confidence level. The correlation also indicates that companies with government ownership of shares are significantly positively correlated with the abnormal returns related to announcements with a '*r*' value of 0.425 at the 5% level. Moreover, for the sector variables, there is significant positive correlation between the insurance, materials, real estate management and development and utilities sectors and the abnormal returns with '*r*' values of 0.385, 0.420, 0.399 and 0.372 at the 5% level, respectively.

In addition, a large size is significantly positively related to government ownership of shares and the retailing sector with '*r*' values of 0.611 and 0.565 at the 1% levels, respectively. Moreover, government ownership is significantly positively correlated with the bank and real estate management and development sectors with '*r*' values of 0.393 and 0.393 at the 5% level, respectively. However, the other variables do not seem to be significantly correlated with each other.

Table 5.18: Correlation Coefficients Between the ARs of Top Management Change Announcements and the Independent Variables

Variables	ARs of Top Management Change Announcements	Size	Government Ownership
ARs of top Management Change Announcements	1	-	-
Size	0.521**	1	-
Government Ownership	0.425*	0.611**	1
Dummy	0.185	-0.023	0.018
Dummy Trend	-0.226	-0.008	-0.227
Bank	0.084	0.257	0.393*
Diversified Financials	0.138	0.248	0.200
Energy	0.246	0.255	0.234
Food and Beverages	0.095	-0.088	0.279
Insurance	0.385*	-0.196	-0.168
Materials	0.420*	0.027	0.248
Real Estate Management and Development	0.399*	0.323	0.393*
Retailing	0.033	0.565**	0.066
Telecommunication Services	0.036	0.118	0.294
Utilities	0.372*	0.331	0.274

Note: *, ** Correlations are significant at the 5% and 1% level (2-tailed), respectively.
Source: Author's calculation.

5.5.3 GMM Regression Results and Discussion

Table 5.19 is a GMM regression results for abnormal returns of the announcements of top management changes for the 31-day event window for a total of 450 samples of top management change announcements with 13,950 observations for the period 2014–2018. The sample data are cross-sectional, 15 days before and 15 days after the announcement is made, including the announcement day. The data are for 171 firms on a different date between 2014 to 2018 (each firm has announced at a different time).

In this study, we employed the GMM estimator. The possibility of endogeneity in the predictor variables can be addressed through employing orthogonal conditions between the dependent variable lag value and the error term. The GMM approach technique was chosen when the explanatory variable is associated with the residual disturbance term to deal with endogeneity and simultaneity biases. The model is evaluated with a one-step GMM approach. Consequently, the estimate is constant and reliable.

The VIF for each variable is less than 5, indicating the absence of a multicollinearity problem. The dependent variable is the abnormal returns for the 31-day event window of top management change announcements while the independent variables are discussed in Section 4.5.4 and listed in Table 4.3. Below is the formula for the regression model for the top management change announcements.

$$ARs = \beta_0 + \beta_1 FSIZE_{it} + \beta_2 FGOV_{it} + \beta_3 FSEC_{it} + \beta_4 DAD_{it} + \beta_5 DTrend_{it} + \varepsilon_{it}$$

Table 5.19 represents the results for the GMM regression analysis for the abnormal return responses to the top management change announcements period. The following paragraphs provide a detailed review of the regression findings based on the study hypotheses.

Model 1 shows the F-values of the regression analysis, indicating a significant p-value of 0.019. The adjusted R^2 for the model indicates that large companies and government ownership of shares explained just over 25% of the variation in abnormal returns around the top management change announcements period for companies listed on the Saudi stock market. The coefficient of large firms was statistically significant at the 1% level It had a positive ($\beta = 0.303$) association with abnormal returns around the

announcements, suggesting that firm size is statistically significant in explaining or determining abnormal returns following the announcement of top management changes on the event window. The results are in line with the findings of Rajan and Zingales (1995), who confirmed that investors have more information about large firms than small firms, resulting in high abnormal returns. Gupta and Fields (2009) found that larger firms experience a slight loss of value when announcing the board of directors/CEO changes. These results are also consistent with those of Al-Shawawreh and Al-Tarawneh (2015), Bauer et al. (2004) and Lubatkin et al. (1989), who confirmed that firm size and abnormal returns are positively correlated because investors' and shareholders' confidence is obtained when a firm is already well-established in terms of operational efficiency and effectiveness within its industry. The larger the size of the company, the higher its abnormal returns. These findings are also consistent with previous literature, which established that irrespective of firm size, stock prices represent all available information in the stock market. However, the results are not consistent with those of Dherment-Ferere and Renneboog (2000), who noticed that an internal successor announcement would result in a minimal adverse reaction in a large company because there is no perceived poor performance on the entire board. Therefore, the company has several possible successors.

However, from the perspective of the performance of top management change announcements, Hypothesis 4b states that there is a positive relationship between abnormal returns and the announcements of top management changes in large firms, and this appears to hold true. This means that larger companies listed on the Saudi stock market tend to have positive significant abnormal returns around the event period of the top management change announcements.

The results for the GMM regression analysis shown in Table 5.19 indicate that firms with a percentage of their shares held by government have a positive but insignificant coefficient ($\beta = 0.050$) association with abnormal returns related to top management change announcements. This result indicates that government ownership of shares is not a determinant of abnormal returns during top management change announcement events. Therefore, there is support for Hypothesis 5b, which suggests that there is a positive relationship between abnormal returns and the announcements of top management changes in firms with government ownership. This means that companies

with a percentage of their shares held by government tend to experience positive abnormal returns during announcements of top management changes, although these were insignificant. The findings on government ownership follow those of Hou et al. (2012) and Neneh and Smit (2014), who indicated that investors have greater confidence in companies in which the government has a stake. They are thus more likely to invest in these firms. The government's presence on the stock register enhances transparency and builds investor confidence.

These results are inconsistent with those of Uddin (2015), who concluded that government ownership has a negative impact on firm performance. Moreover, Rossi and Cebula (2015) found that if the government owns the vast majority of a company's shares, investors will tend to have less confidence in the company's operations. Further, it does not appear that government and institutional investors cause executive resignations, even if they hold majority stakes (Bhana, 2016; Dherment-Ferere & Renneboog, 2000). This is the case even though government-owned firms' shares receive more media attention and are tracked by a significantly higher number of financial analysts relative to other stock on the Saudi market. Recommendations on shares and earnings forecasts are among the critical pieces of financial analyst information.

In terms of the relationship with abnormal returns around announcements, the dummy variable on the announcement day reported a significant positive coefficient ($\beta = 0.001$) at 1% significance level, indicating positive significant abnormal returns on the day of the top management change announcement. Moreover, the dummy trend variable following the announcement day has a negative coefficient ($\beta = -0.000$), reflecting a negative trend in abnormal returns for the days following the announcement of top management changes (in the post-announcement period).

Model 2 in Table 5.19 investigated the bank sector to establish whether the sector can explain or determine the abnormal returns around the announcement of top management changes period. The outcomes of the regression analyses indicate negative insignificant coefficients of $\beta = -0.043$ and correlations of $t=-0.52$ between the bank sector and the abnormal returns around the top management change announcements. However, regressions 3, 4 and 10, reflect a negative relationship between abnormal

returns and the sectors of diversified financials, energy and telecommunication services with coefficients of $\beta = -0.010$, $\beta = -0.003$ and $\beta = -0.042$, respectively. This indicates that the stock prices of companies operating in these sectors are negatively associated with the abnormal returns surrounding the announcement of top management changes. However, regressions 5, 8, 9 and 11 reflect a positive relationship between abnormal returns and the sectors of food and beverages, real estate management and development, retailing and utilities with coefficients of $\beta = 0.001$, $\beta = 0.007$, $\beta = 0.012$ and $\beta = 0.031$, respectively. This strongly suggests that the stock prices of companies operating in these sectors are positively associated with the abnormal returns surrounding the announcement of top management changes.

The results for Model 6 shown in Table 5.19 indicate a highly significant correlation F-value ($p = 0.000$) between the independent variables and the abnormal returns surrounding announcements of top management changes. The adjusted R^2 indicates that size, government ownership and insurance sector explain approximately 58.3% of the variation in abnormal returns around the announcement period. The outcomes indicate a positive statistically significant coefficient ($\beta = 0.233$) correlation ($t = 4.76$) at the 1% significance level between the stock prices of companies that operate in the insurance sector and abnormal returns around the announcement.

Moreover, the outcomes for Model 7 shown in Table 5.19 confirm a significant correlation ($p = 0.001$) of F-value. The adjusted R^2 for the model in the regression analysis indicates that large size, government ownership and the materials sector explain approximately 47.8% of the variation in abnormal returns around the announcement period. The results indicate that there is a statistically significant positive coefficient ($\beta = 0.210$) correlation ($t = 3.44$) at the 1% significance level between the stock prices of companies that operate in the materials sector and abnormal returns around top management change announcements. The results from Models 6 and 7 indicate that whenever a company operating in the insurance or materials sector announces top management changes, investors react immediately, leading to positive significant abnormal returns. In this study, the sector research has shown that investors respond rapidly to a company announcing top management changes if the company operates in the insurance or materials sectors.

Overall, these results for various sectors of the Saudi stock market provide empirical support for Hypothesis 6b, which suggests that there is a relationship between abnormal returns and top management change announcements by sector. The hypothesis is empirically supported and accepted, meaning that the share prices of companies listed on the Saudi stock market and operating in these sectors experiences positive (negative) abnormal returns during the top management change announcement period. Therefore, the firm's sector is a determinant of abnormal returns during the top management change announcements event.

The findings are also consistent with existing theoretical notions and empirical evidence (Barclay et al., 1995; Bauer et al., 2004; Bhana, 2016; Rossi & Cebula, 2015; Sare & Esumanba, 2013). Such findings indicate that the sector in which a firm operates influences the determination of abnormal returns around the announcement of board of directors/executive changes. The results of this study are in accordance with those of Bhana (2016), suggesting that sector-specific effects influence abnormal returns from shareholders' reactions to announcements of changes to the board of directors/executives. The findings are consistent with the comparative profitability of certain sectors on the stock market. The reactions of shareholders to announcements of top management changes appear to reflect their view of the profitability of the industry in which the firm operates. The results suggest that the sector in which a firm operates may determine the abnormal stock returns. Barclay et al. (1995), Rossi and Cebula (2015) and Sare and Esumanba (2013) confirmed the notion that the sector can affect the decision of an investor regarding whether or not to purchase a listed company's stock. Investors respond differently to companies' stock prices depending on the industry in which it operates.

Table 5.19: GMM Regression Results for ARs of Top Management Change Announcements

Parameter Estimations (T-Statistics)											
Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
(Constant)	0.000 (1.42)	0.000 (1.46)	0.000 (1.40)	0.000 (1.38)	0.000 (1.42)	0.000 (1.45)	0.000 (0.48)	0.000 (1.39)	0.000 (1.29)	0.000* (1.64)	0.000 (1.57)
Size	0.303*** (2.62)	0.308*** (2.69)	0.313*** (2.72)	0.306** (2.42)	0.303** (2.56)	0.363*** (4.02)	0.362*** (3.81)	0.300** (2.48)	0.267 (1.32)	0.295** (2.44)	0.274* (1.93)
Government Ownership	0.050 (0.48)	0.066 (0.55)	0.051 (0.48)	0.050 (0.47)	0.049 (0.46)	0.062 (0.81)	-0.030 (-0.42)	0.045 (0.42)	0.060 (0.50)	0.081 (0.68)	0.043 (0.40)
Dummy	0.001*** (5.05)	0.001*** (5.06)	0.001*** (4.91)	0.001*** (3.06)	0.001*** (4.43)	0.001*** (5.07)	0.001*** (5.81)	0.001*** (5.42)	0.001** (2.43)	0.001 (1.38)	0.001* (1.68)
Dummy Trend	-0.000 (-0.71)	-0.000 (-0.52)	-0.000 (-0.75)	-0.000 (-0.70)	-0.000 (-0.75)	-0.000 (-1.35)	-0.000 (-0.60)	-0.000 (-0.70)	-0.000 (-0.95)	-0.000 (-1.01)	-0.000 (-0.71)
Bank		-0.043 (-0.52)									
Diversified Financials			-0.010 (-0.59)								
Energy				-0.003 (-0.09)							
Food and Beverages					0.001 (0.01)						
Insurance						0.233*** (4.76)					
Materials							0.210*** (3.44)				
Real Estate Management and Development								0.007 (0.14)			
Retailing									0.012 (0.26)		
Telecommunication Services										-0.042 (-1.20)	
Utilities											0.031 (0.73)
Adj. R-Squared	0.255	0.235	0.230	0.225	0.225	0.583	0.478	0.226	0.228	0.272	0.247
Prob J-statistics	0.019	0.036	0.039	0.041	0.041	0.000	0.001	0.041	0.040	0.022	0.031

Notes: *, **, and *** indicate significance at 10%, 5% and 1%. T-values are in parentheses.

Source: Author's calculation.

5.5.4 Cumulative Average Abnormal Returns and Firm Characteristics

5.5.4.1 Firm Size

The most important factor to consider as a determinant of stock market reaction to company public announcements is the size of the company. In terms of the market capitalisation of firms, we collected the CAARs during announcement days of top management changes for large and small firms to confirm if firm size has any effect on the stock price. We ranked the sample and divided the findings by size to refine the study. Thus, companies were ordered by market capitalisation. Table 5.20 illustrates the CAARs in various event windows around the top management change announcements based on the size of the firms.

Table 6.20 shows that on the days before the announcements, there was the possibility of expecting new information in the case of large firms. The results indicate that announcements of top management changes for the whole sample caused the share prices of large and small firms to react positively in the pre-announcement period and negatively in the post-announcement period. Moreover, both large and small firms did not have any significant CAARs in the event period (-15, +15).

The results also indicate that a forced resignation significantly affects companies' CAARs differently, depending on their size. For instance, news of dismissals at large companies significantly positively affected the CAARs only for the periods (-10, -1) with -2.958% at the 10% level. However, the effect was positive and statistically significant for small firms in both the pre- and post-forced resignation periods (-15, -1), (-10, -1), (-15, +15), (+1, +5), (+1, +10) and (+1, +15) at 5%, 5, 1%, 1%, 5% and 5%, respectively. Age-related retirement announcements also had no significant effect on the CAARs of either large or small firms during the event period. Moreover, the results indicate that the voluntary departures announcements significantly positively affected the CAARs of large firms with 3.850% for the period (-15, +15), but not for small firms. However, significant negative CAARs were observed in the post-new appointment period of a large firm (+1, +10) and (+1, +15) at 10% level. This indicates that shareholders and investors disapprove of the new appointment, or it may depend

on the quality of the director being appointed or the new director did not possess the qualities that are required to increase stakeholders' wealth.

The CAARs following top management change announcements led to a greater reaction of large companies on the Saudi stock market, as shown in Table 5.20 for the whole sample and top management change categories. Moreover, large firms indicated a greater degree of reaction to the announcement of top management changes than small firms, especially in the period (-15, +15). This means that more information is available about these firms to the market. These results are in line with those of Rajan and Zingales (1995), confirming that investors have more information about large firms than small firms, resulting in higher abnormal returns relative to small companies. Gupta and Fields (2009) found that the size of firms is related to the CAARs, indicating that larger firms experience less value loss when announcing top management changes. These findings are contrary to those of Alzahrani (2010), who suggested that the drift in stock prices is more significant for small companies. The findings are also inconsistent with the previous literature, which established that irrespective of firm size, stock prices represent all available information on the stock market.

The reactions on the event day differed for the large and small companies, as illustrated in Appendix 5.4. The reactions of AARs on the day of top management change announcements were positive for both large and small firms. In the case of forced resignation, a significant positive abnormal return was observed on the day of the event at a 5% level for small firms. In contrast, large companies had positive abnormal returns, but these were insignificant at all levels. In the case of retirement and voluntary departure announcements, the reactions on the event day were constant among large and small firms; both had negative insignificant abnormal returns. Moreover, on the day of the new appointment announcements, large and small firms both had positive insignificant abnormal returns.

According to the findings in Table 5.20, large firms registered high CAARs in the event period (-15, +15) for the whole sample. The results, in general, show that in the 31-day event period, large firms had higher CAARs than their smaller counterparts. This is an indication of the positive effects of firm size on abnormal returns around top management change announcements. The results confirm the notion that larger listed

companies tend to perform better than their smaller counterparts since they are well-established in their industry. This inspires investor confidence in terms of efficiency and effectiveness (Al-Shawawreh & Al-Tarawneh, 2015; Bonnier & Bruner, 1989). The process of attracting a new executive with experience to a large company is not easy nor cheap. Therefore, investors may value a person who is already aware of the challenges within the company. As such, there is evidence to suggest that CAARs and firm size are positively correlated.

Table 5.20: CAARs and T-Statistics for Different Event Windows Around Top Management Change Announcements by Firm Size

	Whole Sample				Forced Resignation				Retirement	
	N = 177 Large Firms		N = 273 Small Firms		N = 14 Large Firms		N = 30 Small Firms		N = 3 Large Firms	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	0.765	1.27	0.944	1.62	-0.478	-0.22	3.551**	1.99	-2.726	-0.67
CAAR (-10, -1)	0.615	1.25	0.629	1.33	2.958*	1.69	3.034**	2.08	-1.695	-0.51
CAAR (-5, -1)	0.172	0.49	0.140	0.42	-0.845	-0.68	0.734	0.71	-0.867	-0.37
CAAR (-15, +15)	0.808	0.93	0.682	0.82	0.593	0.19	8.493***	3.31	-4.631	-0.79
CAAR (+1, +5)	-0.288	-0.83	-0.041	-0.12	0.848	0.68	3.146***	3.05	-1.296	-0.55
CAAR (+1, +10)	-0.131	-0.27	-0.303	-0.64	2.089	1.19	3.349**	2.30	-1.998	-0.60
CAAR (+1, +15)	0.037	0.06	-0.476	-0.82	0.716	0.33	3.744**	2.10	-1.427	-0.35
	Retirement		Voluntary Departure				New Appointment			
	N = 2 Small Firms		N = 49 Large Firms		N = 80 Small Firms		N = 113 Large Firms		N = 159 Small Firms	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	-4.371	-1.06	0.857	0.77	1.828*	1.73	1.074	1.55	0.074	0.10
CAAR (-10, -1)	-4.277	-1.27	-0.038	-0.04	0.632	0.73	0.725	1.28	0.235	0.38
CAAR (-5, -1)	-3.672	-1.54	-0.206	-0.32	0.141	0.23	0.506	1.26	0.075	0.17
CAAR (-15, +15)	-5.382	-0.91	3.850**	2.41	0.753	0.50	-0.174	-0.17	-0.750	-0.69
CAAR (+1, +5)	1.410	0.59	-0.521	-0.81	-0.262	-0.43	-0.325	-0.81	-0.550	-1.25
CAAR (+1, +10)	0.616	0.18	1.460	1.61	-0.509	-0.59	-1.005*	-1.77	-0.900	-1.45
CAAR (+1, +15)	-0.402	-0.10	3.199***	2.88	-0.777	-0.74	-1.314*	-1.89	-1.121	-1.47

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level.

Source: Author's calculation.

5.5.4.2 Government Ownership

The government of Saudi Arabia has considerable investments in listed companies through its agencies such as the PIF, PPA and GOSI. The study investigated how government ownership can influence stock price efficiency around the time of top management change announcements. We obtained the CAARs for firms in which the government has holdings, including associated pension funds, in different event windows for the whole sample of top management change announcements along with their types (forced resignation, age-related retirement, voluntary departure and new appointment), as shown in Table 5.21.

Table 5.21 demonstrates that firm ownership structure is an important consideration when evaluating the efficiency of stocks in the period around top management change announcements, as discussed in the literature review. For the whole sample, firms without government ownership exhibited a much greater reaction of CAARs to announcements, with 0.965% and 0.698% in the periods (-15, -1) and (-10, -1), respectively, at the 10% level. However, companies with government shares had statistically significant CAARs in the period (-5, -1) with 0.771% at the 10% level. Thus, government ownership can influence stock prices around the time of top management change announcements. Investors have greater confidence in companies in which the government has a stake and are thus more likely to invest in these firms (Hou et al., 2012; Neneh & Smit, 2014). The government's presence on the stock register enhances transparency and investor confidence.

In terms of forced resignation announcements, the CAARs indicate a greater reaction for companies without government ownership than for those with government ownership. The results indicate that companies without government shares had statistically significant positive CAARs of 10.176% at the 1% level in both the pre- and post-announcement periods. However, there were statistically significant negative CAARs of -6.612% at the 5% level for companies that have shares held by the government. These results support the findings of Uddin (2015), who concluded that government ownership has a negative impact on the performance of companies. In other words, government ownership is associated with negative stock returns. Moreover, Rossi and Cebula (2015) found that if the government owns the vast

majority of a company's shares, investors tend to have less confidence in the company's operations. Nonetheless, firms with government-owned shares receive greater media scrutiny and are tracked by a significantly greater number of financial analysts relative to other stocks on the Saudi stock market.

The reactions on the event day differed for companies with/out government ownership, as illustrated in Appendix 5.5. The reactions of AARs on the day of top management change announcements for the whole sample were positive insignificant for both companies with/out government ownership. In the case of forced resignation news, companies with shares held by the government performed better than those without. In contrast, companies without government ownership had 0.853% of abnormal returns at the 10% level. Regarding retirement and voluntary departure announcements, the market reaction on the event day was constant. The new appointment news had positive significant abnormal returns on the event day with 0.287% at the 10% level for companies without government ownership. In contrast, there was a negative market reaction for companies with shares held by the government.

The government ownership factor seems to have no influence on stock returns in the event period surrounding announcements of retirements and voluntary departures because CAARs were insignificant in the pre- and post-announcement periods. For new executive appointments, we observed significant positive CAARs for companies with government ownership of 1.083% at the 5% level. However, companies without government ownership had significantly negative CAARs in the post-announcement period of -1.224% and -1.275% at the 5% level.

Table 5.21: CAARs and T-Statistics for Different Event Windows Around Top Management Change Announcements by Government Ownership of Shares

	Whole Sample				Forced Resignation				Retirement	
	N = 118 With Government Ownerships		N = 332 Without Government Ownerships		N = 11 With Government Ownerships		N = 33 Without Government Ownerships		N = 3 With Government Ownerships	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	0.710	0.97	0.965*	1.88	-6.056***	-2.99	5.044***	2.86	-2.726	-0.67
CAAR (-10, -1)	0.467	0.78	0.698*	1.67	-2.153	-1.30	4.731***	3.28	-1.695	-0.51
CAAR (-5, -1)	0.771*	1.82	-0.062	-0.21	-0.920	-0.79	0.616	0.60	-0.867	-0.37
CAAR (-15, +15)	-0.020	-0.02	1.056	1.43	-6.612**	-2.27	10.176***	4.01	-4.631	-0.79
CAAR (+1, +5)	-0.144	-0.34	-0.146	-0.49	-0.197	-0.17	3.285***	3.22	-1.296	-0.55
CAAR (+1, +10)	-0.161	-0.27	-0.247	-0.59	0.599	0.36	3.731***	2.59	-1.998	-0.60
CAAR (+1, +15)	-0.750	-1.02	-0.080	-0.16	-1.713	-0.85	4.279**	2.42	-1.427	-0.35
	Retirement		Voluntary Departure				New Appointment			
	N = 2 Without Government Ownerships		N = 33 With Government Ownerships		N = 96 Without Government Ownerships		N = 71 With Government Ownerships		N = 201 Without Government Ownerships	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	-4.371	-1.06	2.056	1.40	1.254	1.33	1.278	1.51	0.211	0.32
CAAR (-10, -1)	-4.277	-1.27	0.391	0.33	0.373	0.48	1.000	1.44	0.240	0.45
CAAR (-5, -1)	-3.672	-1.54	0.814	0.96	-0.267	-0.49	1.083**	2.21	-0.039	-0.10
CAAR (-15, +15)	-5.382	-0.91	2.030	0.96	1.895	1.40	0.244	0.20	-0.778	-0.83
CAAR (+1, +5)	1.410	0.59	0.341	0.40	-0.601	-1.10	-0.312	-0.64	-0.507	-1.35
CAAR (+1, +10)	0.616	0.18	-0.270	-0.23	0.413	0.54	-0.150	-0.22	-1.224**	-2.30
CAAR (+1, +15)	-0.402	-0.10	0.154	0.10	0.932	0.99	-0.992	-1.17	-1.275**	-1.96

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level.
Source: Author's calculation.

5.5.4.3 Firm Sector

The sector in which the firm operates also influences the determination of abnormal stock returns. Barclay et al. (1995) maintain that the sector could influence the perceptions of investors in terms of whether or not to purchase a company's stock. Abnormal returns are positively associated with a firm's sector (Bauer et al., 2004; Sare & Esumanba, 2013). Different sectors have different capacities to add value to shares. The study investigated the CAARs of various sectors to see if certain sectors respond more effectively than others to top management change announcements. Table 5.22 displays the CAARs for the top management change announcement period for the 10 sectors of the Saudi stock market according to the largest market capitalisation.

Table 5.22 clearly indicates that in the period surrounding announcements of top management changes, some sectors tend to be more efficient than others. In the pre-announcement period, there were differences in terms of the CAARs, demonstrating variations in the degree of anticipation of board change announcements among the various sectors. However, there were insignificant negative CAARs in the food and beverage, insurance, real estate management and development, retailing and utilities sectors in the pre-announcement period. The other sectors exhibited positive CAARs, suggesting that different sectors have different capacities to add value to stock prices.

The reactions on the event day differed for the various sectors, as illustrated in Appendix 5.6. The reactions of AARs on the announcement day of executive changes were weaker in the banking, insurance and materials sectors than the others. The results show that Saudi Arabia's growth sectors such as banking, diversified financial, energy, food and beverages, insurance, real estate management and development, and retailing are more efficient than the rest of the market. These findings may indicate that undervalued stocks or stocks that present long-term investment opportunities behave efficiently in response to announcements of top management changes.

Table 5.22 indicates that the industry sector does not significantly affect the selected industries considered in this study except for the materials, telecommunications services and utilities sectors. A significant positive CAAR was recorded for firms operating in the materials sector of 1.789% and 1.326% at the 5% and 10% confidence

levels in the period (-15, -1) and (-10, -1), respectively. The telecommunication services sector had statistically significant positive CAARs of 2.436% at the 10% level in the (-5, -1) period. However, a significant negative CAAR of -1.777% was observed in the utilities sector in the period (-5, -1). The findings are in keeping with existing theoretical notions and empirical evidence. They indicate that the sector in which a firm operates influences abnormal returns around the announcement of top management changes.

These findings support those of Bhana (2016), who investigated the effect of board change announcements on stock prices and found that sector-specific effects influence abnormal returns from shareholder responses. The results also show greater abnormal returns in the mining industry than in industrial sectors. This supports the empirical evidence that the mining industry is in a position to provide shareholders with more abnormal returns. The findings are consistent with the comparative profitability of certain sectors of the stock market. The reaction of shareholders to announcements of board of director/executive changes tends to reflect their view of the profitability of the industry in which the firm operates.

The results suggest that the sector in which a firm operates may influence any abnormal stock returns. They confirm the notion that a firm's sector can affect an investor's decision to purchase a listed company's stock (Barclay et al., 1995; Rossi & Cebula, 2015). The results also confirm Bhana's (2016) findings that investors react differently to companies' stock prices depending on the industry in which they operate.

Table 5.22: CAARs and T-Statistics for Different Event Windows Around Top Management Change Announcements by Sector

	Banks N = 24		Diversified Financials N = 9		Energy N = 14		Food and Beverages N = 48		Insurance N = 91	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	0.609	0.45	1.423	0.70	1.535	0.63	-0.488	-0.41	0.632	0.56
CAAR (-10, -1)	0.275	0.25	1.033	0.63	1.002	0.50	-0.591	-0.61	-0.285	-0.31
CAAR (-5, -1)	0.332	0.43	0.524	0.45	1.347	0.96	-0.149	-0.22	-0.131	-0.20
CAAR (-15, +15)	-0.556	-0.29	-0.620	-0.21	-1.896	-0.54	-0.806	-0.47	0.789	0.48
CAAR (+1, +5)	0.497	0.64	-1.106	-0.95	-0.295	-0.21	-0.240	-0.35	-0.382	-0.58
CAAR (+1, +10)	-0.318	-0.29	-1.251	-0.76	-1.674	-0.84	-0.655	-0.67	-0.308	-0.33
CAAR (+1, +15)	-1.226	-0.91	-2.240	-1.11	-2.871	-1.18	-0.486	-0.41	0.061	0.05
	Materials N = 89		Real Estate Management and Development N = 33		Retailing N = 15		Telecommunication Services N = 15		Utilities N = 10	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	1.789**	2.14	0.308	0.21	-3.530	-1.52	1.699	0.70	-1.955	-1.06
CAAR (-10, -1)	1.326*	1.94	-1.217	-1.02	-0.721	-0.38	2.920	1.46	-0.564	-0.37
CAAR (-5, -1)	0.678	1.41	0.178	0.21	-0.983	-0.73	2.436*	1.73	-1.777*	-1.66
CAAR (-15, +15)	1.729	1.44	0.550	0.26	-1.513	-0.45	-0.750	-0.21	-0.588	-0.22
CAAR (+1, +5)	0.011	0.02	-0.301	-0.36	-0.804	-0.60	-1.568	-1.11	1.372	1.28
CAAR (+1, +10)	0.308	0.45	0.919	0.77	-1.534	-0.81	0.799	0.40	1.683	1.11
CAAR (+1, +15)	-0.079	-0.09	0.091	0.06	1.659	0.72	-1.415	-0.58	0.468	0.25

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level.

Source: Author's calculation.

5.6 Empirical Findings on Annual General Meeting Announcements

One of the primary purposes of the study was to analyse the impact of AGM announcements of companies listed on the Saudi stock market on stock returns. The study also sought to examine the efficiency of the Saudi stock market and the determinants of the stock market reaction to the AGM announcement period. AGMs are critical company events and can greatly alter the stock market's perception of the firm by conveying certain information. The study recognises that AGMs are convened to make critical decisions and announcements, including agendas and major issues that are discussed on the meeting day, so that all stakeholders are aware of them in advance. This has a direct impact on stock prices.

It is at AGM announcements that significant decisions were made, such as voting on key issues, agreeing on the previous year's important actions and future actions and opportunities as well as addressing any issues relating to shareholder control that could influence the company's performance. Because most AGM information is made available to shareholders on the day of the announcement, before the actual meeting date, it is possible to infer that shareholders are constantly informed of the decisions that they will make on the AGM day. Therefore, AGM announcements lead to increased stock prices because of the preparations shareholders make, revealing to investors how they will improve the management or policies during the general meeting.

The study was based on the EMH, which claims that stock prices already reflect the available information in the market. Therefore, the study examined Saudi stock market in the semi-strong form of the EMH as well as the determinants of stock return reactions by firm characteristics to AGM announcements. To achieve these objectives, three research questions were addressed on the impact of AGM announcements, as stated in Chapter 4. The answers obtained to these questions reflect the findings of previous studies, indicating a correlation between AGM announcements and stock return reactions.

5.6.1 Share Price Reactions to AGM Announcements

The third study hypothesis addressed the question of how AGM announcements influence stock returns. As an initial investigation, Table 5.24 presents the AARs and CAARs over the 31-day event window around AGM announcements. This information is presented graphically in Figure 5.9.

As previously mentioned, abnormal returns were calculated using the Fama–French three-factor model. Panels A and B of Table 5.23 provide descriptive statistics for the AARs and CAARs associated with AGM announcements in different event windows: pre-event, event day and post-event. In case of outliers potentially introducing bias into the average values reported, the median as well as the mean abnormal returns were calculated. Further, standard deviations were calculated to provide insights into the spread of the abnormal returns around the mean values. The results indicate that the AAR of (-15, -1) was slightly positive ($0.000129). Moreover, the abnormal return distribution was positively skewed because the mean abnormal returns for the AGM post-announcement period ($0.00069) were more than four times the median ($-0.00017). As a result, the pre-event, event day and post-event windows indicate a positively skewed distribution.

Table 5.23: Descriptive Statistics of AARs and CAARs of AGM Announcements

	N	Mean	Median	Max.	Min.	Std. Dev.	Skewness	Kurtosis
Panel A. AARs of AGM Announcements								
AAR (-15, -1)	7335	0.00129	0.00018	0.12184	-0.12359	0.02202	0.25212	5.48390
AAR (0)	489	0.00119	0.00073	0.09836	-0.07115	0.02004	0.93105	5.17229
AAR (+1, +15)	7335	0.00069	-0.00017	0.11441	-0.10852	0.02141	0.24758	4.55219
Valid N (listwise)	15159							
Panel B. CAARs of AGM Announcements								
CAAR (-15, -1)	7335	0.01018	0.00496	0.60341	-1.21159	0.08093	-2.44226	46.9803
CAAR (-10, -1)	4890	0.01352	0.00821	0.60341	-1.21159	0.09418	-2.37249	37.5319
CAAR (-5, -1)	2445	0.01688	0.01230	0.60341	-1.21159	0.10610	-2.29883	33.6226
CAAR (-15, +15)	15159	0.01889	0.00870	0.71773	-1.37141	0.11464	-1.58584	25.6288
CAAR (+1, +5)	2445	0.02504	0.01832	0.57894	-1.28501	0.12558	-1.74089	23.3906
CAAR (+1, +10)	4890	0.02681	0.01999	0.60669	-1.34005	0.13279	-1.54347	20.0036
CAAR (+1, +15)	7335	0.02751	0.02003	0.71773	-1.37141	0.13990	-1.37763	17.2908
Valid N (listwise)	15159							

Table 5.24 shows AARs and CAARs with the corresponding t-value and Corrado rank test statistics for the sample of companies for each day throughout the event period of AGM announcements. Similar results were yielded by the parametric and non-parametric tests, as shown in Table 5.24. On the day of the announcement, we observed positive AARs of 0.119%, although these were not insignificant.

On the day immediately after the AGM announcements, there were significant positive AARs of 0.208% at the 10% and 5% confidence level, in terms of the t-test and rank test, respectively. Negative statistically significant abnormal returns were also observed on day 9 with -0.108% at the 5% level in the terms of the rank test. From these results, we can conclude that relevant information was released to the financial market by the AGM announcements. Thus, AGM announcements produce significant ARs. These findings indicate that the Saudi stock market does not respond efficiently to the corporate news contained in AGM announcements. Hypothesis 3, which states that AGM announcements have a positive relation with abnormal returns around the announcement date, cannot be rejected because we observe the significant positive impact of AGM announcements information content on stock returns. According to this hypothesis, we would expect stock returns to be influenced by the AGM announcement dates. This hypothesis has been verified using both parametric and non-parametric tests to verify the statistical significance of ARs. The results are consistent with the findings of Brickley (1986) and Lawal (2021), who observed a significant positive abnormal return around AGMs.

The results support those of Kalay and Loewenstein (1985), who found that a predictable, information-produced event can increase the risk and expected return. The findings are also compatible with those of Banko et al. (2013), Dimitrov and Jain (2011), Martinez-Blasco et al. (2015), Olibe (2002), Stankevičienė and Akelaitis (2014) and Wang and Hefner (2014), who observed positive stock price reactions to AGMs, indicating that AGMs are informative and beneficial to investors as above-average information that is not accessible in financial media is only available to shareholders and investors through the AGMs. Lafarre (2017) noted that AGM information benefits shareholders, allowing them to confirm what they already know about the firm's performance.

Concerning the post-announcement period, it is interesting that statistically significant negative abnormal returns were observed on day 9 at the 5% level. Insignificant negative abnormal returns on days 10 and 11 were also observed. We do not know how delayed negative abnormal return responses to AGM announcements are to the extent. This finding supports the results reported by Blandón et al. (2012), who studied the impact of AGMs on share returns, trading volumes and volatility on the Spanish stock exchange. They confirmed a significant negative abnormal return on day 9 after the AGM. Lawal (2016) also found a negative market reaction in the post-announcement period. These results are in line with those of Martinez-Blasco et al. (2015), who found a significant negative market reaction after the announcement and positive reaction before and on the AGM day. Previous evidence regarding the effect of AGMs on stock returns was contradictory. Firth (1981) concluded that there is no unusual stock returns or quantity trading behaviour around AGM dates. Rippington and Taffler (1995) revealed only a small price response to AGMs.

On the day of the announcements, the value of CAARs was 2.047%, during the pre-announcement period, it was (-15, -1) and in the post-announcement period (+1, +15), it was 1.928% and 1.041%, respectively. During the 15 days following the announcements, the CAARs increased from 2.047% to 3.088% as a result of the positive AARs during this event window. From these results, it can be concluded that AGM announcements contain favourable information; thus, investors respond positively to the information released on the announcement day. The post-announcement period of AGMs indicates an increase in the CAARs because the information takes time to be captured. This also confirms that a positive reaction has the ability, based on publicly available information, to produce abnormal returns.

Panel B of Table 5.24 shows different CAAR windows to examine the abnormal returns realised in the pre- and post-announcement periods. When looking at the stock prices' adjustment speed to the new information emerging from AGM announcements, there was no lagging response to the AGM announcements. In particular, the CAARs of pre-announcement periods indicated statistically significant positive evidence of price adjustment prior to the announcement event of 1.928%, 1.336% and 0.615% at the 1%, 1% and 5% levels, respectively, according to both the t-test and the rank test.

In contrast, looking at the post-announcements period, the CAARs for days +5, +10 and +15 were positive and significant, confirming an active market reaction. These findings indicate that the Saudi stock market has a delayed but inefficient response to the corporate news contained in AGM announcements. Such results are consistent with the findings of Dimitrov and Jain (2011), who observed significant positive CAARs within 40 days of the AGM. Getting a better understanding of the effect of AGM announcements on stock returns, it is possible to analyse the CAARs throughout the period (-15, +15). The CAAR was statistically significant and positive with 3.088% at the 1% of confidence level, suggesting that after the AARs analysis, the overall impact of the AGM information content announcements on stock returns is positive and significant, thereby endorsing our key conclusion.

Figure 5.9 summarises the results reported in Panels A and B of Table 5.24. It illustrates that the CAARs over the entire event period were positive. It clearly shows that the CAARs increased after the event day and decreased on days 9, 10 and 11 because of the negative AARs observed on these days. From this figure, the AARs of the pre-event and the post-event periods present a common trend, as discussed in the literature review. Figure 5.9 shows the CAARs began to move up 15 days before the AGM event and peaked eight days following the AGM announcement. From day 9 onwards, the CAARs started moving downwards and then pushed upwards from day 12 onwards after the event. They started to increase and maintained this pattern until the day 15, the day following the announcement. However, the AARs indicated stable behaviour in this case. The findings also demonstrate that the Saudi stock market is not a semi-strong form of the efficient market as far as the announcements of AGMs are concerned over the period considered in the study.

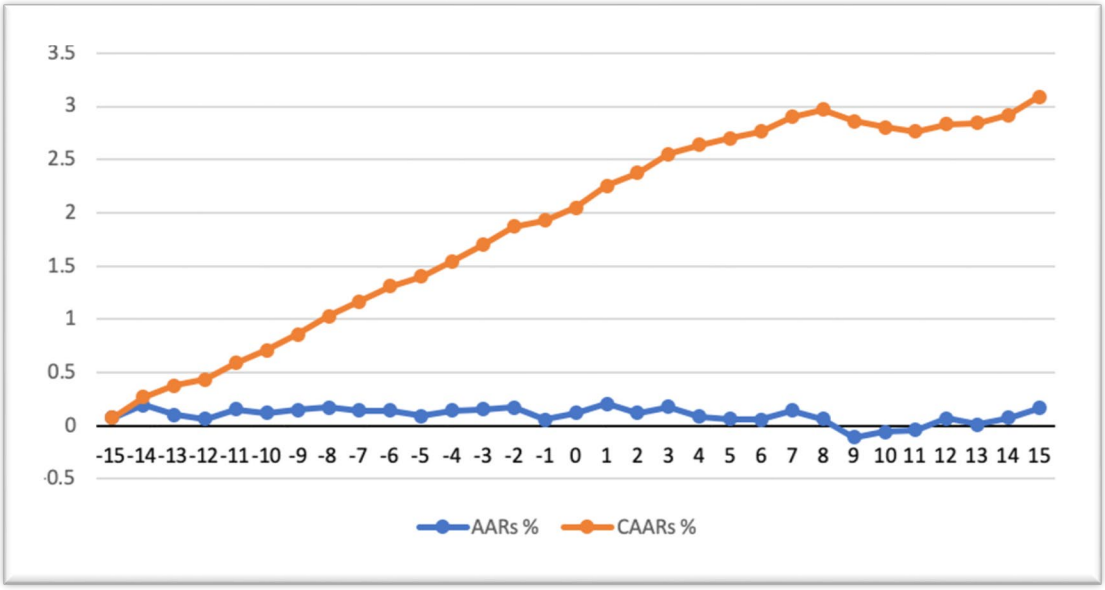

Figure 5.9: AARs and CAARs during the 31-day Event Window Around AGM Announcements

Table 5.24: AARs, CAARs and T-Statistics for Event Windows Around AGM Announcements

Panel A. AARs, CAARs and T-Statistics for Event Windows Around the AGM Announcements Day									
N = 489 Whole Sample									
Days	AARs %	T-Stat	Rank Test	CAARs %	Days	AARs %	T-Stat	Rank Test	CAARs %
-15	0.076	0.67	0.97	0.076	0	0.119	1.06	1.05	2.047
-14	0.195*	1.73	0.76	0.270	1	0.208**	1.85	2.10	2.255
-13	0.105	0.93	0.38	0.375	2	0.119	1.06	0.85	2.373
-12	0.062	0.55	0.43	0.437	3	0.179	1.59	1.23	2.553
-11	0.154	1.37	0.99	0.591	4	0.085	0.75	0.68	2.637
-10	0.119	1.06	0.33	0.711	5	0.065	0.58	1.01	2.702
-9	0.146	1.30	0.86	0.857	6	0.059	0.52	0.95	2.761
-8	0.171	1.52	1.02	1.028	7	0.142	1.26	1.07	2.903
-7	0.141	1.25	0.08	1.169	8	0.065	0.57	1.24	2.968
-6	0.143	1.27	0.71	1.312	9	-0.108**	-0.96	-2.38	2.859
-5	0.089	0.79	0.16	1.401	10	-0.058	-0.51	-0.68	2.801
-4	0.141	1.26	1.62	1.543	11	-0.040	-0.35	-0.70	2.762
-3	0.154	1.37	0.68	1.697	12	0.071	0.63	0.09	2.833
-2	0.174	1.55	0.49	1.871	13	0.010	0.09	0.56	2.844
-1	0.057	0.50	0.30	1.928	14	0.077	0.69	0.93	2.921
0	0.119	1.06	1.05	2.047	15	0.167	1.48	1.16	3.088

Panel B. CAARs and T-Statistics for Selective Event Windows Around the AGM Announcements Day							
Event Windows	CAARs %	T-Stat	Rank Test	Event Windows	CAARs %	T-Stat	Rank Test
CAAR (-15, -1)	1.928***	4.42	8.86	CAAR (-15, +15)	3.088***	4.93	12.39
CAAR (-10, -1)	1.336***	3.75	5.33	CAAR (+1, +5)	0.655***	2.60	5.88
CAAR (-5, -1)	0.615**	2.44	2.33	CAAR (+1, +10)	0.755***	2.12	3.60
CAAR (-15, +15)	3.088***	4.93	12.39	CAAR (+1, +15)	1.041**	2.39	2.47

Notes: This table presents the average abnormal returns (AARs), the cumulative average abnormal returns (CAARs) values and t-statistics for AARs for the sample firms for 31 days around the AGM announcement date (t = 0) using the Fama–French three-factor model. The first column (Days) present 31 days of event window -15 to -1 are 15 days before the announcement is made, 0 is the event day and +1 to +15 days are 15 days after the announced event is made. AAR is the average deviation of actual returns from predicted returns. CAAR is the sum of the AAR in each day from -15 to +15. N shows the number of announcements. The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation.

5.7 Determinants of Stock Price Reactions to AGM Announcements

To provide more precise insights into the factors that affect stock price reactions to the information content of the AGM announcements, we conducted 11 cross-sectional regression analyses for the abnormal returns around AGM announcement days. The sample data were cross-sectional of abnormal returns, the data were 15 days (7,335 observations) before and 15 days after the announcement was made, including the announcement days (with a total of 15,159 observations), and it was for 171 firms on a different date between 2014 and 2018 (each firm announced at a different time).

The following subsections analyse and discuss the results for the models. Section 6.7.1 presents the descriptive statistics for firm characteristics (size, government ownership and sectors). Section 6.7.2 describes the correlations between the dependent variable and the independent variables. Section 6.7.3 discusses the cross-sectional abnormal return regression results. Section 6.7.4 presents the CAARs and the firm characteristics.

5.7.1 Descriptive Statistics

It is essential to understand the dataset before conducting the regression analysis and to determine if the sample is normally distributed. Therefore, it is necessary to generate measures of central tendency, means, minimum values, maximum values and standard deviations, along with skewness and kurtosis for the variables used for the sample firms in the given model over the five years. Table 5.25 provides a summary of the descriptive statistics of the dependent variables, ARs around the AGM announcements, and the independent variables, large firms and government ownership of shares across the various sectors of companies listed on the Saudi stock market relative to the ARs around the AGM announcements during the 2014–2018 study period.

Table 5.25: Descriptive Statistics for the Dependent and Independent Variables

Variables	N	Min.	Max.	Mean	Std. Deviation	Skewness	Kurtosis
ARs AGM	31	-0.0011	0.0021	0.0010	0.0007	-1.076	1.203
Size	31	-0.0037	0.0047	0.0014	0.0025	-0.472	-0.851
Government Ownership	31	-0.0016	0.0055	0.0015	0.0017	0.445	0.354
Dummy	31	0	1	0.0323	0.1796	5.568	31.000
Dummy Trend	31	0	15	3.8710	5.0842	0.975	-0.525
Bank	31	-0.0030	0.0073	0.0022	0.0029	-0.180	-0.751
Diversified Financials	31	-0.0112	0.0196	0.0010	0.0077	0.647	0.263
Energy	31	-0.0087	0.0164	0.0020	0.0058	0.177	0.070
Food and Beverages	31	-0.0047	0.0088	0.0022	0.0032	-0.064	-0.485
Insurance	31	-0.0043	0.0071	0.0008	0.0027	0.046	-0.492
Materials	31	-0.0035	0.0053	0.0017	0.0018	-0.432	0.917
Real Estate Management and Development	31	-0.0057	0.0073	-0.0004	0.0035	0.173	-0.869
Retailing	31	-0.0123	0.0167	0.0010	0.0058	0.318	0.926
Telecommunication Services	31	-0.0084	0.0188	0.0011	0.0067	1.096	1.360
Utilities	31	-0.0082	0.0145	-0.0002	0.0051	0.614	0.826
Valid N (listwise)	31						

Source: Author's calculation.

5.7.2 Correlation Matrix

Pearson's correlation coefficient matrix examines the relationship between sets of variables to determine whether or not there is a correlation and how robust it is. It also indicates whether there are variations between interval variables or ratio variables and if these variations are significant. The results for the correlation matrix reveal whether or not a study has selected the correct variables. This section discusses the correlation between the independent and dependent variables.

Table 5.26 presents the Pearson correlation coefficient matrix for the dependent variable, abnormal returns of companies that made AGM announcements and the independent variables (large firms, government ownership of shares and sectors). In terms of the correlation between the regressions, the Pearson analysis indicates that the independent variables, large firms and government ownership of shares were significantly positively associated with the abnormal returns related to AGM announcement days with '*r*' values of 0.497 and 0.474 at the 1% level, respectively.

However, the dummy trend, which is the trend of abnormal returns in the post-announcement period of AGM, was significantly negative related to abnormal returns at 1% level. The insurance, materials and utilities sectors were also significantly positively related to the abnormal returns with '*r*' values of 0.385, 0.424 and 0.371 at the 5% confidence level, respectively.

The sector variables of banking, diversified financial, energy, food and beverages, retail and telecommunication services were positively related to the abnormal returns of AGM announcements event period, with '*r*' values of 0.275, 0.180, 0.081, 0.240, 0.297 and 0.059, respectively. However, the real estate management and development sector were negatively associated with the abnormal returns, with an '*r*' value of -0.152. In addition, large firms were significantly related to government ownership of shares and the bank sector with '*r*' values of 0.679 and 0.520 at the 1% level, respectively. Moreover, government ownership of shares was significantly positively correlated with the sectors of energy and materials with '*r*' values of 0.401 and 0.380 at the 5% level, respectively. The other variables did not appear to correlate with each other.

Table 5.26: Correlation Coefficients Between the ARs of the AGM Announcements and the Independent Variables

Variables	ARs of AGM Announcements	Size	Government Ownership
ARs of AGM Announcements	1	-	-
Size	0.497**	1	-
Government Ownership	0.474**	0.679**	1
Dummy	0.049	-0.032	-0.157
Dummy Trend	-0.520**	-0.287	-0.412*
Bank	0.275	0.520**	0.344
Diversified Financials	0.180	0.073	0.276
Energy	0.081	0.272	0.401*
Food and Beverages	0.240	0.124	0.092
Insurance	0.385*	0.158	-0.115
Materials	0.424*	0.138	0.380*
Real Estate Management and Development	-0.152	-0.279	-0.355
Retailing	0.297	0.237	0.118
Telecommunication Services	0.059	0.051	-0.013
Utilities	0.371*	0.292	0.336

Note: *, ** Correlations are significant at the 5% and 1% level (2-tailed), respectively.
Source: Author's calculation.

5.7.3 GMM Regression Results and Discussion

Table 5.27 presents the GMM regression results for abnormal returns concerning the AGM announcements for the 31-day event window for a total of 489 samples of AGM announcements with 15,159 observations on a different date for the period 2014–2018. The sample data are cross-sectional, 15 days before and 15 days after the announcement is made, including the announcement day. The data are for 171 firms on a different date between 2014 to 2018 (each firm has announced at a different time).

In this study we employed the GMM estimator. The possibility of endogeneity of predictor variables can be addressed using orthogonal conditions between the dependent variable lag value and the error term. The GMM approach technique was employed when the explanatory variable is associated with the residual disturbance term to deal with endogeneity and simultaneity biases. The model is evaluated with a one-step GMM approach and the end result is a constant and reliable estimate.

The VIFs for each variable were less than 5, indicating the absence of multicollinearity. The dependent variable was the abnormal returns in the 31-day event window of AGM announcements. In contrast, the independent variables were the large firms, government ownership of shares and sectors, previously discussed in Section 4.5.4 and listed in Table 4.3. The following formula was used for the regression model for the AGM announcements:

$$\text{ARs} = \beta_0 + \beta_1 FSIZE_{it} + \beta_2 FGOV_{it} + \beta_3 FSEC_{it} + \beta_4 DAD_{it} + \beta_5 DTrend_{it} + \varepsilon_{it}$$

Table 5.27 presents the results for the GMM regression analysis for ARs responses to the AGM announcements period. The data were cross-sectional because they investigated the abnormal returns for 15 days before and after the announcement day, including the event day. The data represented 171 firms on a different date between 2014 to 2018 (each firm has announced at a different time). Table 5.27 presents the relationship between the abnormal returns related to the AGM announcement period and the independent variables, including large firms, government ownership of shares and sectors. The following paragraphs provide a detailed review of the regression findings based on the study hypotheses.

Model 1 shows the F-values of the regression analysis, indicating a high statistical significance ($p = 0.007$). The adjusted R^2 for the model shows that the large size of the company and government ownership of shares explained just over 31% of the variation in the abnormal returns around the AGM announcements period. The coefficient of large firm size was significantly positive ($\beta = 0.316$) at level 10% ($t = 1.70$) association with abnormal returns in the AGM event period, suggesting that firm size is the determinant of the abnormal returns of AGM announcements in the event window. Moreover, the positive relationship for large firms is consistent with the findings of Rajan and Zingales (1995), who stated that investors have more information about large firms than smaller ones, which results in higher abnormal returns for large companies. These results are also in accordance with previous studies such as those of Firth (1981) and Martinez-Blasco et al. (2015).

Regarding the performance of abnormal returns around AGM announcements, Hypothesis 4c states that there is a positive relationship between abnormal returns and the AGM announcements in large firms, and this appears to hold true. This means that larger companies listed on the Saudi stock market tend to had positive abnormal returns when announcing AGMs. Moreover, Alzahrani (2010) indicated that stock price drift is more significant for large companies than for small companies regarding the announcement of financial results. However, these results contradict those of Hatem (2015), who found that firm size adversely affects abnormal returns. Blandón et al. (2012) also stated that AGMs have a greater effect on small firms' stock returns relative to large firms.

As previously mentioned, small firms infrequently hold press briefings and conferences that would reveal their market performance (Blandón et al., 2012). Further, in reporting their performance, the media and financial analysts pay less attention to small firms; consequently, stock market anticipation of formal information released by smaller firms is likely to be lower (Firth, 1981). The corollary here is that since large firms are being more actively analysed and followed by financial analysts, more data are being made available. Thus, the smaller the size of a company, the lower the interest of financial analysts and market participants, who have fewer data available (Rippington & Taffler, 1995). Moreover, small firms still lack many activities and transactions requiring updates to shareholders.

The results for the GMM regression analysis shown in Table 5.27 indicate that the abnormal returns of firms with government shares had a positive but insignificant coefficient ($\beta = 0.047$) association with the abnormal returns related to AGM announcements. This result indicates that government ownership is not statistically significant in explaining or determining the abnormal returns in the event window (-15, +15) around AGM announcements. Government ownership of a company's shares is also positively correlated with abnormal returns. Therefore, there is support for Hypothesis 5c, which suggests that there is a positive relationship between abnormal returns and AGM announcements in firms with government ownership. This means that such companies experience positive abnormal returns during the AGM announcements period. These findings are consistent with those of Lawal (2016), who indicated that government involvement or ownership of shares in a company positively influences the reaction to AGM announcements, leading to higher share price reactions. However, Su (2003) indicated that individual investors play a major role in inefficient reactions following corporate announcements (Battalio & Mendenhall, 2005; Bhattacharya, 2001; Chen et al., 1997). As a result, AGM announcements increase the demand for shares in companies with government shareholdings, leading to abnormal returns.

With regards to the relationship with abnormal returns around AGM announcements, the dummy variable on the announcement day had a positive reaction of abnormal returns on the day of the announcement, but without any significant level. Moreover, the dummy trend variable of abnormal returns following the announcement day showed a statistically significant negative coefficient ($\beta = -0.000$) at 10% level, indicating a statistically significant negative trend in abnormal returns in the days following the AGM announcement (the post-announcement period).

According to the results for Models 2, 3, 8, 9 and 11 presented in Table 5.27, there was a positive ($\beta = 0.004$, $\beta = 0.001$, $\beta = 0.012$, $\beta = 0.019$ and $\beta = 0.018$) relationship between the banking, diversified financial, real estate management and development, retail and utilities sectors, respectively, and the abnormal returns related to AGM event period. This suggests that the stock price of companies that operate in these sectors is positively correlated with abnormal returns around AGM announcements. In contrast, regressions 4 and 10 showed a negative ($\beta = -0.011$ and $\beta = -0.014$) association between the energy and telecommunication services sectors, respectively, and the abnormal

returns. These results suggest that the stock price of companies that operate in the energy and telecommunication services sectors are negatively correlated with abnormal returns related to the AGM announcements event period.

Model 5 and 6 presents the results for the F-values, which indicate highly significant ($p = 0.008$ and $p = 0.002$) abnormal returns during AGMs, respectively. The adjusted R^2 values for these analyses explain around 33.5% and 40.3% of the variation in abnormal returns for the companies. The results for this regression shown in Table 5.27 confirm that the food and beverages and insurance sector had a significant ($t = 1.98$ and $t = 2.46$) and positive ($\beta = 0.046$ and $\beta = 0.094$) relationship with abnormal returns related to AGM announcements, respectively.

The results for Model 7 reveal highly significant F-values ($p = 0.001$) for the abnormal returns during AGMs. The adjusted R^2 values indicate that size, government ownership and the materials sector explain approximately 46.6% of the variation in abnormal returns. The results for regression 7 reveal a significant ($t = 2.34$) and positive ($\beta = 0.180$) relationship between the materials sector and abnormal returns of AGM announcements.

Hypothesis 6c states that there is a relationship between abnormal returns and the announcement of AGMs by sector. This hypothesis was empirically supported and accepted, meaning that the share prices of companies operating in these sectors experience positive (negative) abnormal returns during the AGM announcement period. Therefore, the sector is statistically significant in determining the abnormal returns related to the AGM announcements event period.

Table 5.27: GMM Regression Results for ARs of AGM Announcements

Parameter Estimations (t-statistics)											
Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
(Constant)	0.001*** (6.43)	0.001*** (4.93)	0.001*** (6.27)	0.001*** (6.35)	0.001*** (6.74)	0.001*** (4.19)	0.001*** (5.72)	0.001*** (6.21)	0.001*** (5.98)	0.001*** (6.16)	0.001*** (6.46)
Size	0.095* (1.70)	0.092 (1.59)	0.096 (1.60)	0.096 (1.61)	0.087 (1.57)	0.051 (0.91)	0.128* (1.93)	0.096 (1.62)	0.082 (1.46)	0.020* (1.68)	0.091 (1.57)
Government Ownership	0.047 (0.53)	0.049 (0.55)	0.045 (0.468)	0.061 (0.62)	0.049 (0.61)	0.121 (1.36)	-0.089 (-0.86)	0.052 (0.58)	0.057 (0.58)	0.028 (0.29)	0.036 (0.38)
Dummy	0.000 (0.60)	0.000 (0.35)	0.000 (0.48)	-0.000 (-0.06)	0.000 (1.63)	-0.000 (-0.06)	-0.000* (-1.70)	0.000 (0.29)	0.000 (0.65)	-0.000 (-0.01)	-0.000 (-0.01)
Dummy Trend	-0.000* (-1.85)	-0.000* (-1.76)	-0.000* (-1.80)	-0.000* (-1.82)	-0.000* (-1.81)	-0.000 (-1.53)	-0.000** (-2.34)	-0.000* (-1.85)	-0.000* (-1.74)	-0.000** (-2.07)	-0.000* (-1.67)
Bank		0.004 (0.07)									
Diversified Financials			0.001 (0.13)								
Energy				-0.011 (-0.49)							
Food and Beverages					0.046** (1.98)						
Insurance						0.094** (2.46)					
Materials							0.180** (2.34)				
Real Estate Management and Development								0.012 (0.40)			
Retailing									0.019 (1.16)		
Telecommunication Services										-0.014 (-0.91)	
Utilities											0.018 (1.35)
Adj. R-Squared	0.316	0.289	0.289	0.296	0.335	0.403	0.466	0.291	0.314	0.304	0.303
Prob J-statistics	0.007	0.017	0.017	0.015	0.008	0.002	0.001	0.016	0.012	0.013	0.014

Notes: *, **, and *** indicate significance at 10%, 5% and 1%. T-values are in parentheses. Source: Author's calculation.

5.7.4 Cumulative Average Abnormal Returns and Firm Characteristics

5.7.4.1 Firm Size

The size of the company was the most important variable to consider. In terms of the market capitalisation of firms, we collected the CAARs around the AGM announcement days for large and small firms to establish whether the size of the firm has any impact on how stock prices respond to AGM announcements. We ordered the sample and divided the findings by firm size to refine our analysis. Table 5.28 displays the CAARs based on the size of the firms in various event windows around the AGM announcements event period.

Table 5.28 shows that on the days before the AGM announcement day, there was the possibility of expecting new information in the case of large and small firms. The CAARs in the periods (-15, -1) and (-10, -1) for large firms were positive and statistically significant at 2.041% and 1.404% at the 5% and 10% levels, respectively. In contrast, small firms had statistically significant positive CAARs of 1.912%, 1.327% and 0.712 at the 1% confidence level, in the periods (-15, -1), (-10, -1) and (-5, -1), respectively. However, small firms, especially five days before the announcements, indicated some anticipation of information, which could raise concerns regarding the leaking of information about those firms.

The reactions on the event day were constant for both large and small firms, as shown in Appendix 5.7. The reactions of AARs on the day of the AGM announcement were positive but insignificant at any level for both large and small firms. The CAARs of the post-announcement period indicate a greater reaction of large companies on the Saudi stock market. Large companies started to drift earlier than small companies with significant CAARs of 1.739%, 2.739% and 2.203% on days 5, 10 and 15 following the announcements. This is in comparison with small firms, with 0.507%, 0.483% and 0.882%, respectively. Moreover, large firms tend to show a greater degree of reaction to AGM announcements than smaller firms, which means that more information is available about these firms. These results are consistent with the findings of Rajan and Zingales (1995), who indicated that investors have more information about large firms than small firms, resulting in higher abnormal returns. These results also contradict

those of Hatem (2015), who found that firm size negatively affects abnormal returns. Alzahrani (2010) indicated that the drift in stock prices is more significant with small companies. Further, small companies have higher predictability of stock returns than larger companies. Blandón et al. (2012) confirmed that AGMs have a greater impact on the stock returns of small firms compared with large companies. Firth (1981) found that small firms receive relatively little attention from the media and financial analysts reporting their performance and, consequently, they experience a lower level of stock market anticipation about the formal release of information.

According to the findings in Table 5.28, large firms register high CAARs in the pre-announcement and post-announcement periods. As reflected by the high t-values, the effects are also highly significant. The results show that in the 15 days before and after the announcement day, large firms had higher CAARs than small firms. This is an indication of the positive and significant effect of firm size on abnormal returns around AGM announcement dates. These findings are inconsistent with the literature, which indicates that irrespective of firm size, stock prices represent all available information in the stock market.

Table 5.28: CAARs and T-Statistics for Different Event Windows Around AGM Announcement Days by Firm Size

	Whole Sample			
	N = 59 Large Firms		N = 390 Small Firms	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	2.041**	2.04	1.912***	4.15
CAAR (-10, -1)	1.404*	1.72	1.327***	3.52
CAAR (-5, -1)	-0.089	-0.15	0.712***	2.67
CAAR (-15, +15)	4.341***	3.02	2.916***	4.40
CAAR (+1, +5)	1.739***	3.01	0.507*	1.90
CAAR (+1, +10)	2.737***	3.35	0.483	1.28
CAAR (+1, +15)	2.203**	2.20	0.882*	1.91

Notes: N shows the number of announcements. The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).
Source: Author's calculation.

5.7.4.2 Government Ownership

Government ownership of shares in a company positively affects the stock return reactions related to the information content of the AGM announcements, thereby contributing to higher share prices (Lawal, 2016). The government of Saudi Arabia has sizeable investments in companies listed on the stock market, as previously mentioned. Investors have considerable confidence in the governance of a company when the government invests in that firm. However, this changes if a government is undemocratic, and directors serve their own interests (Hatem, 2015). Democratic governments represent citizens in such firms by making sure that board members direct agendas to serve the interests of investors. Government presence in a company ensures close supervision, thereby leading to better management. Investors are confident in the performance of such firms, and they expect solid earnings. We investigated how government ownership can influence stock price reactions at the time of AGM announcements. We ranked the sample and split the findings by the company that has a percentage of shares held by the government to refine our analysis. We obtained the CAARs of firms whose stocks are owned by the government, including associated pension funds, in different event windows, as shown in Table 5.29.

Table 5.29 demonstrates that firm ownership structure is an important consideration when evaluating the efficiency of stocks around the AGM announcement period. Government ownership of firm shares is much more closely associated with AGM announcements. In the post-announcement period, CAARs were statistically significant positive for companies with a percentage of their shares owned by the government with 1.739%, 2.369% and 2.224% in the periods (+1, +5), (+1, +10) and (+1, +15) at 1% level, respectively. In the same period, companies without government ownership exhibited positive but insignificant CAARs. The results for the AGM announcements regarding government ownership suggest that investors quickly re-estimate stock values, resulting in stock prices drifting several days later. The reactions on the event day were constant among the companies with/out government ownership, as illustrated in Appendix 5.8. The reactions of AARs on the day of the AGM announcements were positive insignificant for both companies with/out government ownership.

An explanation for these results is that firms that have shares held by the government receive superior media attention and they are tracked by a significantly greater number of financial analysts relative to other stocks on the Saudi stock market. The results for the government ownership of shares are in accordance with the findings of Su (2003), who indicated that individual investors play a major role in inefficient reactions following corporate announcements (Battalio & Mendenhall, 2005; Bhattacharya, 2001; Chen et al., 1997).

The pre-announcement period measures whether or not there is any leakage of information prior to the AGMs while the post-announcement period determines any delayed reaction. From the findings for the pre-announcement period, there is a suggestion of information leakage because there were statistically significant positive CAARs on the periods (-15, -1) and (-10, -1) for both samples and the period (-5, -1) for companies without government ownership. This is possibly because of information leaking before the AGM announcement days.

Table 5.29: CAARs and T-Statistics for Event Windows Around AGM Announcements by Government Ownership of Shares

	Whole Sample			
	N = 99 With Government Ownership		N = 390 Without Government Ownership	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	2.432***	3.06	1.867***	3.80
CAAR (-10, -1)	1.454**	2.24	1.376***	3.43
CAAR (-5, -1)	0.649	1.42	0.653**	2.30
CAAR (-15, +15)	4.666***	4.09	2.656***	3.76
CAAR (+1, +5)	1.739***	3.79	0.387	1.36
CAAR (+1, +10)	2.369***	3.65	0.317	0.79
CAAR (+1, +15)	2.224***	2.80	0.616	1.25

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values).

Source: Author's calculation.

5.7.4.3 Firm Sector

The sector in which a company operates also affects the market reaction to AGM announcements because of the information that the board of directors sends out alongside the announcements. Different sectors have different capacities to add value to shares. We investigated the CAARs of various sectors for the AGM announcement event period to clarify whether certain sectors respond more effectively to AGM announcements than others. Table 5.30 displays the CAARs for the AGM announcement days for the sectors with the largest market capitalisation on the Saudi stock market.

Table 5.30 clearly indicates that in the period of AGM announcements, some sectors tend to be more efficient than others. In the pre-announcement period, the last five days before the announcements, dissimilarities were realised in terms of the CAARs, demonstrating variations in the degree of anticipation of the AGM announcements across various sectors. However, there were insignificant negative CAARs in the real estate management and development sector 15 days before and after the AGM announcements. The insurance, telecommunication services and retail sectors exhibited negative CAARs in the post-announcement period. The rest of the sectors showed positive CAARs, suggesting that different sectors have different capacities to add value to stock prices.

In the pre-announcement and post-announcement periods, the bank and materials sectors had positive statistically significant CAARs in all periods. The market reactions on the event day were not consistent across the various sectors, as illustrated in Appendix 5.9. It is apparent that the reactions of AARs on the day of the AGM announcements were weaker in the food and beverages, retail and telecommunication services sectors.

In the days prior to the AGM announcement day, information could have leaked in the banking, food and beverage, insurance, materials and telecommunication services sectors because these showed statistically significant CAARs. Following the announcements, the reactions of stocks in the diversified financials, insurance, real estate management and development, retail, telecommunication services and utilities

sectors were fully efficient without any significant CAARs. The energy sector, which is associated with high price volatility, exhibited the greatest overreaction to AGM announcements, with significant positive CAARs of 5.242% in the period (+1, +10) at the 1% confidence level.

The results show that Saudi Arabia's growth sectors (diversified financials, real estate management and development and utilities) are more efficient than the rest of the market. These findings may indicate that undervalued stocks or stocks that present good long-term investment opportunities behave efficiently in response to AGM announcements, especially on the days following the announcements. In general, the various sectors have different capacities to add value to stock returns. This is in line with Alzahrani and Skerratt (2010), who found that growth industries on the Saudi stock market respond more efficiently than those with greater volatility in earnings and lower opportunities for future growth. In contrast, stocks that are overvalued or that do not have significant possibilities for future growth exhibit greater underreaction or overreaction following AGM announcements.

Table 5.30: CAARs and T-Statistics for Different Event Windows Around AGM Announcements by Sector

	Banks N = 21		Diversified Financials N = 9		Energy N = 13		Food and Beverages N = 36		Insurance N = 94	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	4.130***	3.20	2.007	0.76	2.681	1.20	3.428**	2.45	2.225*	1.73
CAAR (-10, -1)	4.176***	3.96	0.034	0.02	1.836	1.00	3.008***	2.63	2.214**	2.11
CAAR (-5, -1)	1.759**	2.36	0.468	0.31	0.192	0.15	1.052	1.30	1.110	1.49
CAAR (-15, +15)	6.894***	3.71	3.255	0.86	6.348**	1.97	6.806***	3.38	2.393	1.29
CAAR (+1, +5)	1.307*	1.75	1.806	1.19	2.676**	2.07	1.634**	2.02	-0.752	-1.01
CAAR (+1, +10)	2.811***	2.67	2.965	1.38	5.242***	2.87	2.664**	2.33	-0.527	-0.50
CAAR (+1, +15)	3.006**	2.33	0.669	0.25	4.535**	2.02	3.427**	2.45	-0.148	-0.11
	Materials N = 119		Real Estate Management and Development N = 29		Retailing N = 21		Telecommunication Services N = 12		Utilities N = 9	
Event Windows	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat	CAARs %	T-Stat
CAAR (-15, -1)	1.992***	3.18	-0.669	-0.34	3.271*	1.79	6.076**	2.29	0.468	0.20
CAAR (-10, -1)	1.021**	2.00	-0.260	-0.16	-0.655	-0.44	4.900**	2.26	0.810	0.42
CAAR (-5, -1)	0.603*	1.67	-0.102	-0.09	-1.398	-1.32	0.561	0.37	0.363	0.27
CAAR (-15, +15)	5.412***	6.01	-1.352	-0.48	2.945	1.12	3.295	0.86	-0.496	-0.15
CAAR (+1, +5)	1.864***	5.15	-1.398	-1.24	0.278	0.26	-1.411	-0.92	2.098	1.55
CAAR (+1, +10)	2.099***	4.10	-2.536	-1.59	-0.584	-0.39	-0.782	-0.36	0.596	0.31
CAAR (+1, +15)	3.135***	5.00	-1.041	-0.53	-0.492	-0.27	-2.718	-1.03	-1.431	-0.61

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level.

Source: Author's calculation.

5.8 Efficiency of the Saudi Stock Market

As previously mentioned, one of the primary characteristics of a truly efficient market is that the price reflects all of the information available. Recent research focuses on how rapidly stock prices change in response to newly available information, which is evaluated in terms of market efficiency. The second research question of this study sought to determine whether the Saudi stock market responds efficiently to corporate announcements containing annual earnings, top management changes and AGMs. According to Fama (1970), an efficient market provides investors with non-abnormal results correctly, to the extent that the available information helps predict expected future profits from the same investment. As pointed out by Drew and Noland (2000), an efficient market does not provide abnormal profits to investors because the cumulative income does not outperform the capital market system. The EMH posits that share prices reflect the required informational content of a stock market. In this regard, market information serves as the primary determinant for changing prices (Ţiţan, 2015). Therefore, from the EMH standpoint, an efficient stock market fluctuates when supplied with new information (Fama, 1991).

The available information causes a rise or fall in share prices, making it challenging to generate abnormal profits (Fama, 1998). The prices thus provide investors with valuable information about publicly listed companies (Clarke et al., 2001). Fama (1965) identified three market efficiency forms: weak, semi-strong and strong. The semi-strong market efficiency theory posits that investors cannot use technical and fundamental evaluations to achieve higher market returns because of information asymmetry in the market. According to the theory, the market's current stock prices reflect past prices as well as the data reported in firms' financial portfolios (Fama, 1970). Information thus plays a critical role in a semi-strong efficient market.

The results for annual earnings announcements presented earlier in Tables 5.2, 5.3 and 5.4 suggest that the Saudi stock market experienced information symmetry during the 2014–2018 period. It was able to predict various changes to the annual earnings announcements of listed firms, including good and bad news. The available informational content in the market provided investors with useful insights into firms' prospects. As such, their investment decisions were based on the information. The study

also demonstrated the efficiency of the Saudi market, which was evident from the prevalence of excess abnormal returns as well as post-announcement drift on earnings announcement days. Therefore, overall, the results indicate the presence of PEAD, suggesting that earnings announcements provide critical information for shareholders and potential investors.

The findings for top management change announcements presented previously in Tables 5.12, 5.13, 5.14, 5.15 and 5.16 indicate that the Saudi stock market experienced information symmetry during the study period. It was able to predict various changes to the top management of listed firms, including forced resignations, age-related retirements, voluntary departures and new appointments. The available information in the market provided investors with useful insights into firms' prospects; consequently, this information informed their investment decisions. Therefore, the findings are consistent with various agency-based theories of corporate governance and investment decision-making. This suggests that news about top management changes provides critical information for shareholders and future market investors.

Moreover, the findings for AGM announcements (see Table 5.24) indicate that the abnormal returns were statistically significant in the event window around the AGM announcements. From the AGM results, it is apparent that relevant information was released to the financial market during the announcement event, indicating that the market responds quickly but inefficiently to the corporate news contained in AGM announcements. It also indicates that investors respond favourably to the information released on announcement days. This implies that news of AGMs offers shareholders and future market investors significant informational content.

Publicly available information played a vital role in shaping stock prices on the Saudi stock market during the study period. However, the evidence of statistically significant (positive and negative) values of abnormal returns and cumulative abnormal returns on and around the announcements events suggests that the information flow in the market is asymmetrical. Therefore, in light of the aforementioned results, the study concludes that the Saudi stock market is not semi-strong form market efficiency since significant abnormal returns were observed on and around the day of the event. Therefore, the Saudi stock market does not respond efficiently to corporate announcements of annual earnings, top management changes and AGMs.

These significant abnormal returns also imply that the information conveyed by annual earnings announcements, top management change announcements and AGM announcements is considered useful by the market. However, sluggish and lagging signs indicate that the Saudi stock market is not semi-strong when it comes to these announcements. This finding is consistent with prior research on semi-strong efficiency of the Saudi stock market (Alzahrani & Gregoriou, 2010; Alzahrani & Skerratt, 2010; Syed & Bajwa, 2018).

5.9 Conclusion

Numerous empirical studies conducted in various countries have indicated that the annual earnings announcements, top management change announcements and AGM announcements are a powerful signalling tool that influences stock prices. However, the precise impact of these company announcements on stock prices remains inconclusive.

The main objective of this chapter was to examine how the information conveyed in annual earnings, top management change and AGM announcements influence stock returns in an emerging market and whether investors consider such announcements an indication of the future prospects of a company. The chapter also examined the stock price adjustment to these announcements to determine whether or not the Saudi stock market is efficient in semi-strong form and to determine whether or not different firm characteristics are determinants of stock return reactions to the announcement period.

For this study, 171 companies over the 2014–2018 period were considered, comprising earning announcements, top management change announcements and AGM announcements from the Saudi stock market. An event study methodology was adopted to investigate the stock price reaction to the announcements of annual earnings, top management changes and AGMs by using Fama–French three-factor model to calculate the expected returns.

The results revealed that the announcements of annual earnings, top management changes and AGMs have a significant impact on the stock prices of the Saudi stock market listed companies, so these company announcements carry specific information to the market. Moreover, the cross-sectional regression results provided evidence of a

positive statistically significant correlation of large firms and abnormal returns in the period of top management change announcements at the 5% confidence level. Government ownership of shares revealed a significant positive relationship with abnormal returns in the period of earnings announcements at 10% level. Moreover, the results demonstrated that the sector is significant factor determining the efficiency level of abnormal returns in the periods of the announcements of earnings, top management changes and AGMs. Finally, the empirical findings also clearly indicated that the Saudi stock market is not a semi-strong form of market efficiency. The following chapter summarises the main findings, outlines the study implications and limitations as well as providing recommendations for future research.

Chapter 6: Conclusion and Recommendations

6.1 Introduction

This study examined how announcements of annual earnings, top management changes and AGMs influenced stock returns. It also examined the efficiency of the Saudi stock market and explored the determinants of abnormal returns resulting from these announcements to understand the behaviour of the emerging Saudi stock market. The objectives of this study were fivefold: (i), to examine how annual earnings announcements influence stock returns; (ii) to examine how top management change announcements influence stock returns; (iii) to examine how AGM announcements influence stock returns; (iv) to examine the stock price adjustments to selected announcements to determine whether or not the Saudi stock market is efficient in semi-strong form; and (v) to determine whether or not different firm characteristics (size, government ownership and sector) are determinants of stock return reactions to the event period of annual earnings, top management change and AGM announcements.

Section 6.2 summarises the main findings, while Section 6.3 outlines the policy recommendations. Section 6.4 presents the study limitations and proposes recommendations for future research.

6.2 Summary of the Main Findings

Abnormal returns were investigated in the 31-trading day window centred around the annual earnings, top management change and AGM announcements. The Fama–French three-factor model was used to estimate expected stock returns in the event window. The study also sought to establish whether company size, government ownership and sector influence the efficiency of the stock market around the announcement period by using cross-sectional regression analysis. The research results were achieved by following the methodology set out in Chapter 4 and were then presented in Chapter 5. The following sections highlight the major findings of the study.

6.2.1 Annual Earnings Announcements

One of the primary purposes of this study was to understand how annual earnings announcements of companies listed on the Saudi stock market influence stock returns. The stock market was analysed in the semi-strong form of the EMH, together with the determinants of stock return reactions to the earnings announcements event period based on firm characteristics (size, government ownership and sector). The study sought to establish the influence of annual earnings announcements on stock returns based on the assumption that earnings announcements convey full and accurate information about the position, progress and performance of a firm. Lastly, the study also sought to determine the profitability of a company over a specific period that had a direct impact on stock prices.

The first hypothesis addressed the question of how annual earnings announcements influence stock returns. In response to good earnings announcements, stock prices showed a strong positive reaction on the announcement day. This positive stock price reaction is consistent with the notion that the earnings announcements are informative to the market and have an impact on stock prices resulting in share price appreciation. Abnormal returns only significantly occurred in the post-announcement period during day 9 at the 10% level, suggesting that stock market investors do not quickly re-estimate stock prices, resulting in stock prices drifting several days later. Consequently, there was support for the alternative hypothesis, which stated that annual earnings announcements have a positive relation with abnormal returns around the announcement day. The presence of the significant abnormal returns suggests a delay in reacting to the announcement by the market. It also indicates that investors are typically slow to absorb information about earnings announcements and that returns around the announcements experience asymmetrical pressures from frictions caused by financial intermediaries. This phenomenon was attributed to the absence of financial analysts who would otherwise have tracked stock prices and predicted the earnings in addition to the stock's valuations following surprise announcements. The value importance of public information can be analysed by financial analysts, who have more expertise than investors. Analysts may also be able to collect and efficiently process a large variety of data that may not be readily accessible to investors and institutions.

Moreover, it may be assumed that the presence of significant abnormal returns nine days after the announcement day could result from a lack of earnings information among investors by financial analysts. In this scenario, some investors receive information from the analysts while others do not. The lack of financial analysts prevents investors from fully and accurately reacting to the information. This finding was somewhat unexpected, considering that we expected companies to issue only limited information of earnings announcements to the market. The results also indicate the presence of PEAD following the earnings announcements, as shown in the increase in AARs following the announcement and statistically significant CAARs in the post-announcements period. Therefore, the findings indicate that the Saudi stock market is responding slowly and inefficiently to earnings announcements. Moreover, the overall effect of good news annual earnings announcements on stock returns results in positive significant CAARs, with 3.144% for the window period of (-15, +15).

As expected, on the day of bad earnings announcements, there was a significant negative effect on stock prices. In this study, the stock price on the event day had a positive abnormal return, but it was not statistically significant. During the post-announcement period, the market reaction to the bad news was statistically significantly positive at days 6 and 8. These results indicate that the Saudi stock market does not respond quickly and efficiently to bad news earnings announcements. A strong PEAD was also noted, particularly in the AARs on days 2 and 4. This result is consistent with the EMH, which indicates that investors postpone their reaction to bad announcement events but not good announcements. The findings also revealed that stock prices underreact to earnings announcements, leading to PEAD. Based on the post-announcement period, investors in the Saudi stock market may be overconfident about earnings estimations before the announcement day based on previous earnings announcements. Moreover, these investors may overestimate and overreact when bad announcements were made. The event period of (-15, +15) indicated a positive and significant CAAR of 7.208%. Thus, the overall effect of the bad news contained in annual earnings announcements on stock returns was positive and significant.

As mentioned earlier, it is difficult to explain the nature of market patterns after earnings announcements with any great clarity. However, the explanation provided in this study regards the efficiency of the market and its impact on investor behaviour.

According to behavioural finance, the irrationality of investors results in several biases, particularly cognitive ones, which lead to abnormal market return patterns. Human beings portray certain attributes, such as fear, greed or overconfidence, and they make errors of judgement, discrediting rational behavioural assumptions and efficient markets. The over or underreaction of investors to annual earnings announcements leads to drifts in the post-announcement earnings period. Indeed, when earnings news is released, investors tend to underreact; therefore, they fail to recognise patterns of serial correlations, particularly with quarterly earnings announcements.

Based on the results of the 696 annual earnings announcements (21,576 observations), the Saudi stock market is not a semi-strong form of market efficiency. Moreover, the market considers the annual earnings announcements to be useful because significant abnormal returns were observed in the event period of the announcements. This also indicates that some of the theories about earnings announcements may be valid, particularly the efficiency theory, which its motivation is based on the maximisation of shareholder value. In addition, if the market is highly effective, investors respond immediately on the day of the event, with no underreaction or overreaction.

6.2.2 Top Management Change Announcements

One of the main objectives of the study was to examine how announcements on changes in top management made by companies listed on the Saudi stock market influence stock returns. The study also examined the efficiency of the Saudi stock market. Top management changes were defined as a change in the management team, consisting of the CEO, the board chairman and the president. The study considered four different kinds of top management changes, namely, forced resignation, age-related retirement, voluntary departure and new appointment. These were assessed to determine their effect on company share prices.

The second hypothesis addressed the question of how announcements of top management changes influenced stock returns. In the case of forced resignations, a positive statistically significant abnormal return on the announcement day was observed, with 0.929% at the 5% level. However, as the event day neared, investors' perceptions of the announcement began to change favourably. In terms of agency theory, when executives fail to represent shareholders' interests, there is a likelihood of

forced dismissal, and this forced resignation of the executive is likely to result in substantial increases in the share price. A similar statistically significant response was also observed in the post-event window, on days 1 and 2. The result indicates that forced resignation announcements enhance investor confidence in companies and the market receives the news favourably. The positive abnormal returns as a result of forced resignations news correlated with the rational view of organisational change on adaptation.

Moreover, the market reacted significantly positively and negatively in the pre-announcement period of forced resignation. This may mean that information systematically leaks on those days. Thus, investors perceive the news to be in the interest of shareholders. It may also suggest that the investors had already discerned the company's previous performance as poor; thus, the market reacts negatively. Nevertheless, the behaviour of significant CAAR with 5.979% for the (-15, +15) period indicates the overall impact of the news of a forced resignation on stock returns is significant and positive.

For age-related retirement of directors/executives, the results indicate that the response of the market was erratic, as reflected in the significant negative and positive market reactions. The AARs reacted significantly negatively to the news on the last trading day before the announcements. This may indicate that investors are aware of such an event on this particular day about the retirement announcements, even before the report is issued. On the day of the retirement announcement, no significant abnormal returns were observed, which suggests that the market anticipated the informative implications.

Moreover, significant negative market reactions were observed in the post-announcement period, particularly on days 6 and 13. These negative effects on shareholder wealth could be attributed to the fact that the retired senior manager had guided the company well. Retirements can be used to select a new board executive, but replacing such a person with someone equally competent may not be easy. Thus, investors may be worried about the company's future. However, in the same period, a significant positive reaction was evident on days 7 and 15 because expectations for further operations of a company seemed more than likely to increase for investors. The overall effect of top management retirement announcements on stock returns resulted in negatively statistically significant CAARs, with -4.931% for the event period of (-

15, +15). Age-related retirements are anticipated by boards of directors well before the announcement. To serve the interests of shareholders, the board of directors should look for a replacement well in advance and ensure that the announcement includes both the retiree as well as the successor.

The market reaction to voluntary departure announcements was erratic, as evidenced by the mixed results—significant negative and positive market reaction at the event window. The market assumes that top management changes indicate good news and bad news. The board of director/executive changes announcement are complex: investors may assume that top management change is bad news since they may already be aware of the company's poor performance; at the same time, they may consider the announcement as good news because the company management will be changed.

The AARs reacted significantly positively to the news on the last day before the event day. This means the market was aware of the relevant details beforehand. A negative statistically significant market reaction was observed on the first day after the announcement was made. A negative market reaction is expected when important human capital is lost; resignations are often connected with pressures from the organisation or an indication of adverse outcomes in the future. These negative results suggest that investors disapprove of the decision of the executive to resign voluntarily. This implies that market participants interpret such announcements as the corporation's loss of a valuable employee, which could be a sign that the company is failing. The negative results of abnormal returns may also reflect concerns about what is taking place within the company. They could also be viewed as an expression of public criticism of the company's policies. However, in the same period, a positive significant statistical reaction was evident. This suggests that the market may consider the resignation as leading to the appointment of a new board member as a replacement for the board vacancy. The overall impact of voluntary departure announcements on stock returns was positive and significant, with a CAAR of 1.929% for the period (-15, +15).

The effect of a voluntary departure may be either negative or positive, based on the circumstances. A voluntary departure may stem from entirely personal considerations that are unrelated to the company itself, and could deprive the company of a valuable member of the board. A voluntary departure without a replacement is a significant cause for concern for investors and shareholders. The choice of successor will affect how

investors and shareholders perceive the company's future. Thus, announcing a successor will ease any concerns completely. Voluntary departure and age-related retirement are anticipated by boards of directors well before the announcement is made. To serve the interests of shareholders, the directors should look for a replacement well in advance and announce a successor at the same time as the voluntary departure is announced.

The market reaction to the new appointment on the announcement day was statistically positive with AARs at the 10% level. The market reaction following the announcement was erratic, as can be observed from the negative and positive significant abnormal returns. A statistically significant negative market reaction was observed on the first day following the announcement, and also on days 11 and 13. The results suggest that the new appointment announcement does not enhance investor confidence in companies, hence the negative reactions observed in the post-announcement window. The change in market reaction depends on the quality of the director being appointed.

However, a significant increase in abnormal returns was observed on day 15, after the fall in abnormal returns on the first day following the event day, and for nearly 13 days. This could lead to investors re-estimating the changing information. These results may be attributed to the first decisions taken by the new board members, to which the market responds favourably and revises its previous evaluation about the future of the company. The overall effect of the new appointment news on stock returns based on the CAARs within the window period of (-15, +15) was negatively significant, with - 0.511%. Announcements of new appointments are also anticipated by the board of directors well before the announcement is made. To serve the interests of shareholders, the directors should look well in advance for a successor who has extensive contacts, a good reputation and ample experience to increase shareholder wealth.

Based on the results of the 450 announcements of top management changes (13,950 observations), it is clear that, in general, the Saudi stock market is not a semi-strong form of market efficiency during such periods. This is because significant abnormal returns were observed on the event period of the announcement. The significant abnormal returns observed imply that the market considers the information content exhibited by top management changes announcements to be useful. Generally speaking, the above findings are not surprising and, to some extent, entirely consistent with the

expectations set out in the hypothesis. The findings also indicate that some of the theories about announcements of board of director/executive changes may be valid (i.e. the agency and signalling theories), particularly the efficiency theory, which assumes that the motivation comes from the maximisation of shareholder value.

6.2.3 AGM Announcements

One of the primary purposes of the study was to examine how AGM announcements of companies listed on the Saudi stock market influence stock returns. The study also explored the efficiency of the Saudi stock market. The study sought to establish the impact of AGM announcements on abnormal returns. AGMs are among the most critical company events and can significantly alter the stock market's perception of the firm. AGMs are convened to make critical decisions and announcements, including agendas and major issues, which are discussed on the day so that all stakeholders are aware of them.

The third hypothesis addressed the question of how AGM announcements issued by Saudi Arabian listed companies influence stock returns. On the announcement day, there were positive AARs although they were insignificant. Moreover, on the day immediately after the AGM announcements, there were significant positive AARs, implying that relevant information was delivered to the financial market through the AGM announcements. These findings suggest that the Saudi stock market does not respond quickly to the corporate news contained in AGM announcements.

Moreover, the behaviour of the significant CAARs of 3.088% for the period (-15, +15) indicates that the overall impact of AGM announcement on stock returns is positive and significant. From these results, it can be concluded that AGM announcements may contain favourable information. Thus, investors respond positively to the information released on the announcement days.

Based on 450 AGM announcements (15,159 observations), in general, the results do not support the semi-strong form of market efficiency for the Saudi stock market. This is because significant abnormal returns were observed in the event period of the AGM announcements. The results also imply that the market considers AGM announcements useful.

6.2.4 Determinants of Stock Price Reactions

One of the primary purposes of the study was to explore whether or not different firm characteristics (size, government ownership and sector) are determinants of stock return reactions to announcements of annual earnings, top management changes and AGMs. The GMM regression results provided evidence of a positive statistically significant correlation between large firms and abnormal returns in the event period of top management change announcements at the 5% confidence level. A positive but insignificant relationship was observed between large firms and abnormal returns in the event period of annual earnings and AGM announcements.

Firms with government ownership of shares showed a significant positive relationship with abnormal returns in the event period of the earnings announcements at the 10% level. A positive but insignificant relationship was observed between government ownership and abnormal returns related to top management change and AGM announcements. Moreover, the results demonstrated that the sector in which a firm operates significantly influences the efficiency level of the stock prices in both of the three announcement event periods.

Overall, firm size was a significant factor in determining the efficiency level of abnormal returns in the event period of the top management change announcements. Further, the government ownership of shares was a significant factor in determining the efficiency level of abnormal returns in the period of the annual earnings announcements. The firm sector was a significant factor in determining the efficiency level of abnormal returns related to the event period of annual earnings, top management change and AGM announcements.

6.3 Policy Recommendations

Saudi Arabia's stock market, Tadawul, is a rapidly growing part of the global economy. Empirical evidence indicates a low correlation with developed financial markets (Alshammari et al., 2020). In 2016, the Saudi government decided to review the direction of the entire national economy through Saudi Vision 2030. This was in response to declining in oil prices, which caused considerable financial imbalances. However, there is a paucity of empirical literature on market efficiency and the impact

of announcements of annual earnings, top management changes and AGMs on stock returns in emerging markets, particularly in the context of Saudi Arabia. Thus, this study has a number of policy recommendations and implications for market participants and policymakers.

First, this study provides a platform for future research into the listed company public announcements in other developing countries. It also lays a foundation for comparative research in the more developed countries or in countries with a comparable regulatory structure for corporate governance. Thus, this study may be used as a benchmark for future research.

Second, this study can be used as a reference point for future research on the performance of stocks in emerging markets, particularly the Saudi stock market.

Third, this study will help all market participants, such as domestic and foreign investors to better understand market trends in the Saudi stock market. Inefficiencies in share prices provide investors with an opportunity to make gains. In this regard, the study will enable academics to establish whether major financial and non-financial company announcements (annual earnings, top management changes and AGMs) influence investors' buying, selling or holding decisions for stocks. Moreover, consideration is given to whether changes in the price of stocks in response to these company announcements are negative or positive and the reasons for such changes.

Fourth, the study provides valuable information to investment managers, policymakers and regulatory bodies by clarifying some directions of stock market prices, which could be used to establish optimal managerial strategies and public policies. The study findings can be used as a guide by top management to release company announcements at the time when the market can best assimilate the information to minimise any negative impact on stock price and to serve the shareholders' interest.

Fifth, this study will significantly contribute to the operations of investors, regulators and researchers in Saudi Arabia. In particular, the knowledge of how stocks on the TASI react to financial and non-financial announcements presents opportunities for individuals to profit from inefficiencies in the market. Investors in stock markets usually benefit from capital gains or dividends. Therefore, the ability to predict under-priced stocks provides investors with an opportunity to make capital gains by

purchasing these stocks and selling them when their prices increase after an announcement is made. A semi-strong form of efficiency presents opportunities for individuals to profit from the release of information in the stock market. Therefore, knowledge of how the TASI will respond to financial and non-financial announcements will be beneficial to investors.

Sixth, there is a lack of possible alternative investments in the Saudi stock market, which is in stark contrast with the enormous monetary surpluses resulting from oil revenues. Therefore, this study emphasises the importance of investing in the Saudi stock market for growing numbers of individual investors. As the government of Saudi Arabia has started opening up access to foreign investors, the results of this study can be used by such investors when deciding whether or not to invest in the Saudi stock market. The study findings will assist investors to decide whether or not they can make more than market average returns by using historical information when making their trading decisions on the TASI.

Seventh, the inclusion of Saudi Arabia's assets in an efficient portfolio of mean variance would significantly increase expected returns and reduce portfolio volatility. While significant steps have been made in the Saudi capital market development over the past few years, other changes are needed to make both domestic and foreign investors more attractive to the Saudi market. Saudi Arabia also needs to attract international investment to create a competitive investment, financial and regulatory environment that maximises its investment attraction potential. As the government of Saudi Arabia has started opening up access to foreign investors, the results of this thesis will be useful when deciding whether or not to invest in the Saudi stock market. Moreover, the findings will assist regulators in efforts to attract foreign investors by informing appropriate financial reforms in the market.

Eighth, the need to understand the behaviour of emerging market stock prices stems from the imminent wholesale privatisation of state-owned or community-owned utilities throughout the region. In fact, Saudi Arabia privatised the Saudi Arabian Oil Company (Aramco) in 2019 and also announced and implemented plans to privatise many of its major economic industries such as the National Water Company among others. Domestic and foreign investors who will invest in these recently privatised companies will certainly need to become aware of the behaviour of the Saudi stock

market and the impact of these companies' public announcements on their share prices. Moreover, stock market investors need to be confident in the market's efficiency and stability to gain trust in the market.

Ninth, as already mentioned, information leakage to the market in the pre-event period causes information to become ineffective in the market because of insider trading. Insiders and brokers act as speculators on the market; they tend to cause uninformed investors to lose confidence in the market, thereby directly influencing the economy of emerging markets. Therefore, by highlighting issues in emerging markets, this study will help policymakers and regulatory bodies to draw up efficient laws for the stock market and economy as well as enhancing current practice. The study also helps mitigate obstacles to transparency and investor trust, such as manipulation, market brokerage, disclosure problems and insider trading.

Tenth, the lack of education and knowledge among investors in the stock market was one of the main reasons for the stock market crash in Saudi Arabia at the start of 2006. Therefore, this study can enhance investor education and awareness by indication how to attain and use information efficiently and invest wisely in emerging markets. Moreover, this study will be of use to investors, assisting them to establish profitable portfolios to achieve excess returns based on different anomaly characteristics of the EMH.

Finally, the Saudi stock market is becoming more strictly regulated. This study assessed the Saudi stock market to enhance the investment climate and global competitiveness, thereby ensuring the growth of the market and bolstering investor trust. Thus, this study also provides guidelines for policymakers and regulatory bodies to take the necessary steps to protect the interests of all market participants in emerging markets. This study may also be of interest to those involved in emerging market, capital-based research to better understand how the announcements of annual earnings, top management changes and AGMs affect the Saudi stock market.

6.4 Limitations and Recommendations for Further Research

This study represents a novel and comprehensive effort to examine stock market reactions to announcements of annual earnings, top management changes and AGMs

in Saudi Arabia. However, this study has certain limitations, which can be addressed through future studies.

This research was limited to companies on the Saudi stock market. Future studies could examine the impact of announcements of annual earnings, top management changes and AGMs on stock prices on different emerging stock markets in the world, particularly in GCC countries and Arab countries. Such research would heighten the comparability of the empirical results of this study as well as expanding the existing body of knowledge on the EMH.

The study only used secondary data. Future research could use a mixed methods approach (interviews or questionnaire surveys with company executives, financial analysts, shareholders and investors) to analyse their perceptions of announcements of annual earnings, top management changes and AGMs and the impact of these on stock prices. The strengths of one approach would compensate for the limitations of the other in a mixed methods study.

This study was limited to daily stock returns and company announcements from 2014 to 2018. Future studies could use high-frequency data, from days to minutes. Increasing the span of the data would provide interesting insights on the speed of share price responses to new information, thereby ensuring greater generalisability. Moreover, further studies could use alternative models and configurations such as the Fama-French five-factor asset pricing model, which includes two new factors, these being investment and profitability (Fama and French, 2015).

The study only analysed 10 sectors in the Saudi stock market. Future research could encompass all the stock market sectors to observe the behaviour of stocks belonging to different industries. This would also indicate whether the stock reactions are more efficient in the pre-event or post-event period. Moreover, to highlight the importance of financial statement information, mainly earnings information, future studies could examine the impact of financial statement line item disclosures on stock prices. Further, as the significance increases in the market reaction to earnings announcements, future studies could examine the impact of financial analyst forecasts on stock market reactions and focus on forecasted vs actual earnings, which is more important follow up.

Further studies could examine other announcements such as the distribution of cash dividends to shareholders, rights issue, mergers and acquisitions and audit committee changes. This would shed light on the behaviour of emerging markets and identify the efficiency level of the stock market. Further research on share price reactions to contemporary and joint announcements is also recommended.

It is worth noting that this study obtained detailed evidence only on the ownership concentration of government of shares in the sample firms. It is recommended to conduct further investigations by documenting detailed evidence of other ownership concentrations. Examples of this include the proportion of shares held by the board of directors/executives, family owned, royal family, managers and foreign investors, and their influence on stock price reactions. Lastly, future research could examine market reactions to the announcement of the internal versus external appointment of executive successors and the effect of such announcements on share prices in emerging stock markets.

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Appendices

Appendix 4.1: Names of Companies Listed on the Saudi Stock Market

Sector	Company Symbol	ISIN Code	Company Name
Banks	1180	SA13L050IE10	National Commercial Bank
Banks	1120	SA0007879113	Al Rajhi Bank
Banks	1090	SA0007879097	Samba Financial Group
Banks	1010	SA0007879048	Riyad Bank
Banks	1060	SA0007879089	Saudi British Bank
Banks	1050	SA0007879782	Banque Saudi Fransi
Banks	1150	SA122050HV19	Alinma Bank
Banks	1080	SA0007879105	Arab National Bank
Banks	1040	SA0007879071	Alawwal Bank
Banks	1140	SA000A0D9HK3	Bank Albilad
Banks	1030	SA0007879063	Saudi Investment Bank
Banks	1020	SA0007879055	Bank Aljazira
Capital Goods	1212	SA11RGL0IU14	Astra Industrial Group
Capital Goods	2040	SA0007879154	Saudi Ceramic Co.
Capital Goods	2320	SA000A0LEF64	Al-Babtain Power and Telecommunication Co.
Capital Goods	1302	SA13DG50KB18	Bawan Co.
Capital Goods	2360	SA000A0MSQ64	Saudi Vitrified Clay Pipes Co.
Capital Goods	1303	SA13LG50KBH9	Electrical Industries Co.
Capital Goods	2160	SA0007879337	Saudi Arabian Amiantit Co.
Capital Goods	4140	SA0007879675	Saudi Industrial Export Co.
Capital Goods	2370	SA11TGN15119	Middle East Specialized Cables Co.
Capital Goods	2140	SA0007879261	Al-Ahsa Development Co.
Capital Goods	2110	SA0007879238	Saudi Cable Co.
Capital Goods	1330	SA12L0O0KP12	Abdullah A. M. Al-Khodari Sons Co.
Commercial & Professional Svc	6004	SA1330R2TQ16	Saudi Airlines Catering Co.
Commercial & Professional Svc	4270	SA000A0MSX40	Saudi Printing and Packaging Co.
Consumer Durables & Apparel	2340	SA000A0LF1T0	Al Abdullatif Industrial Investment Co.
Consumer Durables & Apparel	4011	SA1430IHULH1	Lazurde Company for Jewelry
Consumer Durables & Apparel	4180	SA0007879832	Fitaihi Holding Group
Consumer Durables & Apparel	1213	SA12GGDGIUH9	Al Sorayai Trading and Industrial Group
Consumer Durables & Apparel	2130	SA0007879253	Saudi Industrial Development Co.
Consumer Services	1810	SA132GSGS910	Seera Group Holding
Consumer Services	6002	SA12GGPITP13	Herfy Food Services Co.
Consumer Services	4010	SA0007870039	Dur Hospitality Co.
Consumer Services	1820	SA13IG50SE12	Abdulmohsen Alhokair Group for Tourism and Development
Consumer Services	4290	SA11TH0I3111	Alkhaleej Training and Education Co.

Consumer Services	4170	SA0007879824	Tourism Enterprise Co.
Diversified Financials	4280	SA31RG522S19	Kingdom Holding Co.
Diversified Financials	4080	SA0007870104	Aseer Trading, Tourism and Manufacturing Co.
Diversified Financials	2120	SA0007879246	Saudi Advanced Industries Co.
Diversified Financials	4130	SA0007879667	Al-Baha Investment and Development Co.
Energy	2380	SA120GAH5617	Rabigh Refining and Petrochemical Co.
Energy	4030	SA0007870054	National Shipping Company of Saudi Arabia
Energy	4200	SA000A0HNGZ6	Aldrees Petroleum and Transport Services Co.
Energy	2030	SA0007879147	Saudi Arabia Refineries Co.
Food & Beverages	2280	SA000A0ETHT1	Almarai Co.
Food & Beverages	2050	SA0007879162	Savola Group
Food & Beverages	2270	SA000A0EAXM3	Saudia Dairy and Foodstuff Co.
Food & Beverages	6010	SA0007879568	National Agricultural Development Co.
Food & Beverages	6001	SA1230A2TOH3	Halwani Bros. Co.
Food & Beverages	6090	SA0007879642	Jazan Energy and Development Co.
Food & Beverages	6050	SA0007879600	Saudi Fisheries Co.
Food & Beverages	6070	SA0007879626	Al-Jouf Agricultural Development Co.
Food & Beverages	6040	SA0007879592	Tabuk Agricultural Development Co.
Food & Beverages	6060	SA0007879618	Ash-Sharqiyah Development Co.
Food & Beverages	2100	SA0007879220	Wafrah for Industry and Development Co.
Food & Beverages	6020	SA0007879576	Al Gassim Investment Holding Co.
Food & Staples Retailing	4001	SA1230K1UGH7	Abdullah Al Othaim Markets Co.
Food & Staples Retailing	4006	SA13HG51UJ13	Saudi Marketing Co.
Food & Staples Retailing	4061	SA0007870088	Anaam International Holding Group
Food & Staples Retailing	4160	SA0007879816	National Agricultural Marketing Co.
Health Care Equipment & Svc	4002	SA12C051UH11	Mouwasat Medical Services Co.
Health Care Equipment & Svc	4004	SA135G51UI10	Dallah Healthcare Co.
Health Care Equipment & Svc	4009	SA141H01UKH9	Middle East Healthcare Co.
Health Care Equipment & Svc	4007	SA13J051UJH4	Al Hammadi Company for Development and Investment
Health Care Equipment & Svc	4005	SA139051UIH0	National Medical Care Co.
Health Care Equipment & Svc	2230	SA0007879402	Saudi Chemical Co.
Insurance	8210	SA1210540914	Bupa Arabia for Cooperative Insurance Co.
Insurance	8010	SA000A0DPSH3	The Company for Cooperative Insurance
Insurance	8230	SA12A0540J14	Al-Rajhi Company for Cooperative Insurance
Insurance	8030	SA000A0MJ2H8	The Mediterranean and Gulf Insurance and Reinsurance Co.
Insurance	8280	SA12CG541C16	Al Alamiya for Cooperative Insurance Co.
Insurance	8250	SA12A0540T12	AXA Cooperative Insurance Co.
Insurance	8060	SA000A0MLUD8	Walaa Cooperative Insurance Co.
Insurance	8170	SA11T053VL18	Al-Etihad Cooperative Insurance Co.
Insurance	8270	SA12CG541714	Buruj Cooperative Insurance Co.
Insurance	8200	SA1210540419	Saudi Re for Cooperative Reinsurance Co.
Insurance	8311	SA12U0541RH2	Saudi Enaya Cooperative Insurance Co.
Insurance	8012	SA13AG53T618	Aljazira Takaful Taawuni Co.

Insurance	8040	SA000A0MLUG1	Allianz Saudi Fransi Cooperative Insurance Co.
Insurance	8020	SA000A0MJ2J4	Malath Cooperative Insurance Co.
Insurance	8080	SA000A0MLUF3	SABB Takaful Co.
Insurance	8070	SA000A0MLUH9	Arabian Shield Cooperative Insurance Co.
Insurance	8312	SA131G541S17	Alinma Tokio Marine Co.
Insurance	8180	SA11T053VQ13	Al Sagr Cooperative Insurance Co.
Insurance	8130	SA000A0MR856	Alahli Takaful Co.
Insurance	8300	SA12HG541M13	Wataniya Insurance Co.
Insurance	8190	SA121053VV10	United Cooperative Assurance Co.
Insurance	8160	SA11T053VG15	Arabia Insurance Cooperative Co.
Insurance	8011	SA13AG53T5H7	MetLife AIG ANB Cooperative Insurance Co.
Insurance	8290	SA12HG541H10	Solidarity Saudi Takaful Co.
Insurance	8050	SA000A0MLUE6	Salama Cooperative Insurance Co.
Insurance	8240	SA12A0540O17	CHUBB Arabia Cooperative Insurance Co.
Insurance	8150	SA000A0MR831	Allied Cooperative Insurance Group
Insurance	8100	SA000A0MR823	Saudi Arabian Cooperative Insurance Co.
Insurance	8310	SA12HG541R18	Amana Cooperative Insurance Co.
Insurance	8260	SA12CG541219	Gulf General Cooperative Insurance Co.
Insurance	8120	SA000A0MR898	Gulf Union Cooperative Insurance Co.
Insurance	8140	SA000A0MR872	Al-Ahlia Insurance Co.
Insurance	8110	SA000A0MR880	Saudi Indian Company for Cooperative Insurance
Materials	2010	SA0007879121	Saudi Basic Industries Corp.
Materials	1211	SA123GA0ITH7	Saudi Arabian Mining Co.
Materials	2290	SA000A0HNF36	Yanbu National Petrochemical Co. (YANSAB)
Materials	2020	SA0007879139	Saudi Arabian Fertilizer Co.
Materials	2350	SA000A0MQCJ2	Saudi Kayan Petrochemical Co.
Materials	2002	SA12BG50V917	National Petrochemical Co.
Materials	2060	SA0007879170	National Industrialization Co.
Materials	2250	SA000A0B89Q3	Saudi Industrial Investment Group
Materials	2330	SA000A0LE310	Advanced Petrochemical Co.
Materials	3030	SA0007879469	Saudi Cement Co.
Materials	2310	SA000A0KFKK0	Sahara International Petrochemical Co. (SIPCHEM)
Materials	3050	SA0007879501	Southern Province Cement Co.
Materials	3060	SA0007879519	Yanbu Cement Co.
Materials	3040	SA0007879493	Qassim Cement Co.
Materials	3020	SA0007879451	Yamama Cement Co.
Materials	3010	SA0007879915	Arabian Cement Co.
Materials	3080	SA0007879527	Eastern Province Cement Co.
Materials	3003	SA134G51ETH6	City Cement Co.
Materials	3004	SA136051EU12	Northern Region Cement Co.
Materials	3002	SA132051ET14	Najran Cement Co.
Materials	2170	SA0007879345	Alujain Corp.
Materials	2001	SA124060V8H1	Methanol Chemicals Co.
Materials	3091	SA12JG51G9H8	Al Jouf Cement Co.

Materials	2240	SA0007879410	Zamil Industrial Investment Co.
Materials	3090	SA0007879535	Tabuk Cement Co.
Materials	1202	SA13Q050IP16	Middle East Paper Co.
Materials	1320	SA12B050KK11	Saudi Steel Pipe Co.
Materials	1201	SA130G50IOH8	Takween Advanced Industries Co.
Materials	3001	SA12S051ESH9	Hail Cement Co.
Materials	1304	SA1420I0KC11	Al Yamamah Steel Industries Co.
Materials	2210	SA0007879386	Nama Chemicals Co.
Materials	3005	SA13I051EUH6	Umm Al-Qura Cement Co.
Materials	1301	SA12RGH0KAH5	United Wire Factories Co.
Materials	3007	SA14C0PHEVH7	Zahrat Al Waha for Trading Co.
Materials	1210	SA122GF0IT17	Basic Chemical Industries Co.
Materials	2150	SA0007879329	The National Company for Glass Industries
Materials	2220	SA0007879394	National Metal Manufacturing and Casting Co.
Materials	2180	SA0007879352	Filing and Packing Materials Manufacturing Co.
Materials	2090	SA0007879204	National Gypsum Co.
Materials	2200	SA0007879378	Arabian Pipes Co.
Materials	2300	SA000A0JK4U9	Saudi Paper Manufacturing Co.
Media and Entertainment	4210	SA000A0JK5M3	Saudi Research and Marketing Group
Media and Entertainment	4070	SA0007870096	Tihama Advertising and Public Relations Co.
Pharma, Biotech & Life Science	2070	SA0007879188	Saudi Pharmaceutical Industries and Medical Appliances Corp.
Real Estate Management & Development	4250	SA000A0MR864	Jabal Omar Development Co.
Real Estate Management & Development	4100	SA0007879659	Makkah Construction and Development Co.
Real Estate Management & Development	4300	SA11U0S23612	Dar Alarkan Real Estate Development Co.
Real Estate Management & Development	4220	SA000A0KDVM8	Emaar The Economic City
Real Estate Management & Development	4090	SA0007879790	Taiba Investments Co.
Real Estate Management & Development	4310	SA12IG523B16	Knowledge Economic City
Real Estate Management & Development	4020	SA0007870047	Saudi Real Estate Co.
Real Estate Management & Development	4150	SA0007879683	Arriyadh Development Co.
Real Estate Management & Development	4320	SA13U0923G19	Alandalus Property Co.
Real Estate Management & Development	4230	SA000A0KEWM4	Red Sea International Co.
Retailing	4190	SA000A0BLA62	Jarir Marketing Co.
Retailing	4240	SA000A0LB2R6	Fawaz Abdulaziz Alhokair Co.
Retailing	4003	SA12U0RHUHH8	United Electronics Co.
Retailing	4008	SA13Q051UK14	Saudi Company for Hardware
Retailing	4050	SA0007870070	Saudi Automotive Services Co.
Retailing	1214	SA12I0OGIV12	Al Hassan Ghazi Ibrahim Shaker Co.

Telecommunication Services	7010	SA0007879543	Saudi Telecom Co.
Telecommunication Services	7020	SA000A0DM9P2	Etihad Etisalat Co.
Telecommunication Services	7030	SA121053DR18	Mobile Telecommunication Company Saudi Arabia
Telecommunication Services	7040	SA128G53E019	Etihad Atheeb Telecommunication Co.
Transportation	4031	SA13R051UVH9	Saudi Ground Services Co.
Transportation	4260	SA000A0MWH44	United International Transportation Co. (BUDGET SAUDI)
Transportation	4040	SA0007870062	Saudi Public Transport Co.
Transportation	4110	SA0007879808	Batic Investments and Logistics Co.
Transportation	2190	SA0007879360	Saudi Industrial Services Co.
Utilities	5110	SA0007879550	Saudi Electricity Co.
Utilities	2080	SA0007879196	National Gas and Industrialization Co.

Appendix 5.1: AARs, CAARs and T-Statistics Around Annual Earnings Announcements by Firm Size

	Whole Sample						Good News						Bad News					
	N = 120 Large Firms			N = 576 Small Firms			N = 113 Large Firms			N = 454 Small Firms			N = 7 Large Firms			N = 122 Small Firms		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.087	0.40	0.087	0.381	1.36	0.381	0.162	0.72	0.162	0.248	0.91	0.248	-1.130	-1.19	-1.130	0.878**	2.21	0.878
-14	0.165	0.75	0.251	0.075	0.27	0.456	0.276	1.22	0.438	0.091	0.33	0.339	-1.627*	-1.71	-2.757	0.015	0.04	0.893
-13	0.160	0.73	0.411	0.216	0.77	0.672	0.106	0.47	0.544	0.161	0.59	0.499	1.018	1.07	-1.739	0.423	1.07	1.316
-12	-0.014	-0.06	0.397	0.217	0.77	0.889	0.050	0.22	0.594	0.136	0.50	0.636	-1.041	-1.10	-2.781	0.516	1.30	1.832
-11	-0.031	-0.14	0.366	0.013	0.05	0.903	-0.072	-0.32	0.521	0.029	0.11	0.664	0.629	0.66	-2.152	-0.044	-0.11	1.789
-10	-0.062	-0.29	0.303	-0.253	-0.90	0.650	-0.086	-0.38	0.435	-0.228	-0.83	0.437	0.320	0.34	-1.832	-0.345	-0.87	1.443
-9	-0.013	-0.06	0.290	-0.344	-1.23	0.306	0.006	0.03	0.441	-0.288	-1.05	0.149	-0.320	-0.34	-2.152	-0.552	-1.39	0.891
-8	-0.060	-0.27	0.231	-0.251	-0.90	0.055	-0.139	-0.61	0.302	-0.228	-0.83	-0.079	1.228	1.29	-0.924	-0.336	-0.85	0.555
-7	0.107	0.49	0.338	-0.136	-0.49	-0.081	0.111	0.49	0.413	-0.082	-0.30	-0.161	0.048	0.05	-0.876	-0.338	-0.85	0.217
-6	0.009	0.04	0.347	0.068	0.24	-0.013	0.017	0.07	0.430	0.016	0.06	-0.146	-0.114	-0.12	-0.991	0.265	0.67	0.482
-5	-0.099	-0.46	0.247	0.025	0.09	0.012	-0.164	-0.72	0.266	-0.072	-0.26	-0.218	0.946	1.00	-0.045	0.385	0.97	0.868
-4	-0.059	-0.27	0.188	0.132	0.47	0.144	-0.089	-0.39	0.177	0.003	0.01	-0.215	0.424	0.45	0.379	0.612	1.54	1.480
-3	-0.162	-0.74	0.027	0.039	0.14	0.183	-0.215	-0.95	-0.038	-0.013	-0.05	-0.228	0.688	0.73	1.067	0.233	0.59	1.713
-2	0.193	0.89	0.220	0.127	0.45	0.310	0.153	0.67	0.115	0.113	0.41	-0.116	0.851	0.90	1.918	0.180	0.45	1.893
-1	-0.081	-0.37	0.139	0.286	1.02	0.596	-0.105	-0.47	0.009	0.225	0.82	0.109	0.316	0.33	2.234	0.513	1.29	2.405
0	-0.210	-0.96	-0.070	0.311	1.11	0.907	-0.241	-1.06	-0.231	0.361	1.32	0.470	0.293	0.31	2.527	0.125	0.32	2.531
1	0.322	1.48	0.252	0.065	0.23	0.972	0.298	1.32	0.067	0.023	0.08	0.493	0.707	0.75	3.234	0.222	0.56	2.753
2	-0.054	-0.25	0.198	0.102	0.36	1.074	-0.053	-0.23	0.014	0.190	0.69	0.683	-0.063	-0.07	3.171	-0.224	-0.56	2.529
3	0.050	0.23	0.248	0.109	0.39	1.183	0.009	0.04	0.022	0.081	0.30	0.764	0.725	0.76	3.896	0.213	0.54	2.743
4	0.299	1.37	0.547	0.084	0.30	1.267	0.427*	1.89	0.449	0.116	0.43	0.880	-1.769*	-1.86	2.128	-0.035	-0.09	2.707
5	0.091	0.42	0.639	0.167	0.60	1.435	0.085	0.37	0.534	0.134	0.49	1.014	0.196	0.21	2.324	0.292	0.74	2.999
6	0.253	1.16	0.892	0.343	1.22	1.778	0.215	0.95	0.749	0.294	1.07	1.308	0.872	0.92	3.195	0.526	1.33	3.525
7	0.526**	2.42	1.418	0.219	0.78	1.996	0.480**	2.12	1.229	0.206	0.75	1.514	1.280	1.35	4.476	0.266	0.67	3.791
8	0.327	1.50	1.745	0.349	1.25	2.345	0.231	1.02	1.460	0.267	0.98	1.781	1.874**	1.98	6.350	0.653*	1.65	4.444
9	0.282	1.29	2.027	0.348	1.24	2.693	0.205	0.90	1.665	0.345	1.26	2.125	1.529	1.61	7.879	0.361	0.91	4.805
10	0.350	1.61	2.377	0.145	0.52	2.838	0.367	1.62	2.032	0.126	0.46	2.252	0.068	0.07	7.948	0.214	0.54	5.020
11	0.094	0.43	2.471	0.262	0.94	3.100	0.086	0.38	2.118	0.170	0.62	2.422	0.215	0.23	8.163	0.605	1.52	5.625
12	0.309	1.42	2.780	0.350	1.25	3.450	0.266	1.18	2.384	0.338	1.24	2.760	1.010	1.06	9.173	0.392	0.99	6.016
13	-0.144	-0.66	2.636	0.307	1.10	3.757	-0.133	-0.59	2.252	0.291	1.07	3.051	-0.325	-0.34	8.848	0.366	0.92	6.383
14	0.079	0.36	2.716	0.105	0.37	3.862	-0.009	-0.04	2.242	0.037	0.13	3.088	1.511	1.59	10.359	0.358	0.90	6.741
15	0.275	1.26	2.991	0.224	0.80	4.086	0.186	0.82	2.428	0.234	0.86	3.323	1.724*	1.82	12.083	0.187	0.47	6.928

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation

Appendix 5.2: AARs, CAARs and T-Statistics Around Annual Earnings Announcements by Government Ownership

	Whole Sample						Good News						Bad News					
	N = 162 With Government Ownerships			N = 534 Without Government Ownerships			N = 148 With Government Ownerships			N = 419 Without Government Ownerships			N = 14 With Government Ownerships			N = 115 Without Government Ownerships		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	-0.047	-0.22	-0.047	0.445	1.57	0.445	-0.067	-0.31	-0.067	0.336	1.21	0.336	0.162	0.21	0.162	0.843**	2.13	0.843
-14	0.348	1.63	0.301	0.012	0.04	0.457	0.411	1.89	0.344	0.028	0.10	0.363	-0.318	-0.41	-0.156	-0.045	-0.11	0.799
-13	0.050	0.23	0.351	0.254	0.90	0.711	0.045	0.21	0.389	0.187	0.68	0.55	0.105	0.13	-0.051	0.498	1.26	1.297
-12	0.101	0.47	0.452	0.200	0.70	0.911	0.125	0.58	0.514	0.117	0.42	0.667	-0.149	-0.19	-0.20	0.502	1.27	1.799
-11	0.048	0.22	0.500	-0.007	-0.03	0.904	0.02	0.09	0.533	0.005	0.02	0.672	0.349	0.44	0.148	-0.05	-0.13	1.748
-10	-0.113	-0.53	0.387	-0.252	-0.89	0.652	-0.013	-0.06	0.521	-0.265	-0.96	0.407	-1.174	-1.50	-1.026	-0.204	-0.52	1.544
-9	-0.262	-1.22	0.125	-0.295	-1.04	0.357	-0.211	-0.97	0.309	-0.236	-0.85	0.171	-0.794	-1.01	-1.82	-0.509	-1.28	1.036
-8	-0.047	-0.22	0.078	-0.270	-0.95	0.087	-0.161	-0.74	0.148	-0.228	-0.82	-0.057	1.159	1.48	-0.661	-0.423	-1.07	0.613
-7	-0.037	-0.17	0.041	-0.111	-0.39	-0.024	-0.039	-0.18	0.109	-0.045	-0.16	-0.102	-0.018	-0.02	-0.678	-0.353	-0.89	0.260
-6	0.038	0.18	0.079	0.064	0.23	0.040	0.019	0.09	0.128	0.015	0.05	-0.087	0.246	0.31	-0.432	0.244	0.62	0.504
-5	-0.189	-0.88	-0.109	0.062	0.22	0.102	-0.293	-1.35	-0.165	-0.019	-0.07	-0.106	0.916	1.17	0.483	0.355	0.90	0.859
-4	-0.038	-0.18	-0.147	0.140	0.49	0.242	-0.074	-0.34	-0.239	0.005	0.02	-0.101	0.346	0.44	0.83	0.633	1.60	1.492
-3	-0.208	-0.97	-0.354	0.069	0.24	0.311	-0.283	-1.30	-0.522	0.028	0.10	-0.073	0.593	0.76	1.423	0.217	0.55	1.709
-2	0.077	0.36	-0.278	0.157	0.55	0.468	0.005	0.02	-0.518	0.162	0.58	0.088	0.838	1.07	2.261	0.14	0.35	1.849
-1	-0.115	-0.54	-0.393	0.325	1.15	0.793	-0.162	-0.74	-0.68	0.273	0.99	0.361	0.379	0.48	2.64	0.517	1.31	2.366
0	-0.169	-0.79	-0.562	0.340	1.20	1.133	-0.204	-0.94	-0.884	0.399	1.44	0.76	0.204	0.26	2.844	0.126	0.32	2.492
1	0.133	0.62	-0.428	0.102	0.36	1.235	0.100	0.46	-0.784	0.07	0.25	0.83	0.488	0.62	3.332	0.219	0.55	2.712
2	0.200	0.94	-0.228	0.037	0.13	1.272	0.272	1.25	-0.512	0.095	0.34	0.925	-0.556	-0.71	2.777	-0.173	-0.44	2.538
3	0.245	1.15	0.017	0.055	0.19	1.327	0.164	0.75	-0.349	0.032	0.12	0.957	1.106	1.41	3.883	0.136	0.34	2.674
4	0.154	0.72	0.171	0.111	0.39	1.438	0.248	1.14	-0.101	0.154	0.55	1.111	-0.841	-1.07	3.041	-0.043	-0.11	2.631
5	0.031	0.14	0.201	0.192	0.68	1.630	0.039	0.18	-0.062	0.154	0.56	1.265	-0.053	-0.07	2.988	0.328	0.83	2.959
6	0.324	1.51	0.525	0.328	1.16	1.958	0.197	0.91	0.135	0.306	1.11	1.572	1.666**	2.12	4.653	0.408	1.03	3.368
7	0.626***	2.92	1.152	0.164	0.58	2.123	0.504**	2.32	0.639	0.174	0.63	1.746	1.919**	2.45	6.572	0.126	0.32	3.494
8	0.314	1.47	1.466	0.354	1.25	2.477	0.243	1.12	0.882	0.266	0.96	2.012	1.067	1.36	7.639	0.677*	1.71	4.171
9	0.389*	1.81	1.854	0.321	1.13	2.798	0.423*	1.94	1.305	0.279	1.01	2.291	0.026	0.03	7.665	0.473	1.19	4.644
10	0.268	1.25	2.122	0.154	0.54	2.951	0.324	1.49	1.629	0.121	0.44	2.412	-0.323	-0.41	7.342	0.271	0.68	4.915
11	0.131	0.61	2.254	0.264	0.93	3.215	0.094	0.43	1.722	0.174	0.63	2.587	0.53	0.68	7.872	0.59	1.49	5.505
12	0.208	0.97	2.461	0.384	1.35	3.599	0.183	0.84	1.905	0.374	1.35	2.961	0.467	0.60	8.339	0.42	1.06	5.926
13	0.118	0.55	2.579	0.263	0.93	3.862	0.113	0.52	2.019	0.24	0.87	3.200	0.17	0.22	8.509	0.348	0.88	6.274
14	-0.021	-0.10	2.558	0.138	0.49	4.000	-0.109	-0.50	1.910	0.076	0.27	3.276	0.904	1.15	9.412	0.362	0.91	6.636
15	0.086	0.40	2.643	0.278	0.98	4.278	0.028	0.13	1.938	0.294	1.06	3.570	0.693	0.88	10.105	0.219	0.55	6.855

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation.

Appendix 5.3: AARs, CAARs and T-Statistics Around Annual Earnings Announcements by Sector

	Banks N = 57			Diversified Financials N = 16			Energy N = 18			Food and Beverages N = 10			Insurance N = 144		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.189	0.61	0.189	0.086	0.16	0.086	0.195	0.28	0.195	-0.131	-0.33	-0.131	0.930**	1.98	0.930
-14	0.770**	2.47	0.958	0.328	0.59	0.413	-0.576	-0.83	-0.381	0.166	0.42	0.035	-0.095	-0.20	0.835
-13	0.012	0.04	0.970	0.290	0.53	0.703	-0.489	-0.71	-0.869	0.102	0.26	0.137	0.306	0.65	1.141
-12	-0.002	-0.01	0.968	-0.065	-0.12	0.638	0.254	0.37	-0.615	0.263	0.66	0.401	0.281	0.60	1.422
-11	-0.553*	-1.77	0.416	0.626	1.14	1.264	-0.232	-0.34	-0.847	0.434	1.09	0.835	0.193	0.41	1.616
-10	-0.809***	-2.59	-0.393	-0.510	-0.93	0.754	-0.899	-1.30	-1.746	-0.099	-0.25	0.736	-0.006	-0.01	1.610
-9	-0.395	-1.27	-0.788	-0.172	-0.31	0.582	-0.464	-0.67	-2.209	-0.653*	-1.65	0.083	-0.703	-1.50	0.907
-8	-0.484	-1.55	-1.272	-0.029	-0.05	0.553	1.523**	2.21	-0.687	-0.144	-0.36	-0.061	-0.785*	-1.67	0.122
-7	-0.533*	-1.71	-1.805	-0.627	-1.14	-0.074	0.443	0.64	-0.244	0.070	0.18	0.009	-0.581	-1.24	-0.459
-6	-0.465	-1.49	-2.270	-0.287	-0.52	-0.361	0.290	0.42	0.046	0.044	0.11	0.053	-0.032	-0.07	-0.492
-5	-0.829***	-2.66	-3.099	-0.127	-0.23	-0.487	-0.305	-0.44	-0.259	-0.492	-1.24	-0.439	0.207	0.44	-0.284
-4	-0.335	-1.08	-3.434	0.254	0.46	-0.233	-0.244	-0.35	-0.503	0.069	0.17	-0.369	0.208	0.44	-0.076
-3	0.062	0.20	-3.372	0.759	1.38	0.526	-0.312	-0.45	-0.816	-0.069	-0.17	-0.439	-0.153	-0.33	-0.228
-2	0.074	0.24	-3.298	-0.102	-0.19	0.424	0.353	0.51	-0.463	0.060	0.15	-0.378	0.721	1.54	0.493
-1	-0.387	-1.24	-3.685	0.821	1.49	1.245	-1.005	-1.46	-1.468	0.127	0.32	-0.251	0.781*	1.66	1.274
0	0.044	0.14	-3.641	-0.063	-0.12	1.181	0.726	1.05	-0.742	-0.336	-0.85	-0.587	0.574	1.22	1.848
1	-0.088	-0.28	-3.728	-0.364	-0.66	0.817	0.950	1.38	0.208	0.398	1.00	-0.189	-0.190	-0.40	1.658
2	-0.282	-0.91	-4.011	-0.082	-0.15	0.735	-0.166	-0.24	0.042	0.077	0.19	-0.112	0.266	0.57	1.924
3	-0.096	-0.31	-4.107	-0.598	-1.09	0.138	0.513	0.74	0.555	-0.114	-0.29	-0.226	0.075	0.16	1.999
4	0.452	1.45	-3.654	0.411	0.75	0.548	0.138	0.20	0.693	0.062	0.16	-0.164	-0.224	-0.48	1.775
5	-0.075	-0.24	-3.729	0.413	0.75	0.962	0.450	0.65	1.144	0.209	0.53	0.045	0.086	0.18	1.861
6	0.311	1.00	-3.418	0.357	0.65	1.318	0.169	0.25	1.313	0.323	0.81	0.368	0.318	0.68	2.178
7	0.369	1.18	-3.049	0.199	0.36	1.517	0.278	0.40	1.590	0.164	0.41	0.531	0.324	0.69	2.502
8	0.131	0.42	-2.918	-0.002	0.00	1.515	1.277*	1.85	2.868	0.520	1.31	1.051	0.243	0.52	2.746
9	0.401	1.29	-2.518	0.044	0.08	1.559	0.978	1.42	3.845	0.074	0.19	1.125	0.319	0.68	3.065
10	0.593	1.90	-1.925	0.419	0.76	1.978	0.526	0.76	4.372	0.355	0.89	1.480	0.206	0.44	3.271
11	0.051	0.16	-1.874	-0.350	-0.64	1.628	-0.220	-0.32	4.152	0.670*	1.69	2.150	0.684	1.46	3.955
12	0.547*	1.75	-1.327	0.798	1.45	2.425	0.011	0.02	4.162	-0.327	-0.82	1.823	0.931**	1.99	4.886
13	0.060	0.19	-1.268	0.621	1.13	3.046	0.152	0.22	4.315	0.181	0.46	2.004	0.694	1.48	5.580
14	0.046	0.15	-1.221	0.022	0.04	3.068	-0.189	-0.27	4.126	0.061	0.15	2.065	0.336	0.72	5.916
15	0.050	0.16	-1.171	-0.227	-0.41	2.841	0.404	0.59	4.530	-0.190	-0.48	1.875	0.349	0.74	6.265

(Continued)

Appendix 5.3: Continued.

	Materials N = 144			Real Estate Management and Development N = 29			Retailing N = 22			Telecommunication Services N = 16			Utilities N = 10		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.271	1.05	0.271	0.485	1.03	0.485	0.397	0.80	0.397	0.017	0.03	0.017	-0.391	-0.68	-0.391
-14	0.115	0.44	0.386	-0.162	-0.35	0.322	0.113	0.23	0.510	0.547	1.06	0.565	-0.196	-0.34	-0.587
-13	0.304	1.18	0.690	0.257	0.55	0.579	0.759	1.53	1.269	0.420	0.82	0.985	0.007	0.01	-0.580
-12	0.176	0.68	0.866	-0.262	-0.56	0.317	1.082**	2.18	2.351	0.039	0.08	1.024	-0.222	-0.38	-0.802
-11	0.158	0.61	1.024	-0.173	-0.37	0.144	-0.093	-0.19	2.257	-0.046	-0.09	0.979	0.006	0.01	-0.796
-10	-0.107	-0.41	0.917	-0.569	-1.21	-0.426	-0.028	-0.06	2.229	-0.295	-0.57	0.684	0.720	1.25	-0.076
-9	0.008	0.03	0.925	-0.136	-0.29	-0.562	0.176	0.35	2.405	0.465	0.90	1.149	0.695	1.20	0.619
-8	0.032	0.12	0.956	-0.505	-1.07	-1.067	-0.019	-0.04	2.386	-0.495	-0.96	0.654	0.282	0.49	0.901
-7	0.111	0.43	1.067	0.326	0.69	-0.741	-0.712	-1.44	1.674	-0.112	-0.22	0.542	1.719***	2.98	2.620
-6	0.195	0.75	1.262	0.321	0.68	-0.420	0.640	1.29	2.314	-0.368	-0.71	0.174	-0.110	-0.19	2.509
-5	0.183	0.71	1.445	0.115	0.24	-0.305	0.176	0.35	2.490	0.262	0.51	0.436	0.086	0.15	2.596
-4	-0.045	-0.17	1.400	0.285	0.61	-0.020	0.744	1.50	3.234	-0.349	-0.68	0.087	0.147	0.25	2.743
-3	0.023	0.09	1.423	-0.337	-0.72	-0.357	0.798	1.61	4.031	0.416	0.81	0.503	-0.269	-0.47	2.474
-2	-0.071	-0.27	1.352	-0.661	-1.41	-1.018	0.147	0.30	4.178	0.384	0.75	0.888	-0.491	-0.85	1.983
-1	0.273	1.05	1.625	0.084	0.18	-0.934	-0.338	-0.68	3.841	-0.407	-0.79	0.480	-0.090	-0.16	1.892
0	0.121	0.47	1.746	0.527	1.12	-0.407	0.224	0.45	4.065	-0.242	-0.47	0.238	-0.038	-0.07	1.854
1	0.495*	1.91	2.241	0.066	0.14	-0.342	0.246	0.49	4.310	-0.302	-0.59	-0.064	-0.203	-0.35	1.652
2	0.100	0.39	2.341	0.565	1.20	0.224	-0.460	-0.93	3.850	0.257	0.50	0.194	0.153	0.27	1.805
3	0.102	0.39	2.444	-0.321	-0.68	-0.097	0.961*	1.93	4.811	0.345	0.67	0.539	0.080	0.14	1.885
4	0.064	0.25	2.508	0.609	1.30	0.511	0.201	0.41	5.012	-0.234	-0.45	0.305	0.777	1.35	2.662
5	0.292	1.13	2.800	0.397	0.84	0.908	0.023	0.05	5.035	0.101	0.20	0.406	0.252	0.44	2.914
6	0.423	1.63	3.223	-0.035	-0.08	0.873	0.489	0.98	5.524	0.395	0.77	0.802	-0.087	-0.15	2.828
7	0.361	1.39	3.583	-0.015	-0.03	0.858	0.120	0.24	5.644	0.294	0.57	1.095	0.547	0.95	3.375
8	0.418	1.61	4.001	0.683	1.45	1.541	0.718	1.45	6.363	-0.227	-0.44	0.868	0.321	0.55	3.695
9	0.472*	1.82	4.473	-0.040	-0.08	1.501	-0.092	-0.18	6.271	0.195	0.38	1.063	0.083	0.14	3.778
10	0.151	0.58	4.624	-0.609	-1.29	0.892	0.311	0.63	6.582	0.646	1.25	1.709	-0.041	-0.07	3.737
11	0.134	0.52	4.758	-0.310	-0.66	0.582	0.033	0.07	6.615	0.747	1.45	2.456	-0.222	-0.38	3.515
12	0.342	1.32	5.100	-0.114	-0.24	0.468	0.385	0.78	7.000	1.040**	2.02	3.496	0.054	0.09	3.569
13	0.291	1.12	5.390	0.226	0.48	0.694	0.021	0.04	7.021	0.060	0.12	3.556	-0.490	-0.85	3.078
14	0.168	0.65	5.558	0.673	1.43	1.367	0.223	0.45	7.244	1.266**	2.46	4.822	-1.004*	-1.74	2.075
15	-0.073	-0.28	5.485	0.637	1.36	2.004	-0.001	0.00	7.243	1.309**	2.54	6.131	0.129	0.22	2.204

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation.

Appendix 5.4: AARs, CAARs and T-Statistic Around Top Management Change Announcements by Firm Size

	Whole Sample						Forced Resignation						Retirement		
	N = 74 Large Firms			N = 376 Small Firms			N = 5 Large Firms			N = 39 Small Firms			N = 3 Large Firms		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.075	0.48	0.075	0.073	0.49	0.073	-0.252	-0.45	-0.252	0.645	1.40	0.645	0.263	0.25	0.263
-14	0.150	0.96	0.225	0.025	0.17	0.099	0.715	1.29	0.463	-0.638	-1.38	0.007	-1.544	-1.47	-1.282
-13	0.279*	1.79	0.503	0.071	0.47	0.170	-0.699	-1.26	-0.236	0.292	0.63	0.299	0.750	0.71	-0.531
-12	-0.223	-1.43	0.280	0.129	0.86	0.298	-1.810***	-3.26	-2.046	0.635	1.38	0.934	-1.886*	-1.79	-2.417
-11	-0.130	-0.83	0.150	0.017	0.11	0.315	-1.391**	-2.51	-3.436	-0.417	-0.90	0.517	1.386	1.32	-1.031
-10	0.017	0.11	0.168	0.262*	1.75	0.577	0.225	0.41	-3.211	0.399	0.86	0.916	-0.684	-0.65	-1.715
-9	0.178	1.14	0.346	0.214	1.42	0.791	0.723	1.30	-2.488	0.633	1.37	1.548	-0.352	-0.34	-2.067
-8	0.174	1.11	0.520	0.035	0.23	0.826	0.799	1.44	-1.689	-0.192	-0.42	1.357	0.187	0.18	-1.880
-7	-0.166	-1.06	0.354	0.148	0.99	0.973	0.733	1.32	-0.955	1.375***	2.98	2.732	-0.336	-0.32	-2.216
-6	0.239	1.53	0.593	-0.169	-1.13	0.804	1.322**	2.38	0.367	0.086	0.19	2.817	0.358	0.34	-1.858
-5	-0.154	-0.99	0.439	-0.113	-0.75	0.691	0.305	0.55	0.671	-0.203	-0.44	2.614	-0.200	-0.19	-2.058
-4	-0.019	-0.12	0.420	0.292*	1.95	0.983	-0.706	-1.27	-0.035	0.051	0.11	2.664	1.324	1.26	-0.734
-3	-0.153	-0.98	0.268	0.098	0.65	1.081	-1.212**	-2.18	-1.247	0.219	0.48	2.884	-0.281	-0.27	-1.015
-2	0.195	1.25	0.462	-0.177	-1.18	0.904	-0.473	-0.85	-1.720	0.471	1.02	3.354	0.298	0.28	-0.717
-1	0.303*	1.94	0.765	0.040	0.27	0.944	1.242**	2.24	-0.478	0.197	0.43	3.551	-2.009*	-1.91	-2.726
0	0.006	0.04	0.771	0.214	1.43	1.158	0.356	0.64	-0.122	1.197***	2.60	4.748	-0.478	-0.45	-3.204
1	-0.227	-1.46	0.544	0.059	0.39	1.217	0.709	1.28	0.587	0.778*	1.69	5.527	-0.555	-0.53	-3.759
2	-0.061	-0.39	0.483	0.072	0.48	1.289	0.604	1.09	1.191	1.183***	2.57	6.710	-0.247	-0.24	-4.006
3	-0.006	-0.04	0.476	-0.053	-0.35	1.237	0.317	0.57	1.508	0.681	1.48	7.391	0.686	0.65	-3.320
4	-0.062	-0.40	0.414	-0.020	-0.14	1.216	0.095	0.17	1.603	0.310	0.67	7.701	-0.019	-0.02	-3.339
5	0.069	0.44	0.483	-0.099	-0.66	1.117	-0.877	-1.58	0.726	0.194	0.42	7.894	-1.161	-1.11	-4.500
6	-0.028	-0.18	0.454	-0.138	-0.92	0.979	0.941*	1.70	1.667	0.280	0.61	8.174	-3.963***	-3.77	-8.463
7	0.189	1.21	0.644	-0.173	-1.15	0.806	1.383**	2.49	3.050	-0.370	-0.80	7.804	3.314***	3.15	-5.149
8	-0.180	-1.16	0.463	0.008	0.05	0.813	-0.708	-1.28	2.342	0.222	0.48	8.026	-0.679	-0.65	-5.828
9	0.309**	1.98	0.772	0.067	0.44	0.880	0.389	0.70	2.730	-0.031	-0.07	7.995	0.927	0.88	-4.902
10	-0.132	-0.85	0.640	-0.025	-0.17	0.855	-0.764	-1.38	1.967	0.102	0.22	8.097	-0.300	-0.29	-5.201
11	0.068	0.44	0.708	-0.179	-1.19	0.676	0.696	1.25	2.663	0.357	0.78	8.454	0.795	0.76	-4.406
12	0.140	0.90	0.848	-0.045	-0.30	0.631	-0.776	-1.40	1.886	0.091	0.20	8.545	1.063	1.01	-3.344
13	-0.161	-1.03	0.687	-0.214	-1.43	0.416	-0.265	-0.48	1.621	0.153	0.33	8.698	-3.905***	-3.72	-7.248
14	0.126	0.81	0.813	-0.123	-0.82	0.293	-0.285	-0.51	1.336	-0.436	-0.95	8.262	-0.383	-0.36	-7.631
15	-0.005	-0.03	0.808	0.389**	2.59	0.682	-0.743	-1.34	0.593	0.231	0.50	8.493	3.000***	2.86	-4.631

(Continued)

Appendix 5.4: Continued

	Retirement			Voluntary Departure						New Appointment					
	N = 2 Small Firms			N = 19 Large Firms			N = 110 Small Firms			N = 47 Large Firms			N = 225 Small Firms		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.540	0.51	0.540	0.689**	2.40	0.689	0.200	0.73	0.200	-0.141	-0.78	-0.141	-0.104	-0.53	-0.104
-14	0.786	0.74	1.327	0.643**	2.24	1.332	0.354	1.30	0.554	-0.077	-0.43	-0.217	-0.025	-0.13	-0.129
-13	-0.578	-0.54	0.749	0.258	0.90	1.590	0.335	1.23	0.889	0.419**	2.34	0.202	-0.095	-0.48	-0.224
-12	-0.093	-0.09	0.656	-0.405	-1.41	1.185	0.038	0.14	0.928	0.102	0.57	0.304	0.081	0.41	-0.143
-11	-0.750	-0.70	-0.094	-0.290	-1.01	0.895	0.268	0.98	1.195	0.045	0.25	0.349	-0.018	-0.09	-0.161
-10	0.113	0.11	0.019	0.221	0.77	1.115	0.027	0.10	1.222	-0.090	-0.50	0.260	0.357*	1.82	0.195
-9	-1.031	-0.97	-1.013	0.284	0.99	1.400	0.617**	2.27	1.840	0.066	0.37	0.326	-0.053	-0.27	0.143
-8	-0.044	-0.04	-1.057	-0.149	-0.52	1.251	0.210	0.77	2.049	0.243	1.36	0.569	-0.010	-0.05	0.133
-7	0.598	0.56	-0.458	-0.310	-1.08	0.941	-0.036	-0.13	2.014	-0.173	-0.96	0.397	0.003	0.01	0.136
-6	-0.241	-0.23	-0.699	0.123	0.43	1.063	-0.328	-1.20	1.686	0.172	0.96	0.568	-0.137	-0.70	-0.001
-5	-1.096	-1.03	-1.796	-0.482*	-1.68	0.581	-0.002	-0.01	1.684	-0.066	-0.37	0.502	-0.139	-0.71	-0.140
-4	-0.148	-0.14	-1.944	-0.506*	-1.77	0.075	0.160	0.59	1.845	0.247	1.38	0.750	0.409**	2.08	0.269
-3	-0.227	-0.21	-2.170	-0.216	-0.75	-0.141	-0.043	-0.16	1.802	-0.016	-0.09	0.734	0.150	0.76	0.420
-2	-1.007	-0.94	-3.177	0.453	1.58	0.312	-0.068	-0.25	1.734	0.147	0.82	0.880	-0.344*	-1.75	0.075
-1	-1.194	-1.12	-4.371	0.545*	1.90	0.857	0.094	0.34	1.828	0.194	1.08	1.074	-0.001	-0.01	0.074
0	-0.609	-0.57	-4.980	-0.205	-0.72	0.651	-0.298	-1.09	1.530	0.066	0.37	1.140	0.297	1.51	0.371
1	0.332	0.31	-4.648	-0.363	-1.26	0.289	-0.141	-0.52	1.389	-0.308*	-1.72	0.833	0.020	0.10	0.391
2	0.361	0.34	-4.287	-0.240	-0.84	0.048	0.038	0.14	1.428	-0.074	-0.41	0.759	-0.124	-0.63	0.267
3	-1.248	-1.17	-5.535	-0.071	-0.25	-0.023	-0.148	-0.54	1.280	-0.029	-0.16	0.730	-0.128	-0.65	0.139
4	-0.365	-0.34	-5.900	-0.127	-0.44	-0.150	0.060	0.22	1.340	-0.045	-0.25	0.686	-0.119	-0.61	0.020
5	2.330**	2.19	-3.570	0.281	0.98	0.131	-0.072	-0.26	1.268	0.130	0.73	0.816	-0.199	-1.02	-0.179
6	0.281	0.26	-3.288	0.023	0.08	0.154	-0.467*	-1.72	0.801	-0.079	-0.44	0.737	-0.057	-0.29	-0.236
7	-0.726	-0.68	-4.014	0.225	0.79	0.379	-0.113	-0.41	0.689	-0.063	-0.35	0.674	-0.159	-0.81	-0.395
8	0.292	0.27	-3.722	0.533*	1.86	0.912	-0.078	-0.29	0.611	-0.360**	-2.01	0.314	0.007	0.03	-0.389
9	0.652	0.61	-3.070	0.823***	2.87	1.735	0.213	0.78	0.824	0.099	0.55	0.413	0.004	0.02	-0.384
10	-1.294	-1.21	-4.364	0.376	1.31	2.111	0.197	0.72	1.021	-0.278	-1.55	0.135	-0.144	-0.74	-0.529
11	0.299	0.28	-4.065	0.305	1.06	2.416	-0.186	-0.68	0.834	-0.107	-0.59	0.028	-0.283	-1.44	-0.812
12	1.042	0.98	-3.023	0.831***	2.90	3.247	0.079	0.29	0.913	-0.022	-0.12	0.007	-0.146	-0.75	-0.958
13	-1.658	-1.56	-4.681	0.135	0.47	3.382	-0.213	-0.78	0.699	-0.207	-1.16	-0.201	-0.266	-1.36	-1.224
14	-0.765	-0.72	-5.447	0.408	1.42	3.790	-0.259	-0.95	0.441	0.063	0.35	-0.138	0.012	0.06	-1.212
15	0.065	0.06	-5.382	0.060	0.21	3.850	0.312	1.15	0.753	-0.036	-0.20	-0.174	0.462**	2.35	-0.750

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation.

Appendix 5.5: AARs, CAARs and T-Statistics Around Top Management Change Announcements by Government Ownership

	Whole Sample						Forced Resignation						Retirement		
	N = 118 With Government Ownerships			N = 332 Without Government Ownerships			N = 11 With Government Ownerships			N = 33 Without Government Ownerships			N = 3 With Government Ownerships		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.061	0.32	0.061	0.084	0.63	0.084	0.009	0.02	0.009	0.476	1.04	0.476	0.263	0.25	0.263
-14	0.148	0.78	0.208	0.053	0.40	0.137	-0.501	-0.96	-0.492	-0.109	-0.24	0.367	-1.544	-1.47	-1.282
-13	0.252	1.33	0.460	0.127	0.96	0.264	-0.614	-1.17	-1.105	0.174	0.38	0.54	0.75	0.71	-0.531
-12	-0.027	-0.14	0.434	-0.004	-0.03	0.260	-1.540***	-2.94	-2.646	0.323	0.71	0.863	-1.886*	-1.79	-2.417
-11	-0.191	-1.01	0.243	0.008	0.06	0.267	-1.257**	-2.40	-3.903	-0.55	-1.21	0.313	1.386	1.32	-1.031
-10	0.113	0.60	0.356	0.179	1.36	0.447	0.589	1.13	-3.314	0.262	0.57	0.575	-0.684	-0.65	-1.715
-9	0.125	0.66	0.480	0.222*	1.68	0.669	-0.338	-0.65	-3.652	0.994**	2.18	1.569	-0.352	-0.34	-2.067
-8	-0.199	-1.05	0.281	0.195	1.48	0.864	-0.773	-1.48	-4.425	0.423	0.93	1.992	0.187	0.18	-1.88
-7	-0.390**	-2.06	-0.109	0.183	1.38	1.047	-0.379	-0.72	-4.803	1.688***	3.70	3.679	-0.336	-0.32	-2.216
-6	0.047	0.25	-0.061	-0.019	-0.15	1.027	-0.333	-0.64	-5.136	0.750*	1.64	4.429	0.358	0.34	-1.858
-5	-0.077	-0.41	-0.139	-0.147	-1.11	0.880	-0.113	-0.22	-5.25	-0.018	-0.04	4.411	-0.2	-0.19	-2.058
-4	0.216	1.14	0.078	0.153	1.16	1.033	-0.208	-0.40	-5.458	-0.184	-0.4	4.227	1.324	1.26	-0.734
-3	0.000	0.00	0.078	-0.011	-0.08	1.022	-0.564	-1.08	-6.022	-0.127	-0.28	4.1	-0.281	-0.27	-1.015
-2	0.251	1.33	0.329	-0.135	-1.02	0.888	-1.435***	-2.74	-7.457	0.705	1.55	4.805	0.298	0.28	-0.717
-1	0.381**	2.01	0.710	0.078	0.59	0.965	1.401***	2.68	-6.056	0.239	0.52	5.044	-2.009*	-1.91	-2.726
0	0.020	0.11	0.730	0.171	1.29	1.136	1.157**	2.21	-4.899	0.853*	1.87	5.898	-0.478	-0.45	-3.204
1	-0.193	-1.02	0.537	-0.016	-0.12	1.120	0.249	0.47	-4.65	0.926**	2.03	6.824	-0.555	-0.53	-3.759
2	-0.128	-0.67	0.409	0.067	0.51	1.187	-0.15	-0.29	-4.8	1.382***	3.03	8.205	-0.247	-0.24	-4.006
3	0.011	0.06	0.420	-0.048	-0.36	1.139	-0.057	-0.11	-4.857	0.772*	1.69	8.977	0.686	0.65	-3.32
4	-0.233	-1.23	0.187	0.036	0.27	1.175	-0.091	-0.17	-4.948	0.353	0.77	9.33	-0.019	-0.02	-3.339
5	0.399**	2.11	0.586	-0.185	-1.40	0.990	-0.148	-0.28	-5.096	-0.147	-0.32	9.183	-1.161	-1.11	-4.50
6	0.145	0.77	0.732	-0.184	-1.39	0.806	1.577***	3.01	-3.519	0.128	0.28	9.311	-3.963***	-3.77	-8.463
7	0.116	0.62	0.848	-0.083	-0.62	0.724	1.132**	2.16	-2.387	-0.127	-0.28	9.184	3.314***	3.15	-5.149
8	-0.307	-1.62	0.541	0.035	0.27	0.759	-1.207**	-2.31	-3.594	0.304	0.67	9.488	-0.679	-0.65	-5.828
9	0.063	0.33	0.604	0.212	1.60	0.971	-0.521	-1.00	-4.115	0.311	0.68	9.798	0.927	0.88	-4.902
10	-0.035	-0.18	0.570	-0.082	-0.62	0.889	-0.185	-0.35	-4.3	-0.17	-0.37	9.629	-0.3	-0.29	-5.201
11	0.102	0.54	0.671	-0.137	-1.04	0.752	-0.115	-0.22	-4.415	0.659	1.44	10.287	0.795	0.76	-4.406
12	-0.188	-0.99	0.483	0.122	0.92	0.874	-0.659	-1.26	-5.074	-0.027	-0.06	10.26	1.063	1.01	-3.344
13	-0.566***	-2.99	-0.082	-0.071	-0.54	0.803	-0.46	-0.88	-5.534	0.18	0.39	10.439	-3.905***	-3.72	-7.248
14	0.068	0.36	-0.015	-0.059	-0.44	0.744	-0.209	-0.40	-5.743	-0.448	-0.98	9.992	-0.383	-0.36	-7.631
15	-0.005	-0.03	-0.020	0.312**	2.36	1.056	-0.869*	-1.66	-6.612	0.185	0.4	10.176	3.000***	2.86	-4.631

(Continued)

Appendix 5.5: Continued.

	Retirement			Voluntary Departure						New Appointment					
	N = 2 Without Government Ownerships			N = 33 With Government Ownerships			N = 96 Without Government Ownerships			N = 71 With Government Ownerships			N = 201 Without Government Ownerships		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.54	0.51	0.54	0.938**	2.47	0.938	0.196	0.80	0.196	-0.347	-1.59	-0.347	-0.039	-0.23	-0.039
-14	0.786	0.74	1.327	0.790**	2.08	1.728	0.352	1.45	0.548	0.021	0.10	-0.326	-0.070	-0.42	-0.109
-13	-0.578	-0.54	0.749	-0.009	-0.02	1.719	0.414*	1.70	0.962	0.486**	2.22	0.16	-0.011	-0.07	-0.120
-12	-0.093	-0.09	0.656	0.116	0.31	1.835	-0.215	-0.88	0.747	0.22	1.01	0.38	0.044	0.26	-0.076
-11	-0.75	-0.70	-0.094	-0.170	-0.45	1.665	0.133	0.55	0.88	-0.102	-0.47	0.278	0.047	0.28	-0.029
-10	0.113	0.11	0.019	0.103	0.27	1.768	0.100	0.41	0.98	0.077	0.35	0.355	0.204	1.22	0.175
-9	-1.031	-0.97	-1.013	0.710*	1.87	2.478	0.415*	1.71	1.396	-0.056	-0.25	0.300	0.015	0.09	0.190
-8	-0.044	-0.04	-1.057	-0.692*	-1.82	1.786	0.337	1.38	1.733	0.103	0.47	0.403	0.093	0.55	0.283
-7	0.598	0.56	-0.458	-0.418	-1.10	1.368	-0.045	-0.18	1.688	-0.381*	-1.74	0.022	0.040	0.24	0.323
-6	-0.241	-0.23	-0.699	-0.127	-0.33	1.241	-0.167	-0.69	1.521	0.174	0.79	0.195	-0.073	-0.44	0.250
-5	-1.096	-1.03	-1.796	-0.697*	-1.83	0.545	-0.008	-0.03	1.513	0.221	1.01	0.417	-0.225	-1.34	0.025
-4	-0.148	-0.14	-1.944	-0.079	-0.21	0.466	-0.098	-0.40	1.415	0.372*	1.70	0.789	0.331**	1.97	0.356
-3	-0.227	-0.21	-2.17	0.205	0.54	0.671	-0.216	-0.89	1.199	0.004	0.02	0.793	0.108	0.64	0.464
-2	-1.007	-0.94	-3.177	0.784**	2.07	1.455	-0.095	-0.39	1.104	0.263	1.20	1.056	-0.283*	-1.68	0.181
-1	-1.194	-1.12	-4.371	0.601	1.58	2.056	0.150	0.61	1.254	0.222	1.01	1.278	0.03	0.18	0.211
0	-0.609	-0.57	-4.98	-0.180	-0.48	1.875	-0.291	-1.19	0.963	-0.042	-0.19	1.236	0.287*	1.71	0.498
1	0.332	0.31	-4.648	-0.120	-0.32	1.756	-0.261	-1.07	0.702	-0.281	-1.28	0.955	-0.058	-0.34	0.440
2	0.361	0.34	-4.287	-0.136	-0.36	1.62	-0.044	-0.18	0.658	-0.115	-0.53	0.84	-0.099	-0.59	0.341
3	-1.248	-1.17	-5.535	0.006	0.02	1.625	-0.162	-0.66	0.496	-0.004	-0.02	0.836	-0.116	-0.69	0.226
4	-0.365	-0.34	-5.9	-0.184	-0.49	1.441	0.048	0.20	0.545	-0.287	-1.31	0.549	-0.018	-0.11	0.208
5	2.330**	2.19	-3.57	0.775**	2.04	2.216	-0.183	-0.75	0.362	0.375*	1.71	0.924	-0.217	-1.29	-0.009
6	0.281	0.26	-3.288	-0.418	-1.10	1.798	-0.234	-0.96	0.128	0.359*	1.64	1.283	-0.216	-1.28	-0.225
7	-0.726	-0.68	-4.014	-0.169	-0.45	1.629	0.079	0.33	0.207	-0.043	-0.20	1.240	-0.146	-0.87	-0.372
8	0.292	0.27	-3.722	-0.149	-0.39	1.4800	0.258	1.06	0.466	-0.225	-1.03	1.015	-0.118	-0.70	-0.489
9	0.652	0.61	-3.07	0.334	0.88	1.814	0.482**	1.98	0.948	-0.009	-0.04	1.006	0.062	0.37	-0.427
10	-1.294	-1.21	-4.364	-0.209	-0.55	1.605	0.428*	1.76	1.376	0.081	0.37	1.087	-0.299*	-1.78	-0.726
11	0.299	0.28	-4.065	0.493	1.30	2.098	-0.169	-0.70	1.207	-0.076	-0.35	1.011	-0.257	-1.53	-0.983
12	1.042	0.98	-3.023	0.000	0.00	2.098	0.490**	2.01	1.697	-0.255	-1.17	0.755	-0.038	-0.23	-1.021
13	-1.658	-1.56	-4.681	-0.691*	-1.82	1.407	0.129	0.53	1.826	-0.382*	-1.75	0.373	-0.192	-1.14	-1.213
14	-0.765	-0.72	-5.447	0.245	0.65	1.652	-0.091	-0.38	1.734	0.047	0.22	0.420	0.028	0.17	-1.185
15	0.065	0.06	-5.382	0.378	1.00	2.03	0.161	0.66	1.895	-0.176	-0.80	0.244	0.407**	2.42	-0.778

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation.

Appendix 5.6: AARs, CAARs and T-Statistics Around Top Management Change Announcements by Sector

	Banks N = 24			Diversified Financials N = 9			Energy N = 14			Food and Beverages N = 48			Insurance N = 91		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.275	0.79	0.275	0.259	0.50	0.259	-0.534	-0.85	-0.534	0.120	0.39	0.120	0.150	0.51	0.150
-14	-0.478	-1.38	-0.203	0.150	0.29	0.409	0.546	0.87	0.013	-0.160	-0.52	-0.041	0.200	0.68	0.350
-13	0.279	0.80	0.076	0.085	0.16	0.494	0.602	0.96	0.615	0.409	1.33	0.368	0.024	0.08	0.374
-12	0.092	0.27	0.168	1.356***	2.60	1.851	-0.279	-0.44	0.336	-0.187	-0.61	0.181	0.268	0.91	0.642
-11	0.166	0.48	0.334	-1.460***	-2.80	0.390	0.197	0.31	0.533	-0.079	-0.26	0.102	0.275	0.94	0.917
-10	0.104	0.30	0.437	-0.230	-0.44	0.161	-0.871	-1.39	-0.338	0.095	0.31	0.197	-0.014	-0.05	0.904
-9	0.010	0.03	0.447	0.650	1.24	0.810	-0.214	-0.34	-0.553	-0.092	-0.30	0.105	0.013	0.04	0.917
-8	-0.102	-0.30	0.344	0.784	1.50	1.594	0.858	1.37	0.305	-0.605**	-1.97	-0.500	-0.090	-0.31	0.827
-7	-0.114	-0.33	0.230	-1.060**	-2.03	0.534	0.338	0.54	0.643	0.091	0.30	-0.409	-0.068	-0.23	0.759
-6	0.047	0.14	0.277	0.365	0.70	0.899	-0.455	-0.72	0.188	0.069	0.23	-0.340	0.004	0.01	0.764
-5	-0.219	-0.63	0.058	0.093	0.18	0.992	-0.384	-0.61	-0.196	-0.092	-0.30	-0.431	-0.481*	-1.64	0.283
-4	-0.143	-0.41	-0.085	-0.286	-0.55	0.706	0.480	0.76	0.283	-0.320	-1.04	-0.752	0.622**	2.12	0.904
-3	-0.038	-0.11	-0.123	1.033**	1.98	1.738	0.533	0.85	0.817	0.020	0.07	-0.732	0.003	0.01	0.907
-2	0.374	1.08	0.251	-0.119	-0.23	1.619	0.819	1.30	1.636	0.459	1.50	-0.272	-0.351	-1.20	0.556
-1	0.358	1.03	0.609	-0.196	-0.38	1.423	-0.102	-0.16	1.535	-0.216	-0.70	-0.488	0.076	0.26	0.632
0	0.062	0.18	0.671	0.197	0.38	1.620	-0.559	-0.89	0.975	0.168	0.55	-0.320	0.095	0.32	0.727
1	-0.097	-0.28	0.574	-0.311	-0.60	1.309	-0.816	-1.30	0.159	-0.053	-0.17	-0.373	0.130	0.44	0.858
2	-0.143	-0.41	0.431	-1.446***	-2.77	-0.137	0.184	0.29	0.342	0.575	1.87	0.202	-0.071	-0.24	0.787
3	0.355	1.02	0.786	-0.504	-0.97	-0.642	-0.166	-0.26	0.177	-0.686**	-2.23	-0.484	-0.330	-1.12	0.457
4	-0.009	-0.03	0.777	0.735	1.41	0.094	0.544	0.87	0.721	-0.418	-1.36	-0.902	0.135	0.46	0.592
5	0.390	1.13	1.168	0.420	0.81	0.514	-0.041	-0.06	0.680	0.343	1.11	-0.560	-0.247	-0.84	0.345
6	-0.571*	-1.65	0.597	-0.133	-0.25	0.381	-0.464	-0.74	0.216	0.126	0.41	-0.434	-0.175	-0.59	0.170
7	-0.192	-0.55	0.405	0.752	1.44	1.133	-0.104	-0.17	0.112	0.029	0.09	-0.405	-0.286	-0.97	-0.116
8	0.100	0.29	0.506	-0.613	-1.17	0.520	-0.414	-0.66	-0.302	-0.319	-1.04	-0.724	0.379	1.29	0.263
9	-0.015	-0.04	0.490	0.143	0.27	0.663	-0.230	-0.37	-0.532	-0.075	-0.24	-0.798	-0.032	-0.11	0.231
10	-0.138	-0.40	0.352	-0.295	-0.57	0.369	-0.167	-0.27	-0.699	-0.177	-0.58	-0.975	0.188	0.64	0.419
11	0.261	0.75	0.613	-0.570	-1.09	-0.201	0.530	0.84	-0.169	0.141	0.46	-0.834	-0.408	-1.39	0.012
12	-0.195	-0.56	0.418	1.111**	2.13	0.909	-0.266	-0.42	-0.435	-0.442	-1.44	-1.276	0.254	0.87	0.266
13	-0.514	-1.48	-0.096	-0.362	-0.69	0.547	-1.119*	-1.78	-1.554	0.002	0.01	-1.274	-0.021	-0.07	0.245
14	-0.077	-0.22	-0.173	-0.513	-0.98	0.035	-0.003	0.00	-1.557	-0.001	0.00	-1.276	0.028	0.10	0.273
15	-0.383	-1.10	-0.556	-0.654	-1.25	-0.620	-0.339	-0.54	-1.896	0.469	1.53	-0.806	0.515*	1.76	0.789

(Continued)

Appendix 5.6: Continued.

	Materials N = 89			Real Estate Management and Development N = 33			Retailing N = 15			Telecommunication Services N = 15			Utilities N = 10		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.385*	1.79	0.385	0.082	0.22	0.082	-0.483	-0.81	-0.483	-0.220	-0.35	-0.220	-0.238	-0.50	-0.238
-14	0.320	1.49	0.705	0.454	1.20	0.536	0.028	0.05	-0.454	0.234	0.37	0.014	-0.060	-0.13	-0.298
-13	-0.225	-1.04	0.481	0.411	1.09	0.947	0.368	0.61	-0.087	-0.829	-1.31	-0.815	0.765	1.60	0.466
-12	0.219	1.01	0.699	0.426	1.13	1.373	-1.777***	-2.97	-1.864	-0.420	-0.67	-1.236	-1.017**	-2.13	-0.551
-11	-0.236	-1.09	0.464	0.152	0.40	1.525	-0.945	-1.58	-2.808	0.016	0.02	-1.220	-0.840*	-1.76	-1.391
-10	0.467*	2.17	0.931	-0.356	-0.94	1.169	-0.038	-0.06	-2.846	0.215	0.34	-1.006	-0.173	-0.36	-1.564
-9	0.031	0.14	0.962	-0.732*	-1.94	0.437	0.292	0.49	-2.555	0.249	0.39	-0.757	0.489	1.02	-1.075
-8	-0.274	-1.27	0.688	0.347	0.92	0.784	0.001	0.00	-2.553	0.435	0.69	-0.322	0.438	0.92	-0.637
-7	0.496**	2.30	1.184	-0.607	-1.61	0.177	-0.381	-0.64	-2.935	-0.101	-0.16	-0.423	0.001	0.00	-0.637
-6	-0.073	-0.34	1.111	-0.046	-0.12	0.130	0.388	0.65	-2.547	-0.313	-0.50	-0.737	0.459	0.96	-0.178
-5	0.037	0.17	1.148	-0.272	-0.72	-0.142	-0.793	-1.32	-3.340	0.720	1.14	-0.017	-0.752	-1.57	-0.930
-4	0.294	1.36	1.442	0.203	0.54	0.061	-0.810	-1.35	-4.149	0.764	1.21	0.747	-0.335	-0.70	-1.264
-3	0.201	0.93	1.643	0.030	0.08	0.092	-0.514	-0.86	-4.663	0.408	0.65	1.156	-0.254	-0.53	-1.518
-2	-0.078	-0.36	1.565	-0.086	-0.23	0.006	0.515	0.86	-4.148	0.027	0.04	1.183	-0.812*	-1.70	-2.329
-1	0.224	1.04	1.789	0.302	0.80	0.308	0.618	1.03	-3.530	0.516	0.82	1.699	0.374	0.78	-1.955
0	0.018	0.08	1.807	0.151	0.40	0.459	0.358	0.60	-3.172	-1.034*	-1.64	0.665	0.899*	1.88	-1.056
1	-0.070	-0.32	1.738	0.074	0.20	0.534	-0.802	-1.34	-3.973	-0.735	-1.16	-0.070	0.136	0.28	-0.920
2	-0.226	-1.05	1.511	0.266	0.70	0.799	-0.219	-0.37	-4.192	-0.729	-1.15	-0.799	0.628	1.31	-0.292
3	0.257	1.19	1.768	-0.553	-1.46	0.247	0.605	1.01	-3.587	0.295	0.47	-0.504	0.199	0.42	-0.093
4	0.001	0.00	1.769	-0.343	-0.91	-0.097	-0.116	-0.19	-3.704	-0.179	-0.28	-0.683	0.094	0.20	0.001
5	0.050	0.23	1.818	0.255	0.68	0.159	-0.272	-0.45	-3.976	-0.220	-0.35	-0.903	0.316	0.66	0.317
6	-0.211	-0.98	1.607	0.454	1.20	0.613	-0.235	-0.39	-4.211	0.920	1.46	0.017	1.088**	2.28	1.405
7	-0.080	-0.37	1.527	0.359	0.95	0.972	0.106	0.18	-4.105	1.269**	2.01	1.286	-0.220	-0.46	1.185
8	-0.132	-0.61	1.394	-0.503	-1.33	0.469	-0.504	-0.84	-4.609	0.022	0.04	1.309	-0.310	-0.65	0.876
9	0.493**	2.29	1.888	0.921**	2.44	1.391	0.038	0.06	-4.571	-0.105	-0.17	1.204	-0.169	-0.35	0.706
10	0.228	1.06	2.116	-0.013	-0.03	1.378	-0.135	-0.23	-4.706	0.261	0.41	1.465	-0.079	-0.16	0.628
11	-0.125	-0.58	1.991	-0.089	-0.24	1.289	-0.808	-1.35	-5.514	0.160	0.25	1.625	-0.423	-0.88	0.204
12	-0.053	-0.25	1.938	0.100	0.27	1.389	0.958	1.60	-4.556	-0.119	-0.19	1.505	-0.390	-0.82	-0.186
13	-0.375*	-1.74	1.562	-0.615	-1.63	0.774	0.946	1.58	-3.610	-0.810	-1.28	0.695	-0.716	-1.50	-0.901
14	-0.138	-0.64	1.424	-0.210	-0.56	0.564	1.032*	1.72	-2.578	-0.468	-0.74	0.227	-0.009	-0.02	-0.910
15	0.304	1.41	1.729	-0.014	-0.04	0.550	1.066*	1.78	-1.513	-0.977	-1.55	-0.750	0.322	0.67	-0.588

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation.

Appendix 5.7: AARs, CAARs and T-Statistics Around AGM Announcements by Firm Size

	Whole Sample					
	N = 59 Large Firms			N = 390 Small Firms		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.080	0.31	0.080	0.075	0.63	0.075
-14	0.116	0.45	0.196	0.205*	1.73	0.280
-13	-0.182	-0.71	0.014	0.144	1.21	0.425
-12	0.375	1.45	0.389	0.019	0.16	0.444
-11	0.248	0.96	0.637	0.141	1.19	0.585
-10	0.221	0.85	0.858	0.106	0.89	0.691
-9	0.086	0.34	0.944	0.154	1.30	0.845
-8	0.460*	1.78	1.404	0.132	1.11	0.977
-7	0.401	1.55	1.805	0.105	0.88	1.082
-6	0.325	1.26	2.131	0.118	0.99	1.200
-5	-0.044	-0.17	2.087	0.107	0.90	1.307
-4	-0.280	-1.08	1.807	0.199*	1.67	1.507
-3	0.139	0.54	1.946	0.156	1.31	1.663
-2	0.331	1.28	2.277	0.153	1.28	1.815
-1	-0.236	-0.91	2.041	0.097	0.81	1.912
0	0.097	0.38	2.138	0.122	1.02	2.034
1	0.474*	1.84	2.612	0.172	1.44	2.206
2	0.420	1.63	3.033	0.077	0.65	2.283
3	0.444*	1.72	3.476	0.143	1.20	2.426
4	0.200	0.77	3.676	0.069	0.58	2.495
5	0.201	0.78	3.877	0.046	0.39	2.541
6	0.418	1.62	4.295	0.010	0.08	2.550
7	0.359	1.39	4.655	0.112	0.94	2.663
8	0.120	0.47	4.775	0.057	0.48	2.720
9	-0.048	-0.19	4.727	-0.117	-0.98	2.603
10	0.148	0.58	4.875	-0.086	-0.72	2.517
11	-0.375	-1.45	4.500	0.006	0.05	2.523
12	-0.230	-0.89	4.270	0.113	0.95	2.636
13	-0.091	-0.35	4.179	0.024	0.21	2.660
14	-0.168	-0.65	4.011	0.111	0.93	2.771
15	0.330	1.28	4.341	0.144	1.21	2.916

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation.

Appendix 5.8: AARs, CAARs and T-Statistics Around AGM Announcements by Government Ownership

	Whole Sample					
	N = 99 With government ownerships			N = 390 Without government ownerships		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.082	0.40	0.082	0.077	0.61	0.077
-14	0.191	0.93	0.274	0.168	1.32	0.245
-13	0.087	0.42	0.361	0.115	0.91	0.360
-12	0.482**	2.35	0.843	-0.026	-0.20	0.334
-11	0.135	0.66	0.978	0.156	1.23	0.490
-10	0.227	1.11	1.205	0.090	0.71	0.580
-9	0.109	0.53	1.314	0.169	1.33	0.749
-8	0.198	0.97	1.512	0.159	1.25	0.908
-7	0.180	0.88	1.692	0.142	1.12	1.050
-6	0.090	0.44	1.782	0.164	1.29	1.214
-5	0.174	0.85	1.956	0.081	0.64	1.295
-4	0.185	0.90	2.141	0.144	1.14	1.440
-3	0.022	0.11	2.164	0.194	1.53	1.634
-2	0.298	1.45	2.462	0.138	1.08	1.771
-1	-0.030	-0.15	2.432	0.095	0.75	1.867
0	0.010	0.05	2.442	0.174	1.37	2.040
1	0.548***	2.67	2.990	0.123	0.97	2.163
2	0.170	0.83	3.160	0.097	0.77	2.261
3	0.438**	2.13	3.598	0.116	0.92	2.377
4	0.219	1.07	3.817	0.062	0.49	2.439
5	0.364*	1.77	4.181	-0.012	-0.09	2.427
6	0.306	1.49	4.487	-0.018	-0.14	2.409
7	0.218	1.06	4.705	0.128	1.01	2.537
8	0.031	0.15	4.735	0.066	0.52	2.603
9	0.058	0.28	4.793	-0.170	-1.34	2.433
10	0.018	0.09	4.811	-0.076	-0.60	2.357
11	-0.115	-0.56	4.696	-0.029	-0.23	2.328
12	0.096	0.47	4.792	0.044	0.35	2.373
13	-0.162	-0.79	4.630	0.053	0.42	2.426
14	-0.111	-0.54	4.519	0.095	0.75	2.521
15	0.147	0.72	4.666	0.135	1.06	2.656

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation.

Appendix 5.9: AARs, CAARs and T-Statistics Around AGM Announcements by Sector

	Banks N = 21			Diversified Financials N = 9			Energy N = 13			Food and Beverages N = 36			Insurance N = 94		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	-0.018	-0.05	-0.018	0.655	0.97	0.655	-0.234	-0.40	-0.234	-0.062	-0.17	-0.062	0.320	0.96	0.320
-14	-0.283	-0.85	-0.301	0.133	0.20	0.788	-0.031	-0.05	-0.264	0.319	0.88	0.258	0.388	1.17	0.708
-13	-0.297	-0.89	-0.598	0.510	0.75	1.299	0.602	1.04	0.338	0.028	0.08	0.286	-0.236	-0.71	0.472
-12	0.096	0.29	-0.502	0.528	0.78	1.826	0.348	0.60	0.685	-0.185	-0.51	0.101	-0.138	-0.41	0.334
-11	0.456	1.37	-0.046	0.147	0.22	1.973	0.160	0.28	0.845	0.319	0.88	0.421	-0.323	-0.97	0.010
-10	0.660**	1.98	0.613	-0.031	-0.05	1.942	0.788	1.36	1.633	-0.198	-0.55	0.222	0.186	0.56	0.197
-9	0.058	0.17	0.672	1.083	1.60	3.025	-0.113	-0.20	1.520	0.875**	2.42	1.097	0.246	0.74	0.443
-8	0.729**	2.19	1.401	-1.117*	-1.65	1.908	0.677	1.17	2.197	0.801**	2.22	1.899	0.259	0.78	0.702
-7	0.608*	1.82	2.009	0.420	0.62	2.328	0.223	0.39	2.420	-0.048	-0.13	1.851	0.392	1.18	1.094
-6	0.362	1.09	2.371	-0.788	-1.16	1.539	0.069	0.12	2.488	0.525	1.45	2.376	0.021	0.06	1.115
-5	0.439	1.32	2.810	-0.942	-1.39	0.597	0.272	0.47	2.760	0.530	1.46	2.906	0.026	0.08	1.140
-4	0.380	1.14	3.190	0.420	0.62	1.017	1.039	1.80	3.800	0.428	1.18	3.333	-0.195	-0.59	0.945
-3	0.266	0.80	3.456	-0.460	-0.68	0.558	-0.727	-1.26	3.073	0.230	0.64	3.563	0.712**	2.14	1.657
-2	0.334	1.00	3.790	-0.422	-0.62	0.136	-0.076	-0.13	2.997	0.339	0.94	3.902	0.361	1.09	2.018
-1	0.339	1.02	4.130	1.871***	2.76	2.007	-0.317	-0.55	2.681	-0.474	-1.31	3.428	0.206	0.62	2.225
0	-0.241	-0.72	3.888	0.579	0.85	2.586	-0.867	-1.50	1.813	-0.049	-0.14	3.379	0.316	0.95	2.541
1	0.175	0.53	4.064	1.955***	2.88	4.541	0.699	1.21	2.512	0.414	1.14	3.793	0.100	0.30	2.641
2	0.331	0.99	4.395	-0.194	-0.29	4.347	0.202	0.35	2.714	-0.076	-0.21	3.717	0.022	0.07	2.663
3	0.425	1.27	4.820	-0.089	-0.13	4.259	0.703	1.22	3.417	0.482	1.33	4.199	-0.140	-0.42	2.523
4	0.147	0.44	4.967	0.762	1.12	5.021	1.639***	2.83	5.056	0.377	1.04	4.576	-0.300	-0.90	2.222
5	0.228	0.68	5.195	-0.630	-0.93	4.392	-0.567	-0.98	4.489	0.436	1.21	5.013	-0.434	-1.30	1.789
6	0.723**	2.17	5.918	0.462	0.68	4.853	0.759	1.31	5.248	-0.142	-0.39	4.870	0.284	0.85	2.072
7	0.425	1.27	6.343	1.279*	1.89	6.133	0.961*	1.66	6.209	-0.110	-0.30	4.761	0.296	0.89	2.369
8	0.041	0.12	6.384	-0.214	-0.32	5.918	0.090	0.16	6.299	0.639*	1.77	5.399	-0.048	-0.15	2.320
9	-0.138	-0.41	6.245	-0.461	-0.68	5.457	0.882	1.53	7.182	0.362	1.00	5.761	-0.098	-0.30	2.222
10	0.454	1.36	6.700	0.093	0.14	5.550	-0.126	-0.22	7.055	0.281	0.78	6.042	-0.208	-0.62	2.014
11	-0.092	-0.27	6.608	-0.767	-1.13	4.783	-0.095	-0.16	6.961	-0.242	-0.67	5.800	-0.267	-0.80	1.747
12	-0.057	-0.17	6.551	0.099	0.15	4.882	-0.852	-1.47	6.108	0.143	0.40	5.944	0.251	0.75	1.998
13	-0.229	-0.69	6.322	-0.291	-0.43	4.592	-0.147	-0.25	5.961	0.208	0.58	6.152	-0.029	-0.09	1.969
14	0.248	0.74	6.571	-1.000	-1.47	3.592	0.119	0.21	6.079	0.499	1.38	6.651	0.316	0.95	2.285
15	0.324	0.97	6.894	-0.337	-0.50	3.255	0.269	0.46	6.348	0.155	0.43	6.806	0.108	0.32	2.393

(Continued)

Appendix 5.9: Continued

	Materials N = 119			Real Estate Management and Development N = 29			Retailing N = 21			Telecommunication Services N = 12			Utilities N = 9		
Days	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %	AARs %	T-Stat	CAARs %
-15	0.103	0.64	0.103	-0.144	-0.29	-0.144	0.202	0.43	0.202	0.146	0.21	0.146	-0.670	-1.11	-0.670
-14	0.301*	1.86	0.404	-0.425	-0.84	-0.568	0.561	1.19	0.763	-0.845	-1.23	-0.699	0.196	0.32	-0.474
-13	0.303*	1.87	0.707	0.190	0.38	-0.378	0.432	0.91	1.195	0.508	0.74	-0.191	-0.160	-0.26	-0.634
-12	0.067	0.41	0.774	-0.198	-0.39	-0.576	1.064**	2.25	2.259	0.358	0.52	0.167	0.341	0.56	-0.294
-11	0.197	1.22	0.971	0.168	0.33	-0.409	1.666***	3.52	3.925	1.008	1.47	1.175	-0.048	-0.08	-0.342
-10	0.157	0.97	1.128	-0.129	-0.26	-0.538	-0.683	-1.44	3.242	1.877***	2.74	3.053	-0.494	-0.81	-0.835
-9	0.171	1.06	1.299	-0.488	-0.97	-1.026	0.158	0.33	3.401	1.801***	2.63	4.854	1.445**	2.39	0.610
-8	-0.011	-0.07	1.288	0.102	0.20	-0.924	-0.013	-0.03	3.388	1.227*	1.79	6.081	-0.666	-1.10	-0.056
-7	-0.054	-0.34	1.234	0.729	1.45	-0.194	0.314	0.66	3.702	-0.251	-0.37	5.830	0.268	0.44	0.212
-6	0.155	0.96	1.389	-0.373	-0.74	-0.568	0.967**	2.04	4.669	-0.316	-0.46	5.514	-0.107	-0.18	0.105
-5	0.076	0.47	1.464	0.330	0.66	-0.237	-0.442	-0.94	4.227	-0.051	-0.07	5.463	-0.182	-0.30	-0.077
-4	0.081	0.50	1.546	-0.556	-1.11	-0.793	0.067	0.14	4.293	0.437	0.64	5.900	0.114	0.19	0.037
-3	0.035	0.22	1.581	-0.147	-0.29	-0.940	-0.264	-0.56	4.029	0.280	0.41	6.180	-0.194	-0.32	-0.157
-2	0.300*	1.86	1.881	0.031	0.06	-0.909	-0.245	-0.52	3.784	0.268	0.39	6.448	0.407	0.67	0.250
-1	0.111	0.68	1.992	0.240	0.48	-0.669	-0.513	-1.09	3.271	-0.372	-0.54	6.076	0.218	0.36	0.468
0	0.285	1.76	2.277	0.358	0.71	-0.311	0.166	0.35	3.437	-0.063	-0.09	6.013	0.466	0.77	0.934
1	0.441***	2.73	2.719	0.316	0.63	0.005	0.658	1.39	4.095	-0.735	-1.07	5.278	0.167	0.28	1.102
2	0.130	0.80	2.848	-0.557	-1.11	-0.552	0.544	1.15	4.639	0.201	0.29	5.479	0.839	1.38	1.941
3	0.372**	2.30	3.221	-0.566	-1.13	-1.118	-0.088	-0.19	4.551	-0.251	-0.37	5.227	0.688	1.14	2.629
4	0.395**	2.44	3.615	-0.324	-0.64	-1.442	0.391	0.83	4.942	-0.179	-0.26	5.048	0.008	0.01	2.637
5	0.526***	3.25	4.142	-0.267	-0.53	-1.709	-1.227***	-2.59	3.715	-0.446	-0.65	4.602	0.395	0.65	3.032
6	0.109	0.67	4.250	-0.296	-0.59	-2.005	-0.693	-1.46	3.022	-0.067	-0.10	4.535	-0.521	-0.86	2.511
7	0.185	1.14	4.435	-0.476	-0.95	-2.481	-0.227	-0.48	2.795	0.420	0.61	4.955	0.311	0.51	2.822
8	0.234	1.44	4.668	-0.084	-0.17	-2.565	-0.107	-0.23	2.688	0.250	0.37	5.206	-0.744	-1.23	2.077
9	-0.349**	-2.15	4.320	-0.256	-0.51	-2.821	-0.101	-0.21	2.587	0.359	0.52	5.565	-0.115	-0.19	1.963
10	0.057	0.35	4.377	-0.026	-0.05	-2.847	0.265	0.56	2.852	-0.334	-0.49	5.231	-0.433	-0.71	1.530
11	0.345**	2.13	4.721	0.429	0.85	-2.418	-0.657	-1.39	2.196	0.177	0.26	5.408	-0.816	-1.35	0.714
12	0.321**	1.99	5.042	0.259	0.52	-2.159	0.506	1.07	2.701	-0.638	-0.93	4.770	-0.719	-1.19	-0.005
13	-0.066	-0.41	4.976	0.380	0.76	-1.778	-0.132	-0.28	2.570	-0.152	-0.22	4.619	0.031	0.05	0.026
14	-0.007	-0.04	4.969	0.337	0.67	-1.442	-0.085	-0.18	2.485	-0.492	-0.72	4.126	-0.402	-0.66	-0.375
15	0.443***	2.74	5.412	0.090	0.18	-1.352	0.460	0.97	2.945	-0.832	-1.22	3.295	-0.121	-0.20	-0.496

Note: The symbols *, **, and *** denote a significant difference from zero at the 10%, 5% and 1% level, respectively (based on the t-values). Source: Author's calculation.