Impact of International Financial Reporting Standards Adoption on the Value Relevance of Accounting Information in Saudi Arabia

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Abstract

The purpose of the study is to examine the impact of the adoption of the International Financial Reporting Standards (IFRS) on the relative and incremental value relevance of the accounting information of non-financial listed firms on the Saudi Stock Exchange (Tadawul) during 2015–2018. Further, motivated by the competing roles of the income statement and the balance sheet, this study examines the individual role of the book value per equity share (BVPS) versus that of the earnings per share (EPS) in providing value relevant accounting information to equity inventors pre and post IFRS adoption. In an additional analysis, this study examines the influence of firm-specific characteristics (i.e. size, profitability, audit quality, growth, leverage and industry) on the value relevance of accounting information pre and post IFRS adoption. To the best of the author's knowledge, this study is the first market-based accounting research that examines these objectives with reference to IFRS adoption by non-financial Saudi listed firms

Employing the two popular valuation models, the price model of Ohlson (1995) and the return model of Easton and Harris (1991), this study comprehensively measures the value relevance of the accounting information of 110 non-financial listed firms before (2015–2016) and after (2017–2018) IFRS adoption and during the comparative year (2016). The adjusted coefficient of determination (Adj R^2) of the models is used as the main metric of the combined value relevance. The change in Adj R^2 is measured using the Cramer (1987) test and the Vuong (1989) test for independent and non-independent samples, respectively. The regression coefficients of these models measure the individual value relevance of accounting information. To examine the impact of firm-specific characteristics, this thesis partitions the sample into subsamples to compare the value relevance of accounting information, through Adj R^2, of firms that differ in terms of their characteristics, using the Cramer (1987) test.

The thesis results demonstrate that accounting information was value relevant to equity investors in making investment decisions during the Saudi Generally Accepted Accounting Principles (GAAP) period as well as the IFRS period as indicated by the yearly Adj R^2 values, which are statistically significant at the 1% level. The findings are comparable with those for developed markets, which indicates that Saudi investors are rational when using accounting information for firm valuation. The findings on employing both pre-and post-IFRS and comparative year approaches indicate that although the joint value relevance (R^2) has not improved

as a result of IFRS adoption, the relative value relevance of BVPS has significantly improved at the 5% level after IFRS adoption became mandatory in Saudi Arabia, reflecting the importance of fair value measurement under IFRS. However, this is not the case for EPS, given that its coefficient did not significantly change after IFRS adoption. The finding of no change in the joint value relevance (R^2) from IFRS to Saudi GAAP could be attributed to the fact that IFRS was recently implemented in Saudi Arabia, a country that lacks qualified accountants, research and coverage of IFRS in universities (Nurunnabi, 2018). However, it is expected that the value relevance of accounting information in Saudi Arabia will improve gradually on allowing sufficient time for IFRS effects to emerge.

In addition, the results of the additional analysis show that firms with low potential growth, low leveraged firms, profit-making firms, firms with mixed-gender on the board, good news firms, firms audited by the Big4 firms (i.e. the four largest accounting firms in the world: Deloitte; Ernst & Young, KPMG and PricewaterhouseCoopers), and large firms always exhibit significantly higher joint value relevance (R^2) than their counterparts do regardless of the implemented accounting standards. These results are consistent with those of prior studies—namely, that investors value profitable firms as a going concern (Joos & Plesko, 2005), have more confidence in accounting information audited by a Big4 firm (J. R. Francis & Wang, 2008) and view large firms (Gaio, 2010), low leveraged firms (Habib & Azim, 2008) and good news firms (Ball & Brown, 1968; Francis & Schipper, 1999) as more stable with predictable operations, superior performance and future growth potential. The results for all subsamples apart from that of loss-making firms, which were not found to provide value relevant information, confirm the main results that IFRS has a positive and significant impact on BVPS only.

Thus, this thesis makes the following significant contributions to the literature on IFRS and value relevance. First, it provides the first known empirical evidence concerning the impact of IFRS adoption on the value relevance of the accounting information of non-financial listed firms. Thus, the findings should be relevant to accounting standards setters (e.g. the Saudi Organization for Chartered and Professional Accountants and the International Accounting Standards Board); the Saudi Capital Market Authority; other countries that have adopted, or are considering adopting, IFRS and have a similar institutional environment to that of Saudi Arabia; and current and potential investors engaged in the Tadawul. Second, this thesis employs a more refined research design methodology by conducting the analysis using both the pre- and post-IFRS and comparative year

approaches. This fact could be relevant to empirical researchers interested in the impact of IFRS on the value relevance of accounting information, in that they can adopt the research methodology employed in this thesis. Third, the findings reveal how market participants view the accounting information of firms with different characteristics pre and post IFRS implementation. This information would assist firms that provide accounting information with low value relevance in improving its relevance by advancing their knowledge about IFRS, promoting more disclosure and undertaking training programs to educate managers and other employees responsible for preparing financial statements about the requirements under IFRS.

Declaration

I, Abdulrahman Abdullatif M. Alomair, declare that the PhD thesis entitled 'Impact of International Financial Reporting Standards Adoption on the Value Relevance of Accounting Information in Saudi Arabia' is no more than 80,000 words in length, including quotations 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: 30 November 2022

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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Research Outputs

Alomair, A., Farley, A., & Yang, H. H. (2021, November). *The impact of IFRS adoption on the value relevance of accounting information in Saudi Arabia*. Paper presented at the 2021 IASB Research Forum. Retrieved from https://www.ifrs.org/content/dam/ifrs/events-and-conferences/2021/november/iasb-research-forum-2021/paper-5-presentation-abdulrahman-alomair.pdf

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List of Abbreviations

Adj R^2	Adjusted explanatory power of a model
Big4	The four largest accounting firms in the world
BV	Book value of equity
BVPS	Book value per equity share
CMA	Capital Market Authority (of Saudi Arabia)
CPA	Certified public accountants
D	Dividends
DPS	Dividend per share
E	Earnings
EC	European Commission
EPS	Earnings per share
ERC	Earnings response coefficient
EU	European Union
FDI	Foreign direct investment
G20	Group of 20
GAAP	Generally Accepted Accounting Principles
GCC	Gulf Cooperation Council
GDP	Gross domestic product
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IFAC	International Federation of Accountants
IFRIC	International Financial Reporting Interpretations Committee
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
LID	Linear information dynamics
MC	Saudi Ministry of Commerce
MTB	Market-to-Book ratio
MV	Market value
NYSE	New York Stock Exchange
P	Share price
R&D	Research and development
R^2	Explanatory power of a model
RET	Annual return
RIV	Residual income valuation
RO	Research objectives
RQ	Research questions
SAA	Saudi Accounting Association
SAMA	Saudi Arabian Monetary Authority

SAR	Saudi Arabian Riyal
SCGC	*Saudi Corporate Governance Code*
SEC	Securities and Exchange Commission (of the United States)
SIC	Standard Interpretations Committee
SOCPA	Saudi Organization for Chartered and Professional Accountants (earlier 'Saudi Organization for Certified Public Accountants')
Tadawul	Saudi Stock Exchange
Vision 2030	Vision 2030 of the Kingdom of Saudi Arabia
UAE	United Arab Emirates
UK	United Kingdom
US	United States of America
VAT	Value added tax
VIF	Variance inflation factor

Chapter 1: Introduction

1.1 Research Background and Motivations

The International Financial Reporting Standards (IFRS) aim to remove barriers between countries through the use of a single set of accounting standards in order to enable financial report comparability worldwide and promote foreign direct investment (FDI). IFRS has gained legitimacy and credibility owing to the support of many international organisations (e.g. the Basel Committee on Banking Supervision, the Financial Stability Board, the International Federation of Accountants [IFAC], the International Monetary Fund [IMF], the International Organization of Securities Commissions [IOSCO], the Securities and Exchange Commission [SEC] of the United States [US], the World Bank and the European Commission [EC]) and the benefits its adoption is expected to yield (e.g. increase in market efficiency, forecast accuracy and cross-border investments and decrease in the cost of capital; see Section 3.2). Currently, about 146 jurisdictions (87.4%) out of 167 jurisdictions (with a completed IFRS profile), which account for nearly 51% of the global gross domestic product (GDP), either require or permit the use of IFRS by public firms (IFRS Foundation, 2022b). Developing and developed countries are both rapidly adopting IFRS (Rodrigues, Schmidt, & dos Santos, 2012).

In this regard, the year 2012 is considered a milestone in the history of the accounting profession in Saudi Arabia, because the Saudi Organization for Certified Public Accountants (SOCPA) announced its plan to adopt IFRS. After a five-year review of IFRS, SOCPA, through its steering committee, decided to adopt the IFRS as issued by the International Accounting Standards Board (IASB) without major modifications. SOCPA, the governing body of the accounting profession in Saudi Arabia (see Section 2.7.4), mandated the implementation of IFRS by all non-financial listed firms starting from 2017 and by all non-listed firms from 2018 (see Section 3.3). This recent adoption of IFRS in Saudi Arabia has motivated this study to investigate its impact on the value relevance of accounting information. The primary objective of value relevance is to assess the usefulness to equity investors of accounting information presented in financial statements, in making informed investment decisions (Bhatia & Mulenga, 2019). Accounting information is produced on the basis of a set of accounting rules and policies, termed accounting standards. Hence, the quality of these standards affects the value relevance of accounting information (Oshodin & Bakare, 2019).

Thus, three distinct factors have motivated this thesis. First, IFRS adoption is the most significant event in the history of international financial reporting (Hung & Subramanyam, 2007) and it is deemed to provide better accounting quality than most local Generally Accepted Accounting Principles (GAAP) by enhancing the relevance of accounting information (Oshodin & Bakare, 2019). In particular, IFRS adoption, as a major event in the history of accounting, is a topical issue in Saudi Arabia since the adoption is very recent (i.e. since 2017), and hence, it is necessary to evaluate its impact on the value relevance of accounting information provided by firms in the country. Thus, investigating the impact of such a major event is important since it would provide evidence on whether IFRS implementation yields the expected benefits. Hence, this study may provide valuable insights to policymakers (i.e. IASB and SOCPA) and thus facilitate their deliberations. It also responds to Nurunnabi, Jermakowicz and Donker's (2020) call for empirical research on the impact of IFRS implementation in Saudi Arabia on financial reporting quality; notably, research concerning the impact of IFRS in this country is scarce (Nurunnabi, 2018).

Second, value relevance is among the most used financial reporting quality tests in general and IFRS adoption in particular (Barth, Landsman, & Lang, 2008; Bhatia & Mulenga, 2019). This fact is confirmed by Păşcan's (2015) review of studies on 30 European countries, which showed that about 50% of the studies have employed value relevance models to investigate the effect of IFRS adoption on accounting information quality. Dechow, Ge and Schrand (2010) assumed that accounting quality is only determined by the decision-making value of accounting information. In this context, the value relevance test serves this purpose by examining the two qualitative characteristics of accounting information together, which are relevance and faithful representation as stated in the 2018 IASB Framework (which are formally known as reliability in the 2010 IASB Framework), presented in a financial report to its users (Barth, Beaver, & Landsman, 2001). Thus, the primary objective of the IASB Framework emphasises the usefulness of accounting information to the user in making an investment decision. This aspect could justify the widespread use of value relevance models as an accounting information quality metric to investigate the effect of IFRS implementation. This view is supported by a recent review of Bhatia and Mulenga (2019), which showed that value relevance has been employed extensively to measure the impact of IFRS adoption. Following this stream, therefore, this study complements prior studies by offering an

assessment of the two qualitative characteristics of accounting information specified in the IASB Framework using a sample from Saudi Arabia, a newly adopting country.

Third, this study responds to the call for more value relevance research on emerging economies (e.g. Kaaya, 2015) because the current literature is dominated by studies on developed countries, with little attention being given to emerging markets, and in particular, to Saudi Arabia. The selection of Saudi Arabia as the research interest is crucial for the country has the largest stock exchange in the Middle East (Rehman, 2018), is identified as the most favourable environment for foreign investment in the Middle East and the 20th most favourable worldwide (Alkhtani, 2010) and is a Group of 20 (G20)[1] member (Albassam, 2014). Moreover, the recent launch of its ambitious Vision 2030 has motivated this study to examine the impact of IFRS adoption, which is a part of the strategic objectives of Vision 2030, namely, to adopt the best international practices and transform the economy by attracting FDI (see Sections 2.5.1 and 3.2). IFRS adoption is deemed to be a first step towards achieving this aim by sending a clear signal to the world for FDI (IFRS Foundation, 2017). Furthermore, Saudi Arabia is characterised by very distinct legal, political and cultural factors that differentiate it from other countries (see Chapter 2). Thus, this study responds to Weetman's (2006) call for more in-depth single-country studies to examine the impact of IFRS adoption rather than focusing on comparing its impact across countries. In fact, conducting a single-country study allows to control for country-specific institutional factors (e.g. legal, political and cultural differences) that may affect the reliability and validity of the findings in a multi-country study (Ruland, Shon, & Zhou, 2007). Therefore, researchers interested in the value relevance in Islamic and Arabic countries, especially Saudi Arabia, will find this study to be a useful resource.

The remainder of this chapter is structured as follows. Section 1.2 states the research objectives and questions. Section 1.3 presents an overview of the theoretical framework adopted in this thesis. A brief description of the research methodology is provided in Section 1.4. The study's scope is outlined in Section 1.5. Section 1.6 presents the thesis's structure by providing a summary of each chapter. Section 1.7 summarises this chapter.

[1] The G20 consists of the 20 largest economies in the world and is the premier forum for international economic cooperation.

1.2 Research Objectives and Questions

The primary objective of this study is to examine the effect of Saudi Arabia's implementation of IFRS on value relevance, and how this may differ from the findings in other countries. Saudi Arabia's cultural, political and legal systems are largely influenced by Islam (see Sections 2.3 and 2.4). Saudi accounting practices must be in accordance with Shari'a[2] principles (Maali & Napier, 2010). According to Saudi Arabia's recently launched Vision 2030, 'Living by Islamic values' is the country's most important principle (Saudi Vision 2030, 2021, p.16). Further, Arabian tribal traditions have a strong influence on Saudi Arabian culture since the country is the second-largest Arab country after Algeria. According to Gray's (1988) classification, Arab countries' accounting systems tend to be more uniform and statutory-control-based ones (authority and enforcement dimension), as well as secretive and conservative (measurement and disclosure dimension). As the largest Islamic country not subjected to European colonisation at any point, Saudi Arabia is the best candidate to examine the impact of Arab and Islamic culture, in contrast to European culture (or Western culture in general), on IFRS implementation.

Moreover, the Saudi Stock Exchange (Tadawul) is considered to be a less developed, inefficient market owing to the influence of investors' speculative actions on stock prices (Lamouchi, 2020). In terms of the financing system, Tadawul is more of an equity-oriented market that is largely dominated by individual Saudi investors. The ownership structure of the market, which includes various types of ownership, including individual and family, institutional, managerial, government and foreign ownership, is highly dispersed and comparable to those of developed countries (see Section 2.7.5).

The *Saudi Corporate Governance Code* (*SCGC*), derived from the 1992 Cadbury report, was enacted in 2006 as one of the first initiatives of the Saudi Capital Market Authority (CMA), which was created in 2003. The *SCGC* has been refined subsequently to promote a high level of investor protection and disclosure. According to Al-Faryan (2020), the current corporate governance model in Saudi Arabia is heavily influenced by US and British accounting practices,

[2] 'Shari'a law' is derived from two main sources: the Holy Qur'an and the Sunna. The Holy Qur'an is the word of Almighty God revealed to Prophet Mohammed as description of the purposes of His creations. The Sunna are the teachings and actions of Prophet Mohammed.

both of which adhere to the Anglo-Saxon model that prioritises shareholder protection over stakeholder protection (see Section 2.6.5).

The accounting profession in Saudi Arabia has been evolving since the enactment of the *Chartered Accountants Law* in 1974. Prior to the establishment of SOCPA in 1992, US GAAP served as the primary accounting standards in Saudi Arabia. This remained the case until SOCPA issued its first batch of accounting standards in 1997. Then, Saudi GAAP became the primary accounting standards applicable to non-financial Saudi listed firms, with US GAAP serving as a backup standard until 2002, when IFRS took over this role until its official adoption in 2017. Saudi GAAP, which is mostly derived from US GAAP, differs significantly from IFRS, particularly for accounting treatments involving fair value measurement because the latter makes a greater use of fair value measurement, while the former applies fair value only on share-based payments (see Section 3.3.2). Prior Saudi-based value relevance studies have examined the impact of previous reforms on the accounting profession in the country (e.g. Albarrak, 2011; Alsalman, 2003; Alsehali, 2002). Therefore, this study complements this stream of literature by examining the impact of mandatory IFRS adoption on the value relevance of accounting information.

Motivated by the recent adoption of IFRS in Saudi Arabia (see Section 3.3), the uniqueness of the Saudi institutional setting (see Chapter 2) and the limited Saudi-based studies on value relevance, in general, and IFRS adoption, in particular (see Section 3.9.4), this study's overall objective is to examine whether the switch to IFRS in Saudi Arabia is associated with the change in the value relevance of accounting information in the country. The overarching research question (RQ) is as follows: To what extent is the accounting information within the Saudi context value relevant and has IFRS adoption altered the level of the value relevance of this information? Specifically, three research objectives (ROs) and seven RQs are addressed in this study.

> **RO_1:** To assess the extent to which the accounting information of non-financial firms listed on the Saudi Stock Exchange (Tadawul) is used by investors for equity valuation.

The first objective (RO_1) addresses the lack of Saudi-based value relevance studies by providing more recent evidence (i.e. for the study period 2015–2018) on the usefulness of accounting information to equity investors in Saudi Arabia. Prior Saudi-based studies, which are very limited, are outdated in terms of their study period (e.g. Albarrak, 2011; Alsalman, 2003; Alsehali, 2002; Khanagha, 2011), are restricted to a specific sector (e.g. Alnodel, 2018; Belassi & Elbarrad, 2020),

suffer from small sample size (Oraby, 2017) or have not implemented value relevance models appropriately (Ebaid, 2021). In order to provide a clear picture of the value relevance of accounting information in Saudi Arabia, the quality of accounting standards (qualitative characteristics and Separation of Taxation from Accounting Regulation), country-level factors (e.g. market efficiency, legal enforcement, market financing system, market ownership structure, legal system, investor protection and corporate governance mechanism) and firm-level factors (e.g. size, profitability, audit quality, potential growth, industry and leverage) need to be considered (see Sections 3.10 and 3.11). Prior literature has asserted that the influence of these factors must be evaluated in order to predict the level of value relevance of accounting information (e.g. Aboody, Hughes, & Liu, 2002; A. S. Ahmed, Neel, & Wang, 2013; Ali & Hwang, 2000). However, no prior Saudi-based study has provided a comprehensive evaluation of the impact of country-level and firm-level factors of Saudi Arabia on the value relevance of accounting information. In contrast, this study links its findings to both the influence of accounting standards implemented during the study period and the influence of country-level and firm-level factors. Therefore, this study highlights the importance of Saudi-specific factors, an approach that is consistent with that of prior empirical studies (e.g. Aboody et al., 2002; A. S. Ahmed et al., 2013; Ali & Hwang, 2000; Arce & Mora, 2002; Ball, Kothari, & Robin, 2000; Bartov, Goldberg, & Kim, 2005; Fan & Wong, 2002; Habib & Azim, 2008; Leuz, Nanda, & Wysocki, 2003; Shan, 2015). To address RO_1, this study seeks to answer the following RQs:

> ***RQ_1:*** *Was the accounting information of Saudi non-financial listed firms value relevant to equity investors during the study period (2015–2018)?*
>
> ***RQ_2:*** *Comparing the value relevance of accounting information (earnings v. book values of equity), which information was more value relevant during the study period (2015–2018)?*
>
> **RO_2:** To identify changes in the value relevance of accounting information due to IFRS adoption in Saudi Arabia.

Because the value relevance of accounting information, as a measure of accounting quality, is significantly affected by the quality of accounting standards being implemented (De George, Li, & Shivakumar, 2016; Soderstrom & Sun, 2007), prior studies exploited the adoption of IFRS to examine such value relevance (e.g. Barth et al., 2008; Krishnan & Zhang, 2019; Tsalavoutas, André, & Evans, 2012). This is because IFRS is deemed to be of higher quality than most local

GAAP (Ding, Hope, Jeanjean, & Stolowy, 2007) for it is not influenced by political or tax requirements, reflects the economic substance of financial statements, makes a greater use of fair value measurement and limits managers' ability to manipulate accounting information (Ball, 2016). Hence, IFRS is assumed to improve the value relevance of accounting information. However, prior research has revealed contradictory results. Some studies have indicated that such improvement is contingent on the quality of local GAAP prior to IFRS and of IFRS enforcement (A. S. Ahmed et al., 2013). Other studies have concluded that firm incentives and institutional settings are the main determinants of accounting quality rather than accounting standards (e.g. Ball, Robin, & Wu, 2003; Soderstrom & Sun, 2007). Consequently, the empirical question about the impact of IFRS adoption on the value relevance of accounting information can only be answered by conducting a single-country study that takes into account the aforementioned factors. The review in this thesis of Saudi-based value relevance studies shows that no prior study has investigated the impact of IFRS adoption on the value relevance of the accounting information of non-financial firms listed on Tadawul (see Section 3.9.4). Thus, the second research objective (RO_2) seeks to fill this gap by providing the first empirical evidence to capture the change in the value relevance of accounting information caused by IFRS adoption in Saudi Arabia. To this end, this study seeks to answer the following RQs:

> ***RQ_3:*** *Was there any change in the relative value relevance of accounting information after the adoption of IFRS in Saudi Arabia?*
>
> ***RQ_4:*** *Were the reconciliations of the accounting information of Saudi non-financial listed firms during the comparative year of 2016 incrementally value relevant to equity investors?*
>
> ***RQ_5:*** *Was there any change in the individual value relevance of accounting measures (earnings v. book value of equity) after the adoption of IFRS in Saudi Arabia?*
>
> **RO_3:** To evaluate the influence of Saudi firm-specific characteristics on the value relevance of accounting information pre and post IFRS adoption.

To provide a thorough evaluation of factors influencing the level of value relevance of accounting information in Saudi Arabia, the influence of firm-level factors is considered in this study. This is because testing the impact of IFRS may yield unclear conclusions about whether the adoption of the new accounting regime (i.e. IFRS) or other factors (i.e. firms characteristics) cause the change in the value relevance (Van der Meulen, Gaeremynck, & Willekens, 2007). Thus, capturing the

effect of firm-level factors is crucial in this Saudi-based study to provide a comprehensive analysis of value relevance in Saudi Arabia, which may have implications for policymakers at the country level as well as the firm level about the usefulness of accounting information pre and post IFRS implementation. Hence, the third objective (RO_3) seeks to distinguish the effects of firms' characteristics from the effects of IFRS implementation on the value relevance of accounting information by exploring the following RQs:

> ***RQ_6:*** *To what extent do the selected firm characteristics affect the value relevance of accounting information in Saudi Arabia?*
>
> ***RQ_7:*** *To what extent did IFRS adoption alter the value relevance of accounting information of firms with different characteristics?*

Notably, this study is the first to examine these questions with reference to IFRS adoption by non-financial Saudi listed firms.

1.3 Theoretical Framework

The main objective of this study is to examine the value relevance of accounting information pre (2015–2016) and post IFRS (2017–2018) adoption in Saudi Arabia and whether the switch to IFRS has altered the level of the value relevance of accounting information. For this purpose, this study developed its theorical framework using a combination of valuation theory (Barth et al., 2001; Ohlson, 1995), market efficiency theory (Abdel-Khalik, Wong, & Wu, 1999; Fama, 1970) and institutional theory (DiMaggio & Powell, 1983; Guerreiro, Rodrigues, & Craig, 2012), in light of the IASB and SOCPA Conceptual Frameworks and prior value relevance literature to predict and explain the effect of IFRS on the value relevance of accounting information (see Chapter 4). By assuming that the market value of a firm is a weighted function of the book value of equity and earnings, valuation theory creates a connection between the financial statements of the firm and its market value (Ohlson, 1995). This theory provides the theorical foundation for using the price and return models, which are both employed in this study (see Section 4.2). Therefore, the use of valuation theory is crucial to the current study in justifying the use of valuation models as well as linking the accounting information to the market value (i.e. price and return) of the selected sample.

As for market efficiency theory, it explains how accounting information is processed by market participants (see Section 4.3). While the market efficiency hypothesis is implicitly assumed

to be in a semi-strong form to explain the movement of share price as a result of the release of financial reports, this assumption cannot be maintained in this study because Tadawul violates this hypothesis (see Lamouchi, 2020). However, this violation does not pose a problem in this study because the study (a) adopts the long-association approach (see Section 3.6.4), which is a possible way to control for market inefficiency (Barth et al., 2001; Dobija & Klimczak, 2010; Filip & Raffournier, 2010); (b) employs the price model, which is less susceptible to the effects of market inefficiency (Aboody et al., 2002); and (c) uses the adjusted explanatory power (Adj R^2) as the main metric of value relevance, which is less affected by market inefficiency (Hellström, 2006). Further, prior Saudi-based studies (e.g. Albarrak, 2011; Alsalman, 2003; Alsehali, 2002; Khanagha, 2011) and other studies on inefficient markets (Almujamed & Alfraih, 2019) have reported findings comparable to those of developed countries with efficient markets. Therefore, although Tadawul appears to contradict the market efficiency hypothesis, the current study should still produce insightful results.

Furthermore, institutional theory explains the external institutional pressures exerted by international organisations, such as the World Bank, IMF and IOSCO (coercive pressure), membership in the G20 and the Gulf Cooperation Council (GCC; normative and mimetic pressures), the dominance of the Big4 accounting firms (i.e. the four largest accounting firms in the world: Deloitte; Ernst & Young, KPMG and PricewaterhouseCoopers) and the presence of multinational firms (coercive and normative pressures) on Saudi Arabia's decision to adopt IFRS (see Section 3.3.1). Vision 2030 itself exerts internal pressure (coercive pressure) from the Saudi Government on SOCPA to adopt the best international accounting practices in order to transform the Saudi economy from an oil-dependent to a knowledge-based economy (see Section 2.5). At the firm level, from institutional theory perspective, IFRS represent external pressure exerted by regulators (CMA and SOCPA) on firms to enhance organisational legitimacy. Hence, it explains how firms respond (implement) strategically to IFRS adoption to increase organisational legitimacy. Therefore, the use of institutional theory is important to this study in explaining the impact of IFRS adoption, as institutional pressure exerted by the Saudi Government to gain legitimacy, in terms of enhancing the value relevance of accounting information.

However, these theories are insufficient for enabling value relevance studies to offer meaningful implications to accounting standards setters, such as IASB and SOCPA (Holthausen & Watts, 2001), unless these serve the objectives of financial reporting. The study period covers

two years before IFRS adoption (2015–2016) under SOCPA's standards and two years after IFRS adoption (2017–2018) under IASB's standards. Hence, IASB's and SOCPA's Conceptual Frameworks are both reviewed in this study to link its findings to the objectives of financial reporting of both standards setters (see Section 3.3.2). The review of these frameworks reveals that both view equity investors as the primary users of accounting information, which should be relevant and reliable (faithfully presented) to allow these users to make informed economic decisions. Further, the Conceptual Frameworks share the same fundamental (relevance and faithful representation) and enhancing qualitative characteristics (comparability, verifiability, timeliness, and understandability) of accounting information. Hence, the results of this study should be insightful and highly relevant to IASB's and SOCPA's deliberations regarding accounting regulations since the value relevance test assesses these fundamental qualitative characteristics specified in their Conceptual Frameworks. The similarity between IASB and SOCPA is attributable to the fact that Saudi GAAP was derived primarily from US GAAP, the United Kingdom (UK) GAAP and IFRS/IAS (Nurunnabi, 2017a). Therefore, accounting information prepared under both IFRS and Saudi GAAP (i.e. during the study period) should be value relevant if it fulfils the objectives of financial reporting and these fundamental qualitative characteristics.

Consequently, to gain a holistic understanding of the impact of IFRS on the value relevance of accounting information in Saudi Arabia, this thesis draws on valuation theory, market efficiency theory, institutional theory, IASB's and SOCPA's Conceptual Frameworks and prior value relevance literature to formulate its hypotheses. Therefore, to answer the research questions (RQs), the study seeks to test the following **null** hypotheses:

1. **First research objective (RO_1) hypotheses:**

   $H_0 1$: The accounting information of non-financial firms listed on the Saudi Stock Exchange was not jointly value relevant during the study period (2015–2018).

This hypothesis is also tested through the following two sub-hypotheses:

$H_0 1_a$: Book values of equity were not value relevant during the study period (2015–2018).

$H_0 1_b$: Earnings were not value relevant during the study period (2015–2018).

$H_0 2$: Earnings were not relatively and incrementally more value relevant than book values of equity during the study period (2015–2018).

2. **Second research objective (RO_2) hypotheses:**

$H_0$3: The joint and relative value relevance of accounting information prepared under IFRS was not more than that of information prepared under Saudi GAAP.

$H_0$4: IFRS adjustments to the accounting information measures in the comparative year of 2016 were not incrementally value relevant.

$H_0$5: Book values of equity prepared under IFRS were not more value relevant than book values of equity prepared under Saudi GAAP.

$H_0$6: Owing to IFRS adoption, the incremental value relevance of book values of equity did not exceed that of earnings during the IFRS adoption period (2017–2018).

$H_0$7: During the comparative year of 2016, IFRS adjustments to the book values of equity were not incrementally value relevant.

$H_0$8: The impact of IFRS adoption on the relative and the incremental value relevance of book values of equity was not greater than the impact on the relative and incremental value relevance of earnings.

3. **Third research objective (RO_3) hypotheses:**

- ***Firm size hypotheses:***

  $H_0 9_a$: The combined value relevance of accounting information of large firms did not differ from that of small firms during the study period (2015–2018).

  $H_0 9_b$: IFRS did not have significant effects on the difference in the value relevance of the accounting information of firms of different sizes.

- ***Firm profitability hypotheses:***

  $H_0 10_a$: During the study period (2015–2018), the accounting information of profit-making firms was not jointly more value relevant than that of loss-making firms.

  $H_0 10_b$: Earnings were not more value relevant than book values of equity in profit-making firms during the study period (2015–2018).

  $H_0 10_c$: Book values of equity were not more value relevant than earnings in loss-making firms during the study period (2015–2018).

  $H_0 10_d$: IFRS adoption did not affect the value relevance of accounting information in loss-making firms.

- ***Audit quality hypotheses:***

$H_0 11_a$: The combined and relative value relevance of the accounting information of firms audited by Big4 firms was not higher than that of firms audited by non-Big4 firms during the study period (2015–2018).

$H_0 11_b$: The impact of IFRS adoption on the value relevance of accounting information was not higher among firms audited by Big4 firms.

- ***Firm potential growth hypotheses:***

  $H_0 12_a$: The value relevance of the accounting information of firms with low potential growth did not differ from that of firms with high potential growth during the study period (2015–2018).

  $H_0 12_b$: IFRS did not have a significant impact on the value relevance of accounting information of firms with high potential growth.

- ***Industry hypotheses:***

  $H_0 13_a$: The relative and combined value relevance of the accounting information of manufacturing firms did not differ from that of non-manufacturing firms during the study period (2015–2018).

  $H_0 13_b$: IFRS adoption did not have a significant impact on the difference in the value relevance of accounting information between manufacturing and non-manufacturing firms.

- ***Firm leverage hypotheses:***

  $H_0 14_a$: The accounting information of low leveraged firms was not jointly and individually more value relevant than that of high leveraged firms during the study period (2015–2018).

  $H_0 14_b$: IFRS adoption did not improve the value relevance of the accounting information of high leveraged firms.

- ***Gender of the board members hypotheses:***

  $H_0 15_a$: The accounting information of firms with only male members on the board was not jointly and individually more value relevant than that of Firms with mixed-gender members during the study period (2015–2018).

  $H_0 15_b$: IFRS adoption did not have a significant impact on the difference in the value relevance of accounting information between firms with only male members and firms with mixed gender members on the board.

- ***The sentiment firm's financial news hypotheses:***

$H_0 16_a$: The accounting information of good news firms was not jointly and individually more value relevant than that of bad news firms during the study period (2015–2018).

$H_0 16_b$: IFRS adoption did *not* have a significant impact on the difference in the value relevance of accounting information between good news firms and bad news firms.

Although all of these hypotheses are expressed in a negative form, the actual and predicted findings on testing these hypotheses are summarised in Table 7.1.

1.4 Research Methodology

This study addresses the limitations identified in the methodology of prior Saudi-based studies by providing a more refined methodology that is deemed to provide accurate, robust findings. These limitations include the improper implementation of models (Belassi & Elbarrad, 2020), the neglect of the use of a deflator (Alnodel, 2018), the use of a multi-country comparison by overlooking the country-specific context (El-Diftar & Elkalla, 2019), the use of a small sample size (Oraby, 2017), the lack of use of valuation models (Ebaid, 2021) and the failure to use R^2 comparison tests (Alnodel, 2018; Oraby, 2017).

A quantitative methodology is adopted in this thesis by employing the price and return models to examine the value relevance of accounting information of an identical sample size of 110 listed firms before (2015–2016) and after (2017–2018) the mandatory adoption of IFRS in Saudi Arabia and during the comparative year (2016; see Table 5.1 for the sample selection criteria). A study period of 4 years, 2015–2018, is selected to cover 2 years before (2015–2016) and 2 years after (2017–2018) the adoption of IFRS. The price and return models are both employed in order to provide robust findings (see Section 4.2.5). The data used for the analysis are from Eikon DataStream, the Orbis database and the official website of the Tadawul (see Tables 5.2, 5.3 and 5.4 for the definitions and measurement of the variables used in the analysis).

The primary metric of the combined value relevance is the significance level of the adjusted explanatory power (Adj R^2), while the significance level of the regression coefficients of the model indicates the individual value relevance of accounting information (i.e. earnings and book values of equity). The relative and incremental value relevance between accounting standards (i.e. IFRS v. Saudi GAAP) and accounting measures (i.e. earnings v. book values of equity) are explored to provide insightful results on the dominant role of accounting information in Saudi Arabia pre and post IFRS implementation (see Sections 5.4 and 5.5). While the relative value relevance indicates

the superiority of one set of accounting standards (or accounting measure) over another, the incremental value relevance shows the incremental contribution of one set of accounting standards (or accounting measure) beyond the other accounting standards (or accounting measure; see Section 3.7).

In addition, this thesis contributes to the value relevance methodology by conducting the analysis using two approaches to investigate the impact of IFRS adoption on the value relevance of accounting information in Saudi Arabia (see Section 5.3), whereas most earlier studies used only one approach (see Section 3.9). First, the pre- and post-IFRS approach compares the Adj $R^2$of the Saudi-based model (2015–2016) to those of the IFRS-based model (2017–2018) using the Cramer (1987) test (see Section 5.7.1). The second approach is the comparative year approach whereby a comparison between GAAP-based and IFRS-based accounting information is conducted during the comparative year of 2016 for the same set of firms (110) using the Vuong (1989) test (see Section 5.7.2). The Cramer (1987) and Vuong (1989) tests both examine whether the Adj R^2 values differ significantly from each other. While the comparative year approach is superior in controlling for cross-sectional and time-series differences (Hung & Subramanyam, 2007), applying both approaches is assumed to provide additional assurance about the validity of the results.

The methodology applied to firms' characteristics (RO_3) is to partition the study sample into two subsamples according to the median for continuous variables (firm size, leverage and growth) and the group affiliation for categorical variables (audit quality, industry, the sentiment of firm's news, gender of the board members, and profitability). The price model is then applied for each subsample pre and post IFRS and the Adj R^2 is compared using the Cramer (1987) test (see Section 5.7.1). On the basis of the results of this test, the model with a higher Adj R^2 indicates higher value relevance of the accounting information of that group of firms.

1.5 Research Scope

The study examines the effect of IFRS adoption on the value relevance of accounting information of non-financial Saudi listed firms during 2015–2018. To be included in the study sample, firms had to be listed from 1 Jan 2015 to 30 Apr 2019, in order to have an identical sample size in the pre- and post-IFRS periods. Further, only firms that released their financial statements within 4–6 months from the year end are considered, in order to ensure that investors have

absorbed the accounting information (Tsalavoutas et al., 2012). Firms with a year end other than 31 Dec are excluded from the sample. Financial firms are excluded from the sample because they have adopted IFRS since 2008 (see Section 2.8) and are subject to different accounting practices and regulations (see Section 5.2). The study also restricts the analysis of the impact of firm-level factors on the value relevance of accounting information to the firm characteristics identified in the prior literature (see Section 3.11). Hence, the impact of other firm characteristics is not considered in this study.

The study adopts the measurement association approach to investigate the value relevance of accounting information in Saudi Arabia using both the price and return models. This is because it is the most common approach applied in the value relevance and IFRS literature (e.g. Barth et al., 2008; Cussatt, Huang, & Pollard, 2018; Hung & Subramanyam, 2007; Tsalavoutas et al., 2012) for it allows the investigation of both the relative and incremental value relevance over a long period (see Section 3.6.4). Hence, other value relevance approaches (see Section 3.6) are not employed in this study because they do not serve the purpose of this study.

To address the research questions, only accounting information from financial statements is included in the valuation models (i.e. the base version of the price and return models). This is consistent with the argument of Clarkson, Hanna, Richardson and Thompson (2011) who assumed that the natural place to investigate the impact of IFRS is the value relevance of book values of equity and earnings, which are the summary of the two main financial statements (i.e. Statement of Financial Position and Statement of Profit or Loss and Other Comprehensive Income). Hence, the addition of any variables unavailable in the financial statements directly into the models is not relevant to the research questions and would void any tests related to the research questions.

1.6 Thesis Structure

This thesis comprises seven chapters. Chapter 1 has introduced the thesis by providing the research background and motivations that led to the development of the research objectives (ROs) and questions (RQs). Further, the chapter has provided a brief description of the theoretical framework, the research methodology and the scope of thesis.

Chapter 2 provides context for Saudi-specific institutional factors (i.e. geographical, demographical, cultural, historical, political, and legal and economic factors). In addition, it describes the regulations applicable to Saudi listed firms and the roles of their administrative

bodies. Last, the chapter describes the history and development of the accounting profession in Saudi Arabia.

Chapter 3 starts by providing an overview of IFRS adoption and its expected impact on financial reporting quality with special reference to the case of Saudi adoption. Then, a comprehensive review of types, approaches and models of values relevance is provided. In addition, the impact of certain accounting standards, and IFRS in particular, and other country-level and firm-level factors on the value relevance of accounting information is thoroughly reviewed and discussed. Chapter 3 concludes by identifying the gap in the prior literature through a review of Saudi and international literature.

Chapter 4 discusses the theoretical framework of the thesis by reviewing the relevant theories (i.e. valuation theory, market efficiency theory and institutional theory) that are used to develop the research hypotheses. Further, the development of the valuation models (price and return) is mathematically discussed. It also explains and justifies the development of the research hypotheses in light of the theoretical framework and relevant prior literature.

Chapter 5 explains and justifies the research methodology, the sample selection, the study period and the definition and measurement of the variables included in the price and return models. The relative and incremental methodologies are thoroughly explained. The differences between the pre- and post-IFRS and comparative approaches used to examine the impact of IFRS are discussed in detail. Further, it explains the methodology for testing the change in the Adj R^2. Last, the chapter discusses the econometric issues associated with the valuation models and the appropriate solutions for addressing these issues.

Chapter 6 reports the descriptive and multivariate results of the price and return models for the main (value relevance pre and post IFRS) and additional analyses (the impact of firms' characteristics) to answer the research questions (RQs). It also provides an assessment of the regression assumptions and of the impact of the spurious ratio problem on the R^2 values to ensure that the reported results are not affected by the violation of any of these assumptions or this problem. It also reports the results of the robustness test to provide additional assurance about the validity of the findings.

Chapter 7 concludes the thesis by discussing and testing the research hypotheses developed in Chapter 4 on the basis of the findings reported in Chapter 6. Further, it summarises the expected

and actual findings and justifies the findings in light of prior relevant literature as well as Saudi institutional factors. It also discusses the contributions, implications and potential limitations of this research and presents directions for future studies.

1.7 Chapter Summary

This chapter presented the background, motivations and significance of this thesis. It also outlined the research objectives (ROs) and questions (RQs). It provided a summary of the theoretical background, the research methodology and the scope of this thesis, and a detailed structure of the overall thesis. Chapter 2 will review the background of Saudi institutional factors as well as the development of financial reporting practices in Saudi Arabia.

Chapter 2: Saudi Arabian Context

2.1 Introduction

This chapter aims to gain an understanding of the Saudi historical, cultural, political, legal and economic background as well as of the history and development of the accounting profession within the country until its adoption of IFRS. Understanding the Saudi-specific factors is essential to this study in order to identify suitable theoretical frameworks to analyse the impact of IFRS adoption on the value relevance of accounting information in the Saudi context. This chapter is organised as follows. Section 2.2 presents an overview of the historical, geographical and demographic background of the Kingdom of Saudi Arabia, and Sections2.3, 2.4 and 2.5 briefly review the Saudi culture, political and legal system, and economic system, respectively. Section 2.6 discusses the main regulations that guide listed firms in Saudi Arabia, and Section 2.7 identifies the role of each Saudi administrative body that is responsible for governing the practices of listed firms in this country. Section 2.8 presents an overview of the development of the accounting profession in Saudi Arabia prior to the adoption of IFRS in 2017. Section **Error! Reference source not found.** concludes this chapter by summarising the key issues reviewed throughout the chapter.

2.2 Overview of the Historical, Geographical and Demographic Background of the Kingdom of Saudi Arabia

In 1932, King Abdulaziz Al-Saud founded the Kingdom of Saudi Arabia, which is located on, and covers 80% of, the Arabian Peninsula with a total area of 2,1490,690 km^2 (World Bank, 2018). It is the largest (14th largest) country in the Middle East (the world; Albarrak, 2011). Its capital city, Riyadh, is located in the centre of the country. It also known as the 'Land of the Two Holy Mosques' (Nurunnabi, 2017b, p. 539), which are the two holiest places in the world for all Muslims. Islam is the only religion of the country because 100% of the Saudi citizens are Muslims. The main calendar used in the country is the Arabic lunar calendar (*Hijri*)[3] (Shoult, 2006). The official language is Arabic, while the English language is extensively used within the business society (Albader, 2015). The national currency is the Saudi Arabian Riyal (SAR; Saudi Central

[3] The *Hijri* or Islamic calendar is a lunar calendar rather than a solar calendar, such as the Julian calendar.

Bank, 2022b). As of mid-2020, the total population was 35,013,414, of whom about 38%, 42.2% and 57.8% are foreign visitors, females and males, respectively (The Saudi General Authority for Statistics, 2020). More than half of the population is aged between 20 and 50 years.

2.3 Culture

Saudi Arabian culture is highly influenced by the religion of Islam and Arabian tribal traditions (Rice, 2004). Islam has the most effect on shaping the Saudi culture for the Shari'a Law (Islamic law) is used as the Constitution of the country and therefore affects all aspects of daily life. Thus, Muslims cannot divide their actions into religious and secular dimensions because they are always bound by the Islamic law (Lewis, 2001). Arabian tribal traditions, conversely, are of high influence, given that most of the Saudi citizens are of Arab ethnicity (Al Sedran, 2018). The common attributes of Arabian tribal traditions include generosity, prestige, justice, privacy, conservatism, secrecy and loyalty (Rice, 2004).

Hofstede (1980) empirically classified societal culture into four dimensions: (a) large versus small power distance, (b) strong versus weak uncertainty avoidance, (c) masculinity versus femininity and (d) individualism versus collectivism. Using these dimensions, the study categorised Arab countries, including Saudi Arabia, as having large power distance, strong uncertainty avoidance and a masculine and collectivist society. Further, Gray (1988) provided a link between these cultural dimensions and a country's accounting system.[4] The study placed Arab countries as having more uniformity and a statutory control-based accounting system, rather than flexibility and a professionalism-based accounting system, with regard to the dimension of authority and the enforcement of an accounting system. This is evident because Saudi GAAP does not leave room for professional judgement (see Section 3.3.2). Concerning the measurement and disclosure of an accounting system, Arab countries are classified as tending more towards secrecy and conservatism than transparency and optimism, respectively. This is partially in line with the influence of the Islamic religion that urges people to avoid high-risk activities, which may even be prohibited; gambling is an excellent example of the prohibition of certain activities in Islam (Gambling & Karim, 1986). This classification, however, contradicts the principle of social

[4] Two values are important to the authority and enforcement of an accounting system: (a) professionalism versus statutory control and (b) uniformity versus flexibility. however, with regard to the measurement and disclosure of an accounting system, two dimensions should be considered: (a) conservatism versus optimism, and (b) secrecy versus transparency.

accountability under Islam, which encourages a high level of transparency and disclosure (Lewis, 2001).

The culture of Saudi Arabia remained traditional and was unaffected by external factors for the country escaped Western colonialism (Al-Rumaihi, 1997) until the discovery of oil in 1938. This discovery attracted the attention of Western countries (particularly the UK and the US), who built a relationship with Saudi Arabia by providing loans and technical assistance for oil exploration. This relationship has influenced the traditional Saudi culture because Saudi people have been working with Western people and thus have become exposed to the Western culture. Further, Saudi people have become richer after the discovery of oil and this affluence has exposed them to the Western culture through media and travel (Melikian, 2020).

The influence of the Western culture on the Saudi culture is more pronounced through the education system. This is because Saudi Arabia has entered a technical assistance agreement with the US, aiming to restructure the Saudi education system in light of the American education experience (Roy, 1992). Recently, the young generation in Saudi Arabia has been offered scholarships from the government to pursue their education in Western countries if they meet certain criteria. Studying in Western countries has altered the culture in Saudi Arabia and led to changes in attitudes and dressing styles among the young generation.

2.3.1 Female employment in Saudi Arabia

In Saudi Arabia, traditional Islamic cultural norms and values have resulted in gender-segregated roles, with men being the breadwinners and women primarily responsible for domestic duties and child-rearing (Al-Asfour, Tlaiss, Khan & Rajasekar, 2020). This has led to historically low rates of female employment in the country. However, recent government initiatives like Vision 2030 aim to diversify the economy and increase women's employment opportunities (World Bank, 2019).

Despite these efforts, there are still cultural and societal barriers to women's employment in Saudi Arabia. The male guardianship system, which requires women to obtain permission from a male relative to work, travel, or marry, can make it difficult for women to pursue career opportunities. Additionally, certain industries are traditionally male-dominated, limiting opportunities for women (Al-Asfour et al, 2020). However, the percentage of women in the

workforce has increased from 16% in 2017 to 23% in 2020, and there has been a greater push for gender diversity and inclusion in the workplace (Saudi General Authority for Statistics, 2021).

Cultural factors that have affected women's employment in Saudi Arabia include the practice of purdah, which makes it difficult for women to access education and job opportunities outside of their homes, and the perception of women's roles as primarily domestic and nurturing, which has led to a lack of recognition for women's contributions outside of the home (Baki, 2004). However, there have been efforts to expand women's access to education and training programs, challenge stereotypes, and promote women's leadership and career advancement (World Bank, 2019). Although there are still cultural barriers to women's employment in Saudi Arabia, ongoing efforts to increase women's participation in the workforce and promote gender diversity in the workplace are likely to continue in the coming years.

Examining the impact of female leadership on accounting quality in Saudi Arabia is crucial, as it can provide insights into how gender diversity affects financial reporting in a traditionally male-dominated business environment. Investigating the influence of female board members on IFRS adoption is particularly important, as women can bring diverse perspectives, expertise, and risk-averse tendencies that may lead to improved accounting quality (Adams & Ferreira, 2009). Focusing on female membership on the boards of Saudi listed firms is often the only feasible approach to assess the impact of gender diversity on accounting practices, due to the limited data available about women's roles in Saudi listed firms reports. This examination can reveal how gender diversity contributes to better corporate governance, stakeholder trust, and value-relevant accounting information (Bear, Rahman & Post, 2010).

2.4 Political and Legal System

The Saudi political and legal system is unique for the country has an absolute monarchical political system, whereby the legal system is derived from the Islam faith since it the official religion of Saudi Arabia. The King of Saudi Arabia, who has legislative, executive and judicial powers (Albarrak, 2011), rules the country through two main legislative bodies—the Council of Ministers (Cabinet) and the Council of Consultation (*Majlis al-Shura*). The Council of Ministers has the final authority for any economic, executive, financial and administrative matters. The King functions as the Prime Minister, and the Crown Prince acts as the deputy of the Prime Minister. The Council of Consultation has the responsibility to discuss and make recommendations to the

Council of Ministers regarding issues concerning public interests. All legislative enactments and the appointment of the members of these two legislative bodies are issued through Royal Decrees (Alghamdi, 2012). Any legislation must be derived from the Holy Qur'an and the Sunna or their interpretations (Ijma[5] and Qiyas[6]), which constitutes the Islamic law (Shari'a Law) that is the basis of the legal system in Saudi Arabia (Rice, 2004). In order to ensure that all the legislations are in conformity with the Islamic law, the Council of the Assembly of Senior Religious Scholars (*Majlis Kibar al-Ulama*) reviews and endorses these before they are enacted (Alsehali, 2002).

2.5 Economic System

Before the discovery of oil in 1938, Saudi Arabia was a very poor country, and its income sources were mainly limited to agriculture and religious pilgrimage activities (Almansour, 2019). A significant transformation to the country's economy occurred when the oil was discovered, making it a wealthy country with the strongest, most stable economy among Arab countries and the second-largest economy in the Middle East and North Africa (MENA) region after Turkey (World Bank, 2020). The oil boom during the late 1960s and early 1980s yielded tremendous revenues to Saudi Arabia, the world's largest oil exporter and the second-largest producer after the US (Organization of the Petroleum Exporting Countries, 2020; the U.S. Energy Information Administration, 2020), which possesses the world's second-largest crude oil reserves accounting for approximately 17% of the total proven reserves (Organization of the Petroleum Exporting Countries, 2020). The Saudi GDP was approximately US$793 billion in 2019, up from US$645 billion in 2016 (World Bank, 2020). This strong economy makes the country the only Arabic country eligible to be a member of G20.

The revenues generated from oil have helped the country to improve its infrastructure and its levels of education and health care through a series of Five-Year Development Plans beginning from 1970 (Falgi, 2009). Although these plans have significantly developed the country in several aspects, Saudi Arabia still relies heavily on the income generated from oil, which is a depleting source. According to Forbes (2018), Saudi Arabia's petroleum sector accounts for 42% of its GDP, 90% of its total export earnings and 87% of the government budget revenues in 2018. This reliance

[5] The agreement among Islamic scholars of the interpretations of the implicit meaning of the Holy Qur'an and the Sunna during the first couple of hundred years of Islam.
[6] The agreement among Islamic scholars of the interpretations of an emerging issue by referring to the Holy Qur'an and the Sunna.

on oil jeopardises the Saudi economy for oil prices are susceptible to collapses, such as those in late 2008 following the global crisis and between mid-2014 and early 2016 owing to political and economic factors. The oil price instability and the global trend towards a more diverse and sustainable knowledge-based economy have served as a stark warning to the country to launch a new roadmap, 'Vision 2030' in 2016, that mainly aims to diversify the Saudi economy (Nurunnabi, 2017b).

2.5.1 Vision 2030

On 25 April 2016, the ambitious Saudi Vision 2030 was launched by His Royal Highness the Crown Price Mohammed Bin Salman, the Deputy Prime Minister and Chairman of the Council of Economic and Development Affairs. Broadly speaking, Vision 2030 has three main strategic objectives, which are targeted towards an ambitious nation, a vibrant society and, most importantly, a thriving economy, to be achieved by 2030 through several realisation programs[7] (Saudi Vision 2030, 2021).

Many of these realisation programs were initiated to achieve the strategic objective of a thriving economy. For example, the Fiscal Sustainability Program, which aims to strengthen and maintain the Kingdom's financial position, has contributed to reducing the deficit ratio of GDP from 15.8% in 2015 to 4.5% in 2019 (Saudi Vision 2030, 2021). The Financial Sector Development Program, launched in 2017, resulted in the derivatives market being launched by end-2020, 13 FinTech payment firms being licenced in 2020 and Tadawul successfully joining the global emerging market indices (e.g. MSCI Emerging Markets Index, Standard & Poor's Dow Jones, and FTSE Russell). These developments have led to a significant increase in FDI—for instance, it increased from SAR5.3 billion in 2017 to SAR17.6 billion in 2020 (Saudi Vision 2030, 2021). Saudi Arabia's efforts to attract investors has been acknowledged by the World Bank (2020), which ranked it the second in the GCC region[8] after Bahrain in 2020 for 'Ease of Doing Business'. This is partially due to the significant reforms implemented by the Saudi CMA to

[7] Fiscal Sustainability Program, Human Capability Development Program, Quality of Life Program, National Transformation Program, Privatization Program, Health Sector Transformation Program, Financial Sector Development Program, National Industrial Development and Logistics Program, Public Investment Fund Program, Housing Program and Doyof Al Rahman Program.
[8] The GCC region includes Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE.

improve the protection of minority investors (see Section 2.7.3). This places Saudi Arabia the third worldwide after New Zealand and Singapore (World Bank, 2020).

Further, the Public Investment Fund Program, launched at the end of 2017, aims to effectively invest public funds in order to diversify the Kingdom's income sources. This fund contributed to the establishment of more than 30 firms and the creation of more than 365, 000 job opportunities by the end of 2020 (Saudi Vision 2030, 2021). The total assets owned by the fund increased from SAR0.84 trillion in 2015 to SAR1.5 trillion in 2020 (Saudi Vision 2030, 2021). This tremendous improvement led the fund to win the best investment fund award in 2020 from the Global Sovereign Wealth Fund (Saudi Vision 2030, 2021).

The Privatization Program, launched in 2018, aims to reduce the dependency on the government and to enhance the role of the private sector as the main contributor to the Saudi economy. A major initiative of this program is the privatisation of the state-owned oil firm, Saudi ARAMCO, in early 2019 by selling 1.5% of the firm's shares through the largest initial public offering in history. This has been followed by privatisation of flour milling firms and of King Abdullah Port, which is the first port in the country to be developed, operated and fully owned by the private sector (Saudi Vision 2030, 2021).

In this regard, Moshashai, Leber and Savage (2020), who thoroughly evaluated Vision 2030, asserted that it is essential to transform Saudi Arabia from an oil-dependent economy to a diversified economy and that, thus far, the realisation programs show promising results. However, they urged Saudi officials not to be too optimistic, given the many questionable assumptions and estimates that were used when finalising these programs. They also referred to some serious challenges that may hinder the massive goals of restructuring the Saudi economy. For example, the decisions to impose a value added tax (VAT) and reduce government spending on government employees' wages may create political instability. Further, the uncertainty about the world's energy market could disturb the expected outcomes of the Vision. The realisation programs have established plans up to 2020 (Moshashai et al., 2020). Therefore, these programs must be updated periodically to meet the Vision's objectives.

2.6 Regulations for Listed Firms in Saudi Arabia

The five sources of regulations in Saudi Arabia for listed firms are the *Income Tax and Zakat Law*, the *Companies Act*, the *Chartered Accountants Law*, the *Capital Market Law* and the

Saudi Corporate Governance Code (*SCGC*). These laws are affected by many factors, such as the legal system, culture and religion. According to Al-Amari (1989), the Royal Family, Muslim scholars, businesspeople and tribal leaders influence the formulation of these laws in Saudi Arabia. These laws have been enacted through different Royal Decrees and amended several times to meet national and global needs. In addition to these laws, the introduction of the *SCGC* significantly contributes to filling the gap in these regulations by incorporating rules and provisions aimed at improving transparency and disclosure and leads to improved protection for shareholders and stakeholders.

2.6.1 The Income Tax and Zakat Law

The *Income Tax and Zakat Law* was enacted by Royal Decree No. 17/2/28/3321 in 1950 and has been amended several times by many Royal Decrees, most recently in 2019 (Saudi Zakat, Tax and Customs Authority, 2022). This law is divided into two mandatory systems of financial regulation: zakat and tax. According to Article 1, zakat is an Islamic tax levied, both on Saudi individuals and firms whose shareholders are either Saudi or GCC citizens, for the purpose of distribution to poor people and is to be used for the benefit of the society. However, non-Saudi shareholders in joint firms, wholly foreign-owned firms and not-for-profit organisations are not required to pay zakat (Saudi Zakat, Tax and Customs Authority, 2022). Zakat can be calculated as 2.5% of the total monetary value of an individual's and a firm's assets, and it should be paid in full at the end of each fiscal year on the basis of *Hijri* calendar (Alkhtani, 2010). According to Article 6, all individuals and firms must maintain organised books that show the capital, revenue and expense accounts to be used to calculate zakat (Saudi Zakat, Tax and Customs Authority, 2022).

In addition, income tax is imposed on all non-Saudi shareholders in a joint firm, non-Saudi partners of a joint firm (Article No. 2 of the *Income Tax and Zakat Law,* Saudi Zakat, Tax and Customs Authority, 2022). A recent law, the *Value Added Tax (VAT) Law*, was approved and published in 2017 and became mandatory in 2018 on the basis of a unified agreement for VAT among GCC countries. The law consists of 53 articles to explain the scope and calculation of VAT and the penalties of tax evasion. According to Article 2, VAT will be imposed on all imported or supplied goods or services and will be collected by the Zakat, Tax and Customs Authority (Saudi Zakat, Tax and Customs Authority, 2022).

2.6.2 The Companies Act

The Saudi *Companies Act* was enacted in 1965 by Royal Decree No. M/6 (consisting of 234 articles) and has been amended several times, such as in 1967, 1982, 1985, 1992 and recently in 2015 (Ministry of Commerce [MC], 2022). Compliance with the *Companies Act* had been the responsibility of the Saudi Central Bank (earlier known as the Saudi Arabian Monetary Authority: SAMA) and the MC (see Sections 2.7.1-2.7.2) up until the creation of CMA in 2003, which has been responsible for regulating listed firms in light of this Act (see 2.7.3).

The first version of the Act was derived from the British *Companies Act* (Alghamdi, 2012) and served as the first attempt to regulate firms in Saudi Arabia (Alsultan, 2017). The Act defines a firm's structure and its legal shape and provides guidelines on aspects such as the registration procedures, the number of partners, the minimum capital required and the number of directors (Naser & Nuseibeh, 2003). According to Al-Twaijry, Brierley and Gwilliam (2003), it was the first to require firms to audit their financial statements by a certified external auditor.

The 2015 version of the Act (consisting of 227 articles) is regarded as a more comprehensive regulation for firms in Saudi Arabia. This is owing to the significant amendments to the requirements regarding the number, appointment method and duration of board members, as well as the relationship between the firm and its external auditors (Article 68 and Article 133). In the report on the board of directors, for instance, the method and amount of any compensation received by board members must be disclosed in full. In addition, it gives the shareholders' general meeting the authority to dismiss any director who misses three consecutive meetings. According to Article 135, an external auditor who violates the *Companies Act* is liable to pay a fine of up to SAR5 million and may face imprisonment of up to 5 years. In general, these amendments should reassure equity investors regarding the quality of accounting information.

2.6.3 The Chartered Accountants Law

The *Chartered Accountants Law* was enacted in 1974 through Royal Decree No. M/43, and it is the first law that gives a legal basis for the accounting profession in Saudi Arabia (Basheikh, 2002). It plays an essential role in the legal framework for financial reporting in Saudi Arabia. This law comprises 35 articles that constitute the essential requirements for accounting practitioners' services, such as registration fees and procedures, qualifications for accounting practitioners, auditors' responsibilities and the proceedings related to accounting law violations

(SOCPA, 2022b). Al-Rehaily (1992) noted that despite the enactment of the law, the accounting profession in Saudi Arabia remains underdeveloped, indicating the need for a regulatory body. To address this issue, the *Chartered Accountants Law* was amended in 1992 through Royal Decree No. M/12, which established SOCPA to act as the sole regulatory body for Saudi Arabia's accounting profession (Naser & Nuseibeh, 2003).

In 2021, Royal Decree No. M/59 was issued to abolish the *Chartered Accountants Law* of 1992 and replace it with the new *Accounting and Auditing Profession Law*. This law amended the name of the regulatory body to 'Saudi Organization for Chartered and Professional Accountants' from 'Saudi Organization for Certified Public Accountants' (*Accounting and Auditing Profession Law*, Article1, SOCPA, 2021a). The old law required practitioners who hold a bachelor's degree in accounting to have 3 years of experience in order to qualify for a chartered accountant's licence for practising the accounting profession, whereas the new law only requires a year of experience for any individual with a bachelor's degree in accounting or any related discipline (*Accounting and Auditing Profession Law*, 2021, Article 3). Furthermore, it is now possible for a part-time accountant to obtain a licence to practise accounting in accordance with Article 3 of the new law. Thus, the new law has noticeably eased requirements. This change is attributable to the increased demand for accounting services in Saudi Arabia, which currently has a shortage of qualified accountants (Nurunnabi, 2018). Therefore, these amendments are expected to increase the number of qualified accountants.

2.6.4 Capital Market Law

Royal Decree No. M/30 approved the *Capital Market Law* on 31 July 2003. It took effect 6 months later (*Capital Market Law 2003,* Article 67, CMA, 2003). This law aims to protect investors from illegal activities and should be used as a reference in securities and transaction issues by CMA and other stakeholders (listed firms, investors and CMA-certified individuals). Thus, it defines regulatory terms and securities (Chapter 1), explains the CMA's purpose, composition, responsibilities and duties (Chapter 2), regulates stock market activities (Chapter 3), outlines operating rules for registration, settlement and clearance (Chapter 4), distinguishes between brokers and portfolio managers (Chapter 5), explains the purpose of CMA-regulated investment funds (Chapter 6), requires issuers to follow the prospectus content and disclose quarterly and annual reports (Chapter 7), defines manipulation and insider trading (Chapter 8),

regulates restricted purchase and restricted offer of shares (Chapter 9), defines violations and identifies the parties involved (Chapter 10). Therefore, the Saudi CMA monitors and regulates the Saudi Stock Exchange (Tadawul) according to the *Capital Market Law*.

2.6.5 Corporate Governance Code

Prior to 2006, listed firms in Saudi Arabia applied corporate governance practices by referring to the *Companies Act* of 1965, which, however, provided limited guidance on corporate governance mechanisms (Albassam, 2014). This situation led some academics to urge Saudi officials to review the corporate governance practices of Saudi listed firms and issue corporate governance code based on best practices (e.g. Al-Motairy, 2003). Moreover, the Tadawul crash in 2006 served as a 'wake-up' call to the newly established CMA in 2003 to constitute or adopt a corporate governance code and ensure high compliance (Alkhtani, 2010). CMA introduced the *SCGC* in November 2006 to restore investors' confidence by providing a high level of protection and disclosure (CMA, 2006). The *SCGC*, which has 19 articles divided into four parts, is based on the 1992 Cadbury report (Albassam, 2014). The four parts: (a) preliminary provisions, (b) shareholder rights and general assembly, (c) disclosure and transparency and (d) board of directors (the *2006 SCGC*, CMA, 2006).

The first part defines code terms and links the code to the *Companies Act*. The second part requires listed firms to allow shareholders to access required information and attend the annual meeting (the *2006 SCGC*, Article 5, CMA, 2006). The third part specifies the board's composition, classification, responsibilities and duties, and compensations (the *2006 SCGC*, Article 9, CMA, 2006). The fourth part describes the board's role, responsibilities, composition and meeting frequency (the *2006 SCGC*, Articles 10–18, CMA, 2006). The ultimate objective of implementing the *SCGC* is to increase shareholder protection, thereby boosting investor confidence in the Saudi Stock Exchange and attracting more capital (CMA, 2022).

The *2006 SCGC* has been replaced by the new *2017 SCGC* to reflect the amendments to the *Companies Act* in 2015. The Saudi CMA and the Ministry of Commerce and Investment—currently known as the Ministry of Commerce (MC)—considered best international practices when preparing the new *SCGC* regulation. The new *SCGC* is a complete transformation of, and more comprehensive than, the *2006 SCGC*. This is evident as the new regulation has 98 articles to

address 12 areas of corporate governance practices, whereas the previous regulation had only 19 articles to give advisory guidelines on only four areas.

Part 1 defines regulatory terms and explains corporate governance goals. Part 2 explains shareholders' rights to fair treatment, information, board elections and dividends. Part 3 outlines the board's formation, responsibilities, competencies, activities and training. It also explains how to avoid and disclose conflicts of interest. Part 4 requires listed firms to form audit, remuneration, nomination and risk committees, and it explains their composition, competencies and meeting frequency. Part 5 requires the establishment of an internal audit unit to monitor corporate governance compliance. It also outlines the formation, duties and report of an internal audit unit. Part 6 requires listed firms to hire an external auditor and explains the auditor's appointment and duties (Article 81–82). Under the new *SCGC*, the board of directors of listed firms is required to issue well-written stakeholder policies (Part 7) and to establish a code of professional conduct and ethical values for the firm and society (Part 8). Part 9 requires listed firms to create policies and procedures to assess compliance with firm and capital market disclosure requirements. Part 10 assigns the board the responsibility of implementing effective corporate governance by forming a corporate governance committee to oversee firms' governance practices. Part 11 requires listed firms to store board and audit committee reports for 10 years. The regulation concludes with Closing Provisions (part 12), which emphasise the right to request additional information from listed firms to verify compliance (The new *2017 SCGC*, CMA, 2017).

2.7 Administrative Bodies of Firms Listed in Saudi Arabia

2.7.1 Ministry of Commerce

The MC was established in 1953 to regulate commercial activities in Saudi Arabia by developing, enforcing, monitoring and ensuring a high level of compliance with trade rules and policies. In 1965, the MC enacted the *Companies Act*, which was substantially amended in 2015. Since its creation, the MC alone had the responsibility of regulating listed firms until 1984 where the Saudi Central Bank (SAMA) took over this responsibility until 2003. From 2003, the CMA became the sole regulator of Tadawul. The MC indirectly holds a supervisory role over many Saudi administrative bodies, such as Tadawul, the CMA, and SOCPA (Alghamdi, 2012).

2.7.2 Saudi Central Bank

SAMA was formed in 1952 by two Royal Decrees. First, 30/4/1/1046 emphasised the importance of establishing it and gave the location of SAMA's headquarters (Jedda) and branches. Second, Decree 30/4/1/1047 approved its creation (Saudi Central Bank, 2022a). SAMA has helped monitor and improve Saudi Arabia's financial system by controlling inflation and expanding the banking system. It licences, supervises and regulates banks, insurance firms and investment institutions to ensure Saudi Arabia's financial stability. As the Central Bank of Saudi Arabia, it prints and mints the national currency (the Saudi Riyal) and manages Saudi exchange reserves (Saudi Central Bank, 2022a). Before CMA was established in 2003, SAMA's Securities Control Department regulated the Saudi Stock Exchange from 1984 onwards (Albarrak, 2011). To date, Saudi Arabia's listed financial firms must follow SAMA regulations.

2.7.3 Capital Market Authority

The CMA began unofficial operations in Saudi Arabia in 1950, which continued until its formal establishment under Royal Decree No. M/30 in 2003 (CMA, 2022). The CMA was established as a government-supervised independent organisation to regulate Tadawul, a function it took over from SAMA. It is financially, legally and administratively independent, with a direct link to the Prime Minister, who receives CMA reports periodically (CMA, 2022). CMA is run by a board of five full-time Saudi citizens (four are academics) appointed by Royal Decree. The main objective of CMA is to create a desirable investment environment that protects investors from illegal activities by promoting transparency and disclosure standards. To achieve this objective, the Saudi *Capital Market Law* (see Section 2.6.4) gave CMA the authority to establish regulations, rules and instructions for the Saudi Stock Exchange. Its main duties are as follows:

- Regulate and develop the capital market and promote appropriate standards and techniques for all sections and entities involved in Securities Trade Operations.
- Protect investors and the public from unfair and unsound practices involving fraud, deceit, cheating, manipulation, and inside information trading.
- Maintain fairness, efficiency, and transparency in transactions of securities.
- Develop appropriate measures to reduce risks pertaining to transactions of securities.
- Develop, regulate, and monitor the issuance of securities and under-trading transactions.
- Regulate and monitor the activities of entities working under CMA.

- Regulate and monitor full disclosure of information related to securities and issuers. (CMA's website, 2022).

Tadawul has witnessed significant reforms since CMA's inception because CMA has issued 30 executive orders and regulations based on the *Companies Act* and the *Capital Market Law* (see Appendix 1). These executive orders and regulations were issued to establish a favourable investment environment in which investors are protected from illegal activities. This has led CMA to issue an investors' protection document, which includes a summary of all the rights that equity investors should be aware of and the complaint filing process in case any these rights are breached. The efforts of CMA are evident during the study period (see Chapter 5) for there were 1,022 (95.6%), 854 (86.3%), 1,709 (71.1%) and 2,555 (89.4%) complaints (percentage of complaints resolved by CMA within the same year) in 2015, 2016, 2017 and 2018, respectively (CMA annual reports, 2015–2018, CMA, 2015, 2016, 2017, 2018). Therefore, Saudi Arabia is considered to provide high-quality investor protection, which is in line with the objectives of the Vision 2030 objective (see Section 2.5.1).

2.7.4 Saudi Organization for Chartered and Professional Accountants

As mentioned in Section 2.6.3, Royal Decree M/12, which was issued in 1992, amended the *Chartered Accountants Law*; Article 19 covers the establishment of a semi-independent authority named 'the Saudi Organisation for Certified Public Accountants (SOCPA)' as the sole regulator of the accounting and auditing professions in Saudi Arabia under the supervision of the MC (SOCPA, 2022a). SOCPA is a member of the IFAC, the Asian-Oceanian Standard-Setters Group and the Gulf Cooperation Council Accounting & Auditing Organization (IFAC, 2022). Its board of directors consists of 15 members,[9] and the Minister of Commerce acts as the chair of the board. SOCPA's (2022a) major duties include the following:

- review, develop and approve accounting standards;
- review, develop and approve auditing standards;

[9] These 15 members are as follows: Minister of Commerce (chairman), MC representative, Ministry of Finance representative, representative of chambers of commerce, representative of Accounting General Bureau, two representatives of Saudi universities, a Zakat, Tax and Customs Authority representative, CMA representative and six CPAs from accounting firms selected by SOCPA.

- establish the necessary rules for fellowship certificate examination (exam for certified public accountants [CPAs]) including professional, practical and scientific aspects of audit profession and applicable regulations;
- organise continuous education programs;
- establish an appropriate quality review program in order to ensure that CPAs implement professional standards and comply with the provisions of Certified Public Accountants Regulations and relevant by-laws;
- conduct special research work and studies covering accounting, auditing and other related subjects;
- publish periodicals, books and bulletins covering accountancy and audit related subjects; and
- participate in local and international committees and symposiums relating to the profession of accounting and auditing.

These key tasks are carried out by SOCPA through several technical committees: (a) Accounting Standards, (b) Auditing Standards, (c) Professional Ethics, (d) Examinations, (e) Quality Review, (f) Training, (g) Public Relations and (h) Consulting Services. These committees comprise members such as academics, firms' accountants, professional accountants licenced by SOCPA and government representatives (SOCPA, 2022a).

According to SOCPA's annual report (2021b), Saudi Arabia has 108,588 Saudi accountants who hold a bachelor's degree or diploma in accounting. However, only 806 individuals are CPAs. The total number of accounting firms operating in Saudi Arabia is 304 (SOCPA, 2022c). The contributions of SOCPA to the development of the accounting profession, in general, and Saudi GAAP, in particular, are discussed in Section 2.8.

2.7.5 Saudi Stock Exchange

The Saudi Stock Exchange, Tadawul,[10] operated unofficially from 1935 until 1985, when a ministerial committee consisting of representatives from the MC, Ministry of Finance and the Saudi Central Bank (SAMA) decided to develop and regulate the stock market (Saudi Central Bank, 2022a). Saudi Central Bank (2022a) created the Saudi company to register Saudi shares and

[10] The Arabic term 'Tadawul' means the process of exchange in capital market.

related transactions, which were handled manually and thus took up to 2 weeks to complete. Saudi Arabian commercial banks, then, exchanged shares for investors through their Central Negotiations Units (Albarrak, 2011). This process continued until April 1990, when a new electronic system[11] replaced the old one to improve accuracy and efficiency (Albarrak, 2011). Stockbrokers can execute buy and sell orders instantly, which improves the trading experience. This change automated the Saudi Stock Exchange, which did not have a physical marketplace to facilitate trading. In 2003, when CMA replaced SAMA as the sole regulator of the Saudi Stock Exchange, Tadawul became a government-owned, CMA-controlled joint stock firm (Albarrak, 2011). In March 2007, the Ministers agreed to separate Tadawul from the CMA (Albassam, 2014). In March 2021, Tadawul became a wholly owned subsidiary of the Saudi Tadawul Group.

The main purpose of Tadawul is to manage, prepare and disclose all information related to the securities listing and trading mechanism (Saudi Stock Exchange, 2022). To achieves its main objective, Tadawul has the following responsibilities:

- Ensuring fair, efficient and transparent listing requirements, trading rules and technical mechanisms and information for securities listed on the Exchange.
- Providing sound and rapid settlement and clearance rules and procedures through its Securities Depositary Centre.
- Establishing and enforcing professional standards for brokers and their agents.
- Ensuring the financial strength and soundness of brokers through the periodic review of their compliance with capital adequacy requirements and setting such arrangements to protect the funds and securities in the custody of brokerage companies. (CMA' website, 2022)

Tadawul, the official source of market information, is administered by a board of nine members appointed by the Saudi Council of Ministers from among those nominated by government agencies (SAMA, CMA and the MC) and licenced brokerage firms (CMA, 2022; Saudi Stock Exchange, 2022). Tadawul is affiliated with the World Federation of Exchanges, IOSCO and the Arab Federation of Exchanges (Saudi Stock Exchange, 2022). It is the largest (third-largest) stock market among those of Middle Eastern countries (emerging markets) and the

[11] The new system is known as the Electronic Securities Information System.

ninth largest among those of members of the World Federation of Exchanges with a market capitalisation of SAR12,172,681.14 million as of mid-2022 (Saudi Stock Exchange, 2022).

Tadawul is considered an equity-oriented market with a dispersed ownership structure. This is because the financial needs of listed firms are usually supplied by various equity investors, with Saudi individuals being the dominant investors. For example, for the study sample (see Chapter 5), the average debt-to-assets ratio, which is a measure of a market financing system (see Ali & Hwang, 2000), was 23.52%, 23.01%, 22.22% and 22.79% for 2015, 2016, 2017 and 2018, respectively. This confirms that Tadawul cannot be described as a debt-oriented market since none of these ratios exceeds 50%. The dominance of Saudi individual investors is evident because they, on average, account for 85.86%, 78.82%, 79.96% and 78.01% of the total shares traded during 2015, 2016, 2017 and 2018, respectively (Trading by nationality reports, 2015–2018, Saudi Stock Exchange, 2015, 2016, 207, 2018). The trading activity of foreign investors shows an average of 2.90%, 3.07%, 4.69% and 6.61% of total shares traded during 2015, 2016, 2017 and 2018, respectively. This increase in their trading activity is in line with the Vision 2030 objective (see Section 2.5.1) and the efforts of the CMA to create a desirable investment environment (see Section 2.7.3).

The ownership structure of Tadawul, which is considered highly dispersed, consists of various types of ownership, including individual and family, institutional, managerial, government and foreign ownership. An example, that is, the ownership structure of the selected sample of the study (see Chapter 5), is summarised in Table 2.1.

Table 2.1 shows that the minimum ownership of all types is zero (0%), indicating that many firms are owned by only public investors. The maximum ownership is 75.00% held by institutional owners followed by governmental owners with 74.30%, and then 53.53%, 35.48% and 22.53% held by managerial, family & individual, and foreign owners, respectively. On average, only 18.27% of the total shares of the sample firms is owned by institutional investors, who hold the highest proportion of all shares compared with the other types of ownership. The other types of ownerships, on average, hold 5.60%, 5.43%, 3.30% and 3.14% of all shares of the total sample firms for foreign, governmental, family & individual, and managerial owners, respectively. Out of 110 selected firms, there are 62, 27, 22, 22 and 107 firms with institutional, family & individual,

managerial, government and foreign ownership, respectively. At least 18 firms, which represent 16.36 % of the total sample, are not owned by any ownership type.

From these descriptive statistics (Table 2.1), it can be argued that the ownership structure in Saudi Arabia is comparable with those in developed countries, such as the US. For example, Dennis and Weston (2001) reported that institutions and insiders (family & individual, and managerial owners) hold 31% and 9.79% of the shares of firms listed on the NYSE, AMEX and NASDAQ (i.e. New York Security Exchange, American Stock Exchange and National Association of Securities Dealers Automated Quotations), respectively. This is similar to the situation in Germany, where 85.4% of listed firms have a single owner who holds at least 25% of the shares (Franks & Mayer, 2001). Gugler, Mueller and Yurtoglu (2008) compared the ownership structures of civil law countries and common law ones and found that 11%, 3%, 1%, 5%, 4%, 6%, 10% and 9% of sample firms in the US, Canada, New Zealand, France, Germany, Italy, Spain and Switzerland in 1996-2000 were not owned by any ownership type.

Table 2.1

Descriptive Statistics: Ownership Structure of the Selected Sample[12]

Ownership Type	Institutional Ownership	Family/ Individual Ownership	Managerial Ownership	Government Ownership	Foreign Ownership
Min %	0.00	0.00	0.00	0.00	0.00
Max %	75.00	35.48	53.53	74.30	22.53
Mean %	18.27	3.30	3.14	5.43	5.60
Median %	7.09	0.00	0.00	0.00	4.72
No of firms (%)	62 (56.4)	27 (24.5)	22 (20.0)	22 (20.0)	107 (97.27)
No of firms without this type of ownership (%)	48 (43.6)	83 (75.5)	88 (80.0)	88 (80.0)	3 (2.73)
No of firms without any type of ownership except foreign ownership (%)	18 (16.36)				
Total sample is 110 firms[13]					
Only owners with at least 5% of total shares are promulgated by Tadawul authority (except foreign ownership)					

2.8 Development of Accounting Profession in Saudi Arabia

The discovery of large quantities of oil changed Saudi Arabia's entire economy. As the number of firms operating in Saudi Arabia increased owing to the oil boom, improving the accounting profession became imperative (Basheikh, 2002). In 1974, Saudi Arabia's first accounting law, '*The Chartered Accountants Law*', was enacted by Royal Decree No. M/43 (see Section 2.6.3). Since 1974, Saudi Arabia's accounting profession has been evolving. In 1981, King Saud University held seminars to discuss the accounting profession's weaknesses (SOCPA, 2021a). These discussions led to the founding of the Saudi Accounting Association (SAA) in 1983.

[12] Ownership details are retrieved from Tadawul website (https://www.tadawul.com.sa) on 01/11/2020.
[13] See Chapter 5 for the sample selection criteria.

SAA promoted accounting ideas and studies based on the Saudi context (SAA, 2018). The MC approved SAA's proposal in 1985, which included financial reporting objectives, concepts and standards. The SAA issued 'the Standards of Presentation and General Disclosure' in 1986 based on a comparative review of the accounting practices in the US, Germany and Tunisia (SOCPA, 2022a). These countries were chosen because their professional, legal and development statuses differ (Al-Amari, 1989). The US was chosen for its well-established accounting standards and close ties with Saudi Arabia. Germany was included because of the measurements and rules of its accounting standards (Alkhtani, 2010). Tunisia is a developing country similar to Saudi Arabia (Alkhtani, 2010).

Despite the issuance of 'Presentation and General Disclosure' standards by SAA, the accounting profession in Saudi Arabia remained inadequate (Naser & Nuseibeh, 2003). The establishment of SOCPA in 1992, as a response to the need for a regulatory body, enhanced the accounting profession in Saudi Arabia. In 1993, SOCPA's board of directors issued Resolution No. 3/2/4 requiring Saudi firms to apply US GAAP on unaddressed topics (Albarrak, 2011). From SOCPA's inception up to 1997, the only issued standards were SAA's 1986 Presentation and General Disclosure. US GAAP was both the backup and the main accounting standards in Saudi Arabia from 1993 to 1997. This continued until 2002, when SOCPA's board of directors switched to IFRS in the absence of Saudi GAAP (accounting standards or professional opinions; Nurunnabi, 2017a).

In 1997 and 1998, SOCPA issued three and five accounting standards, respectively. In 2011, SOCPA issued its last accounting standard, the Business Combination standard. Saudi GAAP (composed of 20 accounting standards) was developed based on UK GAAP, US GAAP and IFRS, excluding the Income Tax and Zakat standards (Nurunnabi, 2017a).

Some Saudi standards (Presentation and General Disclosure in 2002; Zakat and Income Tax in 2016) were amended to reflect changes in the business environment (SOCPA, 2022d). All non-financial listed and unlisted firms in Saudi Arabia used Saudi GAAP until January 2017. Financial firms (banks and insurance firms) are regulated by the SAMA, which requires the financial sector to prepare financial statements in accordance with IFRS since 2008 (Almansour, 2019). Appendix 2 lists SOCPA's 21 accounting standards and 29 professional opinions, out of

which one accounting standard and 12 professional opinions are still enforceable post-IFRS adoption.

2.9 Chapter Summary

This chapter described the cultural, legal, political, historical and economic background of Saudi Arabia. The five sources of the regulations as well as the five administrative bodies that are responsible to regulate and oversee listed firms in Saudi Arabia were reviewed. The development of the accounting profession in Saudi Arabia was reviewed until IFRS adoption. Chapter 3 will begin with an overview of IFRS, with a focus on Saudi Arabia's adoption of it. Chapter 3 also provides a comprehensive literature review of the relationship between accounting standards (IFRS) and financial reporting quality (value relevance, in particular) and of other factors influencing the value relevance of accounting information.

Chapter 3: Literature Review

3.1 Introduction

This chapter reviews the literature about the impact of IFRS adoption on accounting quality with a focus on the value relevance of accounting information. It starts by reviewing the IFRS Foundation and factors influencing adoption decisions (Section 3.2), and in particular, that of Saudi Arabia (Section 3.3). 3.4 reviews the relationship between IFRS adoption and financial reporting quality. It then reviews the definition, approaches and types of the value relevance of accounting information and the models used to assess it (Sections 3.53.8). The chapter sheds light on empirical studies that examine the impact of accounting standards on the value relevance of accounting information with particular emphasis on the case of Saudi Arabia (Section 3.9). Last, the review in this chapter covers the country-level institutional factors (Section 3.10) as well as firm-level ones (Section **Error! Reference source not found.**) influencing the value relevance of accounting information. This chapter concludes by identifying the gap in the existing literature as well as the best approach to investigate the impact of IFRS adoption on the value relevance of accounting information in Saudi Arabia (Section 3.12).

3.2 IFRS Overview

The IFRS Foundation is a non-profit organisation that is subject to constitutional review every 5 years (IFRS Foundation, 2021). The foundation's structure includes a Monitoring Board, trustees, an Advisory Council, the IASB and an Interpretations Committee (see Figure 3.1). The Monitoring Board, which was established in 2009, ensures public accountability by linking public authorities and IFRS trustees (IFRS Foundation, 2022a). It consists of six members who appoint, advise and meet with trustees annually. The IFRS Foundation trustees (22 members) appoint and oversee the Advisory Council, IASB and the IFRS Interpretations Committee. The IFRS Advisory Council (at least 30 members) advises the IFRS trustees and IASB. IASB (14 members) is responsible for issuing and approving IFRS, exposure drafts and the International Financial Reporting Interpretations Committee (IFRIC[14]) interpretations for listed and unlisted firms. The Monitoring Board oversees IASB activities and decisions. Before 2001, the International Accounting Standards Committee issued International Accounting Standards (IAS). The IFRS

[14] IFRIC is now called IFRS Interpretation Committee

Interpretations Committee (14 members) interprets IFRS, provides guidance on issues not covered by IFRS and publishes IFRIC interpretation drafts.

Figure 3.1. Structure of the IFRS Foundation.

Since the 1960s, IFRS/IAS have been issued with the purpose of eliminating borders between countries by using a single set of accounting standards in order to enable the global comparability of financial reports (Whittington, 2005). This is because a universal accounting language is needed to promote transparency, accountability and efficiency in global capital markets (IFRS Foundation, 2022c). IASB and the International Accounting Standards Committee have issued a total of 17 IFRS and 41 IAS; the Standard Interpretations Committee (SIC) and IFRIC have issued 33 SIC interpretations and 23 IFRIC interpretations. Following amendments and withdrawals, only 16 IFRS, 25 IAS, 15 IFRIC and 5 SIC remain enforceable (IFRS Foundation, 2021).

The IASB Conceptual Framework (see Section 3.3.2) is important because it defines the purpose of financial statements and is used as a reference for IASB, financial statement preparers and other stakeholders (IASB Conceptual Framework, 2018). This framework consists of eight chapters. Chapter 1 describes the purpose of general purpose financial reporting: to serve financial decision-makers (e.g. investors and creditors). Chapter 2 defines the fundamental (i.e. Relevance and Faithful representation) and enhancing (i.e. Comparability, Verifiability, Timeliness and Understandability) characteristics of useful financial information. Chapter 3 defines the scope, objective and underlying assumptions of the going concern concept, applicable when preparing

financial statements, and explores the concept of reporting entity, which can be a part of an entity or can be a single entity or multiple entities. Chapter 4 defines the five main financial statement components (i.e. asset, liability, equity, income and expense). Chapter 5 identifies the recognition and derecognition criteria for items in financial statements. Chapter 6 identifies two measurement bases (historical cost and current value), which must be selected on the basis of fundamental characteristics. Chapter 7 illustrates the presentation and disclosure objectives and principles and classifies financial statement components. Chapter 8 explains the concepts of financial and physical capital, as well as their maintenance.

Currently, 146 (87.4%) jurisdictions out of 167 countries require or allow public firms to use IFRS (IFRS Foundation, 2022b). Developing and developed countries are both rapidly adopting IFRS (Rodrigues et al., 2012). This is because many national and international organisations support IFRS adoption, including IFAC, IOSCO, SEC, the Basel Committee on Banking Supervision, World Bank, IMF, the G20[15] leaders, the EC and the Financial Stability Board (IFRS Foundation, 2022c). The former IASB chairperson David Tweedie cited four reasons to adopt IFRS: (a) there is 'recognized and growing need for international accounting standards', (b) 'No individual standard setter has a monopoly on the best solutions to accounting problems', (c) 'No national standard setter is in a position to set accounting standards that can gain acceptance around the world' and (d) there are 'many areas of financial reporting in which a national standard setter finds it difficult to act alone' (see IASB Chairman's statement; Tweedie, 2002, pp. 2–3).

IFRS adoption is also influenced by other factors in a country, including its political system, accounting profession, economic system and need for international accounting standards (Ball, 2016). For example, the close economic ties and mutual interests of its member states prompted the European Union (EU) to adopt a unified set of accounting standards and a common accounting language. Thus, the EU announced in 2001 that all publicly traded firms must use IAS by January 2005 (Whittington, 2005). Li (2010) showed that this mandatory IFRS adoption in EU countries reduced the cost of equity capital by increasing comparability and disclosure. In developing countries, the absence or weakness of their national GAAP and the influence of developed countries has motivated those countries to adopt IFRS (Ding et al., 2007). Saudi Arabia

[15] Leaders of the largest 20 economies in the world.

is a good example of a country that adopted IFRS because it lacked local GAAP (see Section 3.3.2).

The literature has suggested that countries adopt IFRS because of economic benefits (Houqe, 2018). These benefits include improved market efficiency (Ball, 2016), reduced analysts' information acquisition costs (Horton, Serafeim & Serafeim, 2013), increased forecast accuracy (Tan, Wang, & Welker, 2011), greater market liquidity (Christensen, Hail, & Leuz, 2013) and easier cross-border investments (DeFond, Hu, Hung, & Li, 2011), which reduce the cost of capital (Daske, Hail, Leuz, & Verdi, 2013) and attract FDI (C. J. Chen, Ding, & Xu, 2014).These benefits are linked to IFRS adoption because a single set of high-quality global accounting standards helps understand and compare financial statements worldwide (Armstrong, Barth, Jagolinzer, & Riedl, 2010).

However, these perceived economic benefits are not without associated obstacles. The common obstacles observed in developing countries include the weakness of IFRS enforcement (Cai, Rahman, & Courtenay, 2014), the lack of qualified accountants (Nurunnabi, 2018), the absence of active markets (Alkhtani, 2012) and the inaccuracy of IFRS translation (Yang, Clark, Wu, & Farley, 2018). To overcome these obstacles, intensive resources and sometimes IFRS modifications are needed. Training the staff of enforcement bodies, local accounting firms and firms applying IFRS is resource intensive. Translating and studying the suitability of IFRS require substantial time and effort. In cases where local GAAP and IFRS differ significantly, IFRS may need to be modified to adapt to the country's unique context (Yang et al., 2018). An example of IFRS modification for its adoption in Saudi Arabia is discussed in Section 3.3. Therefore, IFRS adoption is suitable for a country if the perceived benefits outweigh the associated costs.

3.3 IFRS Adoption in Saudi Arabia

Saudi Arabia was the only GCC and G20 country, apart from the US, that had not adopted IFRS or had a clear plan to do so before 2012. In response, the MC appointed SOCPA to form a steering committee consisting of representatives from SOCPA's Auditing Standards Committee and Accounting Standards Committee, the Ministry of Finance, SAMA, CMA and Tadawul. The steering committee was asked to evaluate the advantages and disadvantages of IFRS adoption in Saudi Arabia and make a recommendation to SOCPA's board. After a series of meetings, the committee submitted its recommendation to SOCPA's board of directors, supporting the transition

to IFRS through a stage-wise approach by which SOCPA had to gradually require the implementation of IFRS after considering the economic, professional and technical factors to allow a smoother transition (SOCPA, 2012).

In February 2012, SOCPA's board of directors approved the 'SOCPA Project for Transition to International Accounting Auditing Standards', which had four phases and was to be completed within 5 years to allow 'all stakeholders to get themselves professionally and technically ready for a smoother transition' (SOCPA' website, 2012). During these phases, SOCPA was required to review IASB's accounting standards and interpretations by categorising each subset. SOCPA categorised all 40 IASB accounting standards (27 IAS and 13 IFRS) and their 22 interpretations into 14 groups and by their review year (see Appendix 3). SOCPA (2012) used the following review procedure:

1. The accounting standards committee of SOCPA was assigned the task of reviewing IFRS and related interpretations to assess whether a modification was required after considering the technical and professional readiness in Saudi Arabia.
2. A series of meetings were held with Saudi academics, financial statement preparers and users, and representatives from the CMA, SAMA, MC and Tadawul to discuss each IFRS thoroughly.
3. The results of the accounting standards committee review and the feedback from the meetings were disclosed publicly for public consultation.
4. The comments from the public were examined to assess whether any amendments were required for certain standards to be applied in Saudi Arabia.

After a 5-year review of IFRS based on the IFRS 2017 Red Book, SOCPA adopted all IFRS as issued by IASB without any major modifications except the addition of certain country contextual disclosure requirements to some standards to reflect Islam and the local law of Saudi Arabia (IFRS Foundation, 2017). The CMA announced on 16 October 2016 that the revaluation model or fair value model option in IAS 16 (Property Plant and Equipment), IAS 38 (Intangible Assets) and IAS 40 (Investment Property) will not be applied for the first 3 years of IFRS implementation (IFRS Foundation, 2017). The same position is also adopted by the Chinese regulator, its Ministry of Finance (see Yang et al., 2018). This may be owing to the lack of an active market and qualified evaluators in Saudi Arabia or to avoid large valuation swings (see

Section 3.3.1). The review resulted in 'endorsed standards' and 'other standards and pronouncements'. The former refers to IFRS as issued by IASB with some additional disclosure requirements added by SOCPA. The latter refers to standards and professional opinions endorsed by SOCPA without corresponding IFRS; these include one accounting standard (i.e. Zakat and income tax) and 12 opinions issued by SOCPA (see Section 2.8). Despite these modifications, firms listed in Saudi Arabia can claim that their financial statements are prepared in accordance with IFRS (IFRS Foundation, 2017). IFRS became mandatory for listed firms in 2017 and for all unlisted firms in 2018 (IFRS Foundation, 2017). Figure 3.2 shows the timeline of the Saudi accounting standards development and the transition to IFRS.

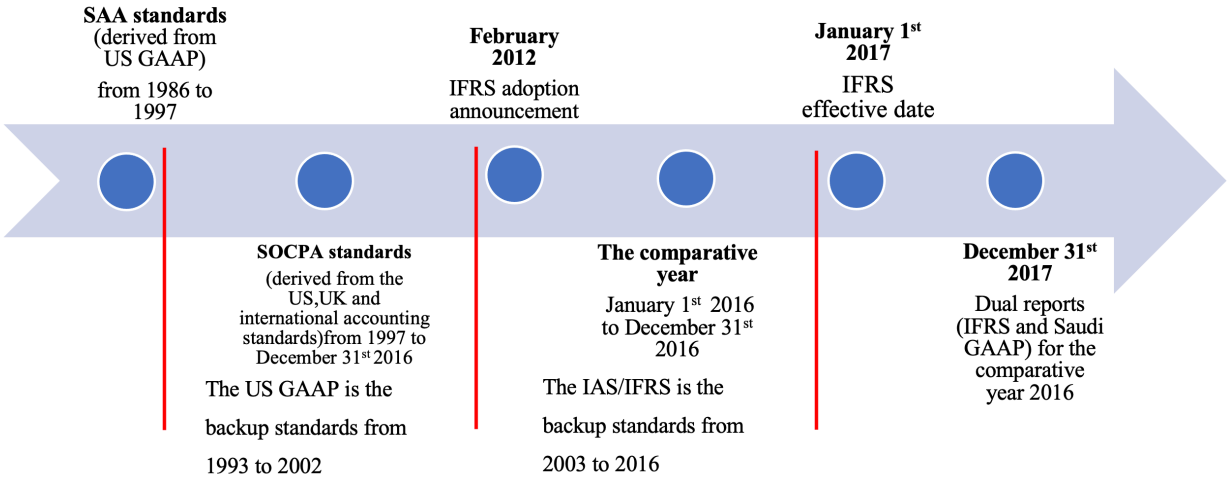

Figure 3.2. Timeline of accounting standards development in Saudi Arabia.

3.3.1 Motivators and Barriers of IFRS Adoption in Saudi Arabia

Much of the existing literature has attributed the IFRS adoption decision to be a result of institutional pressures (i.e. coercive, mimetic and normative) to gain legitimacy (e.g. Hassan, Rankin, & Lu, 2014; Irvine, 2008; Kouki, 2018). This finding also applies to Saudi Arabia, whose decision to adopt IFRS was influenced by external pressures applied by international organisations (e.g. World Bank, IMF and IOSCO; coercive pressure), its membership in the G20 and GCC (normative and mimetic pressures) and the dominance of Big4 accounting firms and the presence of multinational firms in the country (coercive and normative pressures). Apart from these external pressures, internal and self-imposed integrated institutional pressure was exerted by the Saudi

Government, which aims to transform the Saudi economy from an oil-dependent economy to a knowledge-based one (see Section 2.5). In the era of globalisation, Saudi Arabia seeks to gain these international organisations' trust and establish the legitimacy of Saudi firms' financial reporting in the international capital market by adopting IFRS since they facilitate FDI in the country (Alsuhaibani, 2012). This aligns with the Vision 2030, which aims to diversify Saudi Arabia's income sources. Vision 2030 itself could be viewed as coercive pressure on SOCPA and other Saudi agencies to adopt best accounting practices to meet the Vision's objective. The Big4 firms have played a major role in influencing the Saudi accounting system and IFRS adoption by promoting best accounting practices through consultations with SOCPA (Almansour, 2019). Thus, the Big4 firms operating in Saudi Arabia exert normative pressure by providing more than 80% of the accounting and auditing services to firms listed on Tadawul (Nurunnabi, 2018). Saudi Arabia also faced normative pressure from G20 and GCC countries. At their Pittsburgh summit on 24–25 September 2009, G20 leaders urged accounting standards setters to work towards a single set of high-quality standards. The combined coercive and normative pressures of harmonisation with IFRS exerted by those institutional actors stimulated the mimetic process of IFRS adoption in Saudi Arabia. This view is consistent with that of Yamani and Almasarwah (2019), who argued that countries with mutual interests adopt IFRS to gain legitimacy. Despite these pressures, more specific factors influencing Saudi Arabia's adoption of IFRS are discussed in the following paragraphs.

Since Saudi Arabia is a member of the G20 and the World Trade Organization, many researchers (e.g. Alsuhaibani, 2012; Nurunnabi et al., 2020), the Big4 accounting firms (Deloitte, 2016; Ernst & Young, 2017; PricewaterhouseCoopers, 2015) and the IASB chairperson (Hoogervorst, 2017) informed the Saudi authorities about the expected benefits of adopting IFRS. Hoogervorst (2017), the former IASB chairperson, stated that 'Saudi Arabia's adoption of IFRS sends clear signals to the world that the Kingdom welcomes foreign direct investment' (p. 5). Such signalling is crucial for Saudi Arabia's oil-dependent economy because attracting FDI is part of Vision 2030, which aims to reduce oil dependence by diversifying income sources. It aligns with CMA's efforts to attract FDI by promoting financial statement transparency (see Section 2.7.3). From documentary analyses, interviews and surveys, and by observing the outcome of IFRS implementation in other countries whose characteristics are similar to those of Saudi Arabia, these researchers have anticipated that IFRS adoption in Saudi Arabia will improve financial reporting

quality, attract FDI, improve economic efficiency, improve the protection and confidence of investors in the financial market and reduce the time and effort associated with issuing accounting standards (Deloitte, 2016; Nurunnabi, 2018).Notably, Almansour (2019), who interviewed Saudi accounting policymakers, found that IFRS adoption has yielded the expected benefits—it has reduced the cost and time spent on reviewing and developing Saudi GAAP. Instead, SOCPA is only obligated to review any new IFRS to assess its suitability to the Saudi environment.

Saudi Arabia's IFRS adoption is expected to improve financial reporting quality in the country by enhancing the reliability, relevance, transparency, comparability and understandability of financial reports and reducing information asymmetry (Alsamkari, Zerban, & Ataf, 2021). These benefits could be attributed to the facts that IFRS is an investor-oriented system, provides a more comprehensive set of accounting standards than most local GAAP (Ding et al., 2007), has reduced reporting discretion and has increased disclosure requirements (Barth et al., 2008). The benefits may also be attributable to the comparability aspect of IFRS (Herath & Alsulmi, 2017).

In summary, IFRS adoption in Saudi Arabia will benefit several parties. Local and international investors will benefit from the comparability and improved accounting information quality it ensures. Second, the adoption should reduce SOCPA's cost and effort in issuing local standards. Third, Big4 firms with IFRS expertise will acquire a larger share of auditing services in Saudi Arabia. Fourth, multinational firms no longer need to reconcile their financial statements to Saudi GAAP to operate in Saudi Arabia. Last, after IFRS adoption, the Saudi economy and financial market efficiency should have improved through attracting FDI, increasing liquidity, reducing capital costs and globalising financial operations.

However, IFRS implementation in Saudi Arabia faces many challenges, including the cost of transitioning to IFRS (Almansour, 2019), a lack of qualified accountants (Nurunnabi, 2018), a lack of an active market (Alkhtani, 2012), a lack of qualified evaluation skills (Alkhtani, 2012), a lack of IFRS coverage in Saudi university curricula (Nurunnabi, 2018), language barriers (Yamani & Almasarwah, 2019), a lack of readiness (Almansour, 2019), excessive bureaucratic difficulties (Yamani & Almasarwah , 2019) and SOCPA's pride in having its own standards (Almansour, 2019). These challenges, which delayed Saudi Arabia's IFRS adoption, are discussed next.

The cost of transitioning to IFRS has affected all parties in Saudi Arabia who are unprepared for IFRS, which is more complex than Saudi GAAP. SOCPA, as the regulatory body

responsible for reviewing, endorsing and ensuring proper IFRS implementation, will likely incur significant costs in training its members. Other market participants (e.g. investors, managers and financial analysts) will need IFRS training, and workshops and courses are expensive in Saudi, especially those offered by SOCPA (Almansour, 2019). Similarly, adopting firms may incur high costs for 'training, software system changes, new accounting literature, and consulting services' (Tyrrall, Woodward, & Rakhimbekova, 2007 p. 96).

A lack of qualified accountants in Saudi Arabia is evident for there were only 226 CPAs by 2015, who represent only 4.5% of SOCPA's total membership (Nurunnabi, 2018). According to Nurunnabi (2018), there were only 140 accounting firms serving 43,000 clients in 2015, with the Big4 holding 80% of the market share. Deloitte (2016) reported that this remains the same in 2016 since Saudi Arabia has only 300 CPAs who represent only 0.000944% of the total Saudi population,[16] compared with 100,000 CPAs in Canada who represent 0.28 % of its population.[17] As of 2022, the numbers of CPAs (806) and accounting firms (304) operating in Saudi Arabia are still low (see Section 2.7.4). However, these numbers are expected to increase gradually owing to the easing of requirements for becoming a qualified CPA under the new *Accounting and Auditing Profession Law* of 2021 (see Section 2.6.3). The lack of qualified CPAs and the overreliance on Big4 firms raises serious concerns about the likely fallout if one of them were banned from the Saudi market. This situation also has a negative impact on local accounting firms, which are being pushed out of business by the Big4's dominance in Saudi Arabia.

The inadequacy of accounting programs offered by Saudi universities was observed by AlMotairy and Stainbank (2014) who found that 'Saudi Arabia does not follow the International Education Standards (IES)' (p. 5). Nurunnabi (2018) also found that IFRS materials are almost absent in the accounting programs offered by 36 Saudi public and private universities. This could lead to fewer qualified accounting graduates who have the required level of professional skills and training to deal with IFRS, which largely requires exercising professional judgement.

The lack of an active market and of qualified accounting professionals for evaluating fair value is a major issue for IFRS implementation in Saudi Arabia. According to Alkhtani (2012), Saudi Arabia lacks a regulatory body responsible for ensuring fair value calculation accuracy. Fair

[16] The total population of Saudi Arabia was 31,787,580 in 2016 (The Saudi General Authority for Statistics, 2016).
[17] The Canadian total population as of 2016 was 35,151,728 (Statistics Canada, 2016).

values are more informative to investors and more accurate in calculating zakat, which may be undervalued using historical cost, especially during inflationary periods (Nurunnabi et al., 2020). Thus, fair value, a key IFRS feature, would be hampered in Saudi Arabia. This concern led SOCPA to form a committee to address issues impeding fair value implementation (Almansour, 2019). Therefore, the application of the fair value model was delayed for the first 3 years of IFRS adoption in Saudi Arabia (see Section 3.3).

The language barrier and the need to translate IFRS from English to Arabic have been mentioned as cultural issues hindering the proper implementation of IFRS in Saudi Arabia, given that most accountants in non-financial sectors and local accounting firms lack English proficiency (Almansour, 2019). Similarly, the English proficiency of SOCPA's staff, who were required to translate IFRS to Arabic for use as a reference by all stakeholders, is also inadequate.

The lack of readiness to adopt IFRS in Saudi Arabia is attributable to many factors, including the quality of accountants (as aforementioned) and the readiness of SOCPA and of preparers (firms implementing IFRS) and users of IFRS-based financial statements (Almansour, 2019). Such unpreparedness may be due to the complexity of IFRS, the lack of an active market and evaluation skills (as aforementioned), the lack of IFRS coverage in Saudi universities (as aforementioned) and language-related issues (as aforementioned; Yamani & Almasarwah, 2019). IFRS, as a principle-based set of standards, is more complex than Saudi GAAP since it requires advanced professional competencies among all parties (listed firms, stakeholders and the accounting regulatory body, SOCPA), which should be capable of understanding, reviewing, interpreting and applying the IFRS requirements (Alsamkari et al., 2021). The complexity and unpreparedness have been acknowledged by both SOCPA and CMA—the former spent 5 years reviewing IFRS, and the latter postponed the implementation of fair value models for the first 3 years (see Section 3.3).

Excessive bureaucracy in Saudi Arabia is a major factor delaying IFRS implementation because various committees have been involved in IFRS adoption and education (Almansour, 2019). At the policymaker level, IFRS adoption required approvals from various parties (i.e. the Ministry of Finance, SAMA, CMA and Tadawul) to form a steering committee that evaluated the IFRS adoption decision (see Section 3.3). This was also the case at the education sector level because changing the accounting curriculum implemented by Saudi universities took a long time

since it required approvals from various committees (Almansour, 2019). However, according to Almansour (2019), Saudi Vision 2030 has accelerated the adoption process through mitigating the effect of bureaucracy by pressuring Saudi policymakers to meet the Vision's objectives.

Some researchers have argued that SOCPA's pride in its own standards could be a factor that has delayed IFRS adoption (Almotairy & Alsalman, 2012). In contrast, other researchers have argued that it is delayed because SOCPA needs to issue standards in accordance with the Saudi environment and Shari'a law (Herath & Alsulmi, 2017). However, Almansour (2019) asserted that SOCPA's pride had a minimal effect on IFRS adoption because SOCPA itself has admitted that IFRS adoption was inevitable owing to the need for more comprehensive standards that can handle rapid business environment changes.

In conclusion, several studies that assessed the suitability of IFRS for Saudi Arabia concluded that the benefits associated with the adoption outweigh the challenges (Alkhtani, 2012; Alsamkari et al., 2021; Nurunnabi, 2018). These challenges can be tackled as follows.

- IFRS implementation requires collaboration between firms implementing IFRS, SOCPA, CMA, MC and Ministry of Education (Alsamkari et al., 2021).
- All Saudi monitoring bodies should ensure proper IFRS implementation and compliance and raise awareness of IFRS among all stakeholders to achieve the Saudi Vision 2030 objectives of increased transparency and FDI (Nurunnabi et al., 2020).
- SOCPA should collaborate with Saudi universities, run campaigns, offer affordable IFRS workshops and set a roadmap to increase the number of qualified CPAs in Saudi Arabia (Nurunnabi, 2018).
- Saudi universities should revise accounting curricula and add IFRS courses immediately (Almotairy & Alsalman, 2012).
- The Saudi Ministry of Education should promote IFRS research (Nurunnabi, 2018).
- CMA should introduce strict criteria and penalise IFRS violators (Nurunnabi, 2018).
- The activities of Big4 firms should be limited in Saudi Arabia so that local firms can gain market share and client trust (Nurunnabi, 2018).
- There should be clear rules for determining fair value and a reliable information system to make informed decisions (Alkhtani, 2012).

Financial reporting quality in Saudi Arabia is expected to improve if IFRS is properly implemented since it is more comprehensive than Saudi GAAP in dealing with rapid changes in the business environment (Almansour, 2019), requires a higher level of disclosure (Herath & Alsulmi, 2017) and applies fair value measurement (Nurunnabi et al., 2020). However, this view requires empirical evidence (Soderstrom & Sun, 2007), which is the purpose of this study. Therefore, this study responds to Nurunnabi et al.'s (2020) call for empirical research on the impact of IFRS implementation in Saudi Arabia on financial reporting quality.

3.3.2 Comparison Between IFRS and Saudi GAAP

According to IASB's Conceptual Framework (2018), the general purpose of financial reporting is to offer financial information regarding the financial entity that helps investors, lenders and creditors in taking decisions regarding buying, selling or holding debt or equity instruments, and providing loans and other kinds of credit. SOCPA states that the general purpose of financial statements is to provide relevant information to fulfil the requirements of external users (existing and potential investors, customers, lenders and other creditors) in order to enable them to take decisions related to an entity and determine whether a firm is able to generate future cash flows. The Conceptual Frameworks of IASB and SOCPA are both investor oriented because they state that the general objective of financial reporting is to serve investors, who are the primary users of accounting information along with lenders and creditors. Both frameworks cannot be classified as tax oriented because paragraph 53 of SOCPA's Conceptual Framework states that financial reports of listed firms shall not be used to calculate taxes or zakat. Similarly, IASB does not address the tax authority or any other government agency as a primary user of accounting information.

The fundamental qualitative characteristics under the IASB and SOCPA frameworks support the view that accounting information should be relevant and reliable (faithfully presented) to its users where investors are designed to be the main users. While IASB defines relevance as the capability of accounting information to affect user decisions, SOCPA asserts that accounting information is relevant when it helps primary users to examine the results of alternate decisions being considered by decision-makers. Faithful representation, conversely, is defined by IASB as accounting information that is neutral, complete, free from error and an accurate representation of the phenomenon it intends to explain. Similarly, SOCPA defines faithful representation (reliability) as the accounting information that provides a true depiction of reality. These

similarities between the two Conceptual Frameworks are not surprising, considering that Saudi GAAP was derived from US GAAP, UK GAAP and IFRS/IAS. Although value relevance is an empirical issue, it should not differ substantially under the two standards if the financial information fulfils the objective and the fundamental qualitative characteristics (Relevance and faithful representation).

Notably, Saudi GAAP (21 standards) is not as comprehensive as IFRS (42 standards) since several IFRS do not have corresponding standards in Saudi GAAP (Almansour, 2019; Iqbal, 2012). These standards are Employee Benefits (IAS 19), Accounting and Reporting by Retirement Benefit Plans (IAS 26), Share-based Payment (IFRS 2), Agriculture (IAS 41), Fair Value Measurement (IFRS 13), Financial Reporting in Hyperinflationary Economies (IAS 29), Insurance Contracts (IFRS 4 and IFRS 17), Exploration for and Evaluation of Mineral Assets (IFRS 6) and First-time Adoption of IFRS (IFRS 1). These standards are not covered by Saudi GAAP because they are irrelevant to the Saudi environment (i.e. IAS 29 and IFRS 1), prohibited from application (IFRS 13), applied through the Saudi Labour Law (i.e. IAS 19 and IAS 26), the guidance source is IFRS (e.g. IFRS 2, IFRS 6,and IFRS 4) or opinions have been issued prescribing the proper treatment (e.g. IAS 41).

Further, Saudi GAAP has only partial corresponding standards regarding the application of Financial Instruments (IAS 32, IAS 39, IFRS 7 and IFRS 9), Investments in Associates and Joint Ventures (IAS 28), Joint Arrangements (IFRS 11), Disclosure of Interests in Other Entities (IFRS 12) Investment Property (IAS 40), Cash Flow Statements (IAS 7), Accounting Policies, Changes in Accounting Estimates and Errors (IAS 8), Events After the Balance Sheet Date (IAS 10), Borrowing Costs (IAS 23), Provisions, Contingent Liabilities and Contingent Assets (IAS 37) and Non-Current Assets Held for Sale and Discontinued Operations (IFRS 5). In contrast, IFRS does not have the standards designated in Saudi GAAP for Research and Development Costs (SAS 7), Zakat (SAS 11) and Administration and Marketing Expenses (SAS 6). Those IFRS that were not covered or were partially covered by Saudi GAAP could pose a serious problem and may result in difficult implementation because they have been newly introduced in Saudi Arabia. For example, Nurunnabi et al. (2020) found that Financial Instruments (IAS 32, IAS 39, IFRS 7 and

IFRS 9), Revenue (IAS 18),[18] Leases (IAS 17)[19] and Employee Benefits (IAS 19) were the most difficult standards to implement in Saudi Arabia. They attribute this difficulty to the fact that IFRS requires professional judgement and interpretation—which could be difficult for accountants in Saudi Arabia who are used to applying a rules-based set of accounting standards (i.e. Saudi GAAP)—as well as to the absence of a reliable active market for fair value measurement (see Section 3.3.1).

The key differences between IASB's and SOCPA's Standards lie in the scope of the standards, accounting measurement flexibility, assets valuation, disclosure requirement and presentation requirement (Alkhtani, 2010). First, IFRS and Saudi GAAP have different scopes, with each covering more aspects, or fewer ones, than the other. For example, while the Saudi standard for Fixed assets (SAS 13) covers three IFRS (i.e. IAS 16, IAS 40 and IAS 23), Intangible Assets (IAS 38) under IFRS covers two Saudi standards (SAS7 and SAS17). Second, IFRS provides more accounting measurement flexibility than Saudi GAAP by offering alternatives and allowing professional judgement (Almansour, 2019). For example, IAS 7 allows either direct or indirect method for cash flow statement, whereas SAS 1 requires a specific format. This could be attributed to the fact that Saudi GAAP is highly influenced by US GAAP (see Section 2.8), which is a rules-based set of accounting standards that minimises the room for discrepancy resulting from professional judgement. Third, while IFRS allows fair value or historical cost models, Saudi GAAP allows only historical cost except for share-based payments. Fourth, IFRS requires more disclosure of information and explanatory notes than Saudi GAAP does. For example, IFRS 12 requires the disclosure of judgements and assumptions used to classify interests in other entities, but SAS 16 does not. Last, IFRS is easier to understand than Saudi GAAP, which refers readers to the notes to the financial statements for interpretation (Alkhtani, 2010).

These differences between IFRS and Saudi GAAP may be attributable to the differences in culture and accounting needs between IASB and SOCPA. The former targets a broader audience (all countries), whereas the latter focuses on standards implementation in Saudi Arabia. To illustrate, Shari'a law, which influences accounting practices in Saudi Arabia (see Section 2.3), prohibits gambling, usury, and pornography, alcohol, and pork businesses (Herath & Alsulmi,

[18] Revenue from Contracts with Customers (IFRS 15) replaced Revenue (IAS 18) as of 1 January 2018.
[19] Leases (IFRS 16) replaced Leases (IAS 17) as of 1 January 2019.

2017). IFRS is not designed just for Islamic countries. Shari'a law imposes zakat, for which IFRS has no standard. Saudi GAAP is issued for a country characterised by high masculinity, strong uncertainty avoidance, a high power distance and high collectivism (see Section 2.3), while IFRS was developed mainly by Anglo-Saxon countries whose cultures differ substantially from that of Arab countries (Hofstede, 1980). Gray (1988) found that Arab countries have more conservative, secretive and statutory-controlled, and less flexible, accounting systems than Anglo-Saxon countries do (see Section 2.3). The detailed results of a comparison between IFRS and Saudi GAAP are presented in Appendix 4.

3.4 IFRS and Financial Reporting Quality

The global harmonisation of IFRS adoption since 2005 is widely regarded as one of the most significant developments in accounting history (Hung & Subramanyam, 2007). Significantly, accounting standards are primarily responsible for resolving a serious agency problem by establishing a framework for capital allocation and for performance monitoring and rewards (Brown, 2011). According to the IFRS Foundation (2022c), the objective of IFRS is to 'bring transparency by enhancing the international comparability and quality of financial information, enabling investors and other market participants to make informed economic decisions'. Since IFRS is more comprehensive than most of the domestic GAAP (Ding et al., 2007), proponents of IFRS have argued that its adoption should enhance the quality of accounting information.

In this regard, Ball (2016) identified four IFRS characteristics. First, IFRS were not developed with political or tax accounting requirements in mind. Second, IFRS reflect economic substance in financial statements. Third, the use of fair value measurement is dominant under IFRS, which may improve the relevance of the balance sheet and income statement and the timeliness of reporting economic gains and losses. Fourth, IFRS limits managers' ability to use special provisions to manipulate accounting information. Thus, Ball (2016) argued that IFRS improves the transparency of firms' financial position by providing more complete and accurate information. Barth et al. (2008) reached a similar conclusion.

Opponents of IFRS have asserted that a single set of accounting standards for all countries is unrealistic because countries have different institutional factors and accounting practices (Soderstrom & Sun, 2007). This view is in line with that of Ball et al. (2003), who assumed accounting standards play a minor role in improving reporting quality, while firm incentives and

institutional setting are the main determinants. Moreover, IFRS can improve accounting quality only if it is better than GAAP and properly enforced (A. S. Ahmed et al., 2013). Therefore, determining the impact of IFRS on accounting quality is an empirical issue (Soderstrom & Sun, 2007).

Accounting quality is an elusive concept (Ball et al., 2003) that is a topic of debate among researchers, regulators and business professionals (Oshodin & Bakare, 2019) since a consensus is yet to be reached about its definition (Chua, Cheong, & Gould, 2012). Dechow and Schrand (2004) assumed that accounting information is of high quality when 'the earnings number accurately annuitizes the intrinsic value of the firm' (p. 5). H. Chen, Tang, Jiang and Lin (2010) defined accounting quality as 'the extent to which the financial statement information reflects the underlying economic situation' (p. 222). Further, Martínez-Ferrero (2014) asserted that financial reporting quality is 'the faithfulness of the information conveyed by the financial reporting process' (p. 52). In the context of IFRS, the IASB Conceptual Framework (IASB, 2018) states that 'the objective of financial reporting is to provide financial information that is useful to users in making decisions relating to providing resources to the entity' (p. A15, para. 1.2). For accounting information to be useful, it must be relevant and faithfully represented (fundamental qualitative characteristics). Its usefulness can be enhanced by ensuring it is comparable, verifiable, understandable and presented in a timely manner (Enhancing qualitative characteristics; IASB Conceptual Framework, 2018). To summarise, according to these definitions of financial reporting quality, accounting information is of high quality if it faithfully represents the underlying economic situation in a timely manner and is comparable, verifiable, understandable, and relevant to users of financial statements.

Financial reporting quality can be measured using various metrics, which can be accounting-based or market-based ones (Chua et al., 2012). J. Francis, LaFond, Olsson and Schipper (2004) listed seven earnings attributes: accrual quality, persistence, predictability, smoothness (accounting-based metrics), value relevance, timeliness and conservatism (market-based metrics). Accrual quality measures how closely working capital accruals match operating cash flow realisations. A higher match indicates higher accrual quality (Dechow & Dichev, 2002). Persistence refers to the degree to which current earnings persist or recur in the future and can be measured by regressing current earnings on lagged earnings (J. Francis et al., 2004). The larger the slope coefficient, the higher the earnings persistence. Predictability, which refers to 'the ability

of past earnings to predict future earnings' (Lipe, 1990, p. 50), is measured by the standard deviation of the model's error on regressing current earnings on lagged earnings. The larger the standard deviation of error, the less likely are earnings to be predictable (J. Francis et al., 2004). Koch (1981) defined income smoothness as 'a means used by management to diminish the variability of a stream of reported income numbers relative to some perceived target stream by the manipulation of artificial (accounting) or real (transactional) variable' (p. 574). The ratio of a firm's standard deviation of operating earnings to the standard deviation of its cash flow measures earnings smoothness (J. Francis et al., 2004). The lower the ratio, the more likely that earnings are being smoothed by insiders (management). Thus, both earnings smoothness and accrual quality are earnings management proxies.

The value relevance of accounting information refers to the ability of this information to explain variations in market value (Barth et al., 2001). It can be measured by regressing a firm's market value on its accounting information (see Section 3.8). Together, timeliness and conservatism can measure financial statement transparency (Ball et al., 2000). Earnings timeliness refers to 'the extent to which current-period accounting income incorporates current-period economic income' (Ball et al., 2000, p. 2). Conservatism refers to asymmetric timeliness, where accounting earnings are expected to reflect bad news (negative returns) more quickly than good news (positive returns; Basu, 1997). For this reason, earnings conservatism is called 'timely loss recognition'. Both timeliness and conservatism can be measured using a model that regresses accounting earnings on returns. The explanatory power is a metric for timeliness, while the estimated slope coefficient sign is the main metric for conservatism (Ball et al., 2000).

Păşcan (2015) reviewed and summarised accounting quality measurement approaches applied in studies on European IFRS adoption. The first and most widely used approach is the value relevance of accounting information (see Section 3.9). The second approach is credit relevance, which assesses the usefulness of accounting information to other stakeholders, such as lenders and creditors. The third approach is earnings management practices under IFRS, and the fourth and last approach is timely loss recognition. These approaches are selected because under IFRS, investors are considered the main users of accounting information (value relevance), and other stakeholders are regarded as users with specific needs (credit relevance); and because IFRS has the potential to reduce managerial opportunistic behaviour (earnings management), and timeliness is an enhancing characteristic under the IASB Conceptual Framework (timely loss

recognition). A combination of these approaches has been used earlier to assess the impact of IFRS on accounting quality (e.g. A. S. Ahmed et al., 2013; Barth et al., 2008; Krishnan & Zhang, 2019). Since Section 3.9 specifically reviews the impact of IFRS on the value relevance of accounting information, the following Subsection 3.4.1 reviews the impact of IFRS adoption on accounting quality using several metrics.

3.4.1 Empirical Evidence on Effects of IFRS on Financial Reporting Quality Using Multiple Accounting Quality Metrics

Empirical studies concerning the impact of IFRS on accounting quality have provided mixed results. Most have focused on the experience of EU countries, which adopted IFRS in 2005, and have provided an empirical setting for cross-country studies. The requirements under IFRS had a comprehensive impact on accounting practices in Europe, causing changes in several areas of accounting[20] (Cordazzo, 2013). In a cross-country study setting of 21 countries—mostly EU countries—Barth et al. (2008) assessed three earnings attributes of firms adopting IFRS voluntarily versus a matched sample of firms applying a domestic GAAP other than US GAAP. They found that IFRS firms have higher accounting quality than their counterparts do because the former exhibit lower earnings management, higher value relevance and more timely loss recognition. Using a mandatory setting in which firms have no option but to apply IFRS, H. Chen et al. (2010) examined four metrics of earnings management[21] and timely loss recognition among firms from 15 EU member states. They reported that, on average, accounting quality improved after IFRS became mandatory in Europe.

At a larger scale of 46 countries around the world, Houqe, van Zijl, Dunstan and Karim (2012) found that earnings quality, proxied by earnings management and earnings persistence, increased after IFRS adoption but only for countries with strong enforcement (see Section 3.10.9). This finding contradicts that of Dayanandan, Donker, Ivanof and Karahan (2016) regarding 35 countries with different legal origins, who found that only countries with looser enforcement witnessed an improvement after IFRS adoption. A possible justification for these findings is that IFRS adoption imposed greater restrictions on management's actions, resulting in higher quality in countries with poor enforcement quality, whereas it affected countries with strict enforcement

[20] These areas are fair value, revenue recognition, impairment tests, deferred taxes and leases.
[21] The metrics used are earnings smoothing, earnings management towards targets, cross-sectional absolute discretionary accruals and accruals quality.

and strong investor protection to a lesser extent because the accounting quality in these countries was high prior to IFRS adoption (Ball et al., 2000).

Several studies conducted in a single-country setting have provided empirical evidence of the superiority of mandatory IFRS adoption in providing higher accounting quality than the local GAAP of developing and developed countries. In the case of Australia, Chua et al. (2012) found that the mandatory adoption of IFRS has improved the value relevance of accounting information and the timeliness of loss recognition and has reduced the level of earnings management of firms listed on the Australian Stock Exchange. Similar results were obtained for UK listed firms by Iatridis (2010) and for German firms by Cussatt et al. (2018), which had switched from voluntary IFRS and US GAAP, respectively, to mandatory IFRS. Several other studies have reported that the impact of IFRS adoption has been positive for the emerging markets of China (C. Liu, Yao, Hu, & Liu, 2011), Malaysia (Ismail, Kamarudin, van Zijl, & Dunstan, 2013), Greece (Dimitropoulos, Asteriou, Kousenidis, & Leventis, 2013), Korea (Key & Kim, 2020) and Turkey (Uyar, 2013). Therefore, despite the contextual differences (see Section 3.10) between developed and developing countries, empirical evidence, on average, has shown that accounting quality improved after IFRS adoption.

However, other studies have argued that IFRS adoption, per se, does not necessarily lead to higher accounting quality because its impact depends on the quality of accounting standards before the adoption, managers' and auditors' incentives, the legal enforcement effectiveness and the adoption status. Confirming this argument, K. Ahmed, Chalmers and Khlif (2013) provided empirical evidence using data on 20 countries that have mandatorily adopted IFRS since 2005. They compared IFRS adopters and a benchmark group of non-IFRS firms matched on size, industry, performance and legal enforcement efficiency and suggested that accounting quality declined after IFRS adoption. They attributed their findings to the switch from a stricter local GAAP to a more flexible set of standards, which offers accounting choices that give managers incentives to manipulate reported earnings. Similar findings were reported regarding the mandatory IFRS adoption in New Zealand (Kabir, Laswad, & Islam, 2010) and Canada (Krishnan & Zhang, 2019).

The unique research setting of Germany, where firms were permitted to use US GAAP or IFRS from 1998 until 2005 when IFRS became mandatory, has motivated several studies to

compare accounting quality under different regimes (German GAAP, US GAAP and IFRS 'mandatory and voluntary'). Van der Meulen et al. (2007), who are among the first to exploit this research opportunity, found that US GAAP-based information and IFRS-based accounting information have similar quality in most earnings attributes. In contrast, Paananen and Lin (2009), who only analysed IFRS firms that adopted IAS in 2000–2002, voluntarily applied IFRS in 2003–2004 and mandated IFRS in 2005–2006, reported declining earnings quality over the study period. Christensen, Lee, Walker and Zeng (2015) found that only voluntary IFRS adopters in Germany exhibited higher quality, suggesting that accounting quality is determined more by management's incentives than by adopting new accounting standards. Therefore, the impact of IFRS on accounting quality cannot be generalised because it varies owing to different factors (see Sections 3.10 and **Error! Reference source not found.**).

3.5 Definition, Origin and Significance of Value Relevance

Ball and Brown (1968) and Beaver (1968) are among the first to have used the reaction of share prices to the financial statements released for measuring the importance of accounting information (i.e. earnings announcements). Prior to these seminal articles, accounting information was perceived as meaningless because investors regarded accounting information to be subjective in nature and hence did not assign any value to it. The extant literature has termed the relationship between accounting information and firm value as the value relevance of accounting information (Barth et al., 2001). According to Holthausen and Watts (2001), Amir, Harris and Venuti (1993) are the first to have used the term 'value relevance', in examining the extent to which the reconciliation of accounting information from local GAAP to US GAAP is value relevant. The term 'value relevance' refers to the ability of financial statements to reflect a firm's intrinsic economic value (Barth et al., 2001).

According to J. Francis and Schipper (1999) and Lang, Raedy and Wilson (2006), the information in financial statements is deemed value relevant when its relationship with market value is statistically significant. According to the IASB Framework (2018), accounting information 'is relevant if it is capable of making a difference to the decisions made by users' (para. 2.6, p. 23). This is in line with Scott's assertion (2015) that financial information is useful and relevant when it changes investors' belief and action and ultimately leads to price alteration because of the accounting information release. Therefore, the importance of value relevance

studies lies in measuring the usefulness of accounting summaries to equity investors for enabling them to make informed investment decisions.

In addition, value relevance studies measure reliability (currently known as faithful presentation) and relevance, which are the two fundamental qualitative characteristics of accounting information that are specified in IASB Framework (Barth et al., 2001; IASB Framework, 2018). Due to its importance, value relevance is the main topic that has been examined empirically since the 1990s (Beaver, 2002), and it is the most used metric to measure the impact of IFRS on EU countries (Păşcan, 2015). This popularity of value relevance studies is attributable to the importance of value relevance in measuring accounting quality (J. Francis et al., 2004).

3.6 Value Relevance Approaches

J. Francis and Schipper (1999) identified four approaches to studying value relevance: fundamental analysis, predictive ability, information content and measurement association. These are discussed next.

3.6.1 Fundamental Analysis Approach

The fundamental analysis approach indicates that accounting information is relevant only if it causes stock prices to change, while market participants ignore all other information available to them, allowing the market to be insufficient.. To measure value relevance under this approach, J. Francis and Schipper (1999) referred to the profit gained as result of implementing accounting-based trading rules as its measure. This means that accounting information, not the stock price, reflects the underlying firm value. However, they did not use this approach in their analysis owing to the difficulty to adjust for the risk associated with implementing trading rules. This approach does not take market participants into account as a major factor in measuring value relevance. Further, it does not make any assumptions about accounting information being value relevant for making investment decisions. Therefore, this approach is not utilised in this study.

3.6.2 Predictive Ability Approach

According to the predictive ability approach, accounting information (e.g. future cashflow, earnings and dividends) is value relevant when it helps to predict the attributes of intrinsic firm value (J. Francis & Schipper, 1999). However, J. Francis and Schipper (1999) did not use this approach in their analysis because this approach only serves the need of those who have concerns

about the existing financial reporting model. Therefore, since the present study is market-based accounting research, and the predictive ability approach is used to measure the accounting-based quality of earnings, this approach was not considered in this study.

3.6.3 Information Content Approach

According to the information content approach, accounting information is value relevant only if it is used by equity investors when setting stock price. This approach assumes a causal relationship between accounting information (earnings) disclosure and share price changes by addressing whether new accounting information leads to revisions or changes in investors' expectations about future earnings/cashflow, resulting in stock price changes (Biddle & Seow, 1991). It assumes financial statements are the first source of information on firm performance. According to the value relevance literature, this approach is usually used in an event study over a short period (usually a few days around an earnings announcement). Empirically, the regression coefficient of unexpected earnings (earnings response coefficient [ERC]) indicates the relevance of the newly released information. The ERC measures 'the extent of a security's abnormal market return in response to the unexpected component of reported earnings of the firm issuing that security' (Scott, 2015, p.163). The commonly used model under this approach is the dividend-discounting model (Horton & Serafeim, 2010). Ball and Brown (1968) and Beaver (1968) used this approach in their seminal studies to measure market reactions to financial statement releases. Although this approach was popular in the value relevance literature, J. Francis and Schipper (1999) did not consider it in their study, arguing that it is difficult to infer whether a lack of accounting information content or greater predictability is the actual cause of the lower usefulness of accounting information to investors. This argument is consistent with Ball and Brown's (1968) finding that almost all information is reflected in the share price before an earnings announcement. Beaver (2002) added that the information content approach provides limited evidence about the value relevance of accounting information because information about a firm's performance can be disclosed through many sources before its earnings announcements. This results in lower price reactions. However, it is difficult to observe price reactions as a result of earnings announcements because of the prevailing institutional and governmental ownership in Saudi firms (See Chapter 2), which may lead to a pre-disclosure of private information before the date of accounting information release. Thus, this approach is not utilised in this study.

3.6.4 Measurement Association Approach

The measurement association approach considers accounting information value relevant if it captures the information that, regardless of the source, changes the firm's value (J. Francis & Schipper, 1999). This approach examines how well accounting information captures investor-used information that affects market value. The term 'value relevance' in the literature usually refers to this approach. It is also called a long-association study because the analysis is usually conducted 3–6 months after the financial statements are released. Empirically, the coefficient of determination (R^2) is the main metric that indicates the value relevance of accounting information since it shows the extent of variation in market value (dependent variable) that can be explained by accounting information (independent variables; see Section 4.2) According to Easton (1999), the measurement approach was preferred to the information content approach in the early 1990s, when the term 'value relevance' was used to describe the relevance of accounting information for valuation phenomena. The two popular models under this approach are the Ohlson (1995) price model and the Easton and Harris (1991) return model (see Section 3.8). Under this approach, two types of measurement association studies are conducted: relative and incremental (see Section 0). This approach is commonly used to measure the impact of IFRS adoption (e.g. Chalmers, Clinch, & Godfrey, 2011; Cussatt et al., 2018; Hung & Subramanyam, 2007). Therefore, this approach is adopted in this study.

3.6.5 Key Differences Between Information Content and Measurement Association Approaches

According to J. Francis and Schipper (1999), the information content and measurement association approaches are concerned with the statistical association between accounting information and firm value (stock price/return). Both approaches assume a semi-strong market efficiency where the market value (stock price/return) should reflect all publicly available information to market participants. Table 3.2 summarises the key differences between the two approaches. According to Lo and Lys (2000), both approaches are usually utilised to answer two different but related questions. Holthausen and Watts (2001), who surveyed 63 value relevance papers, found that these are the dominant approaches. Only seven out of these 63 papers used the information content approach, while the rest used the measurement association approach. Following the prior literature on the impact of IFRS adoption on the value relevance of accounting

information, this study uses the measurement association approach because the information content approach does not serve the study purpose.

Table 3.1

Key Differences Between Information Content and Value Relevance Studies

Key Difference / Approach	Information Content	Measurement Association
Research question	'How well do accounting amounts measure value?' (Barth, 2000, p. 10)	'What accounting amounts provide information about value?' (Barth, 2000, p. 10)
Definition	Accounting information is value relevant if it changes investors' expectation about future earnings and causes the share price to change.	Accounting information is value relevant if it is able to capture the information that, regardless of the source, causes the market value of a firm (share price) to change.
Period around the disclosure of accounting information	Short period (a few days)	Long period (3–6 months)
The importance of timeliness	Very important	Not important
The relationship between accounting information and market value	Causality	No causality relationship is assumed
Source of information	Accounting information is the earliest source of information that causes the price to change.	Accounting information is not the earliest source of information.
Widely used models	• Regressing unexpected returns on unexpected earnings • Dividend-discounting model	• Price model of Ohlson (1995) • Return model of Easton and Harris (1991)
Value relevance metric	Earnings response coefficient (ERC)	Coefficient of determination (R^2)

Note. Sources: Amir et al. (1993); Barth (2000), Kothari (2001), Beaver (2002), J. Francis and Schipper (1999) and Holthausen and Watts (2001).

3.7 Types of Value Relevance Studies

According to Biddle, Seow and Siegel (1995) and Holthausen and Watts (2001), value relevance studies can be one of the following two types: a relative association study and an incremental association study. Due to the focus of this study, both types are applied (see Chapter 5).

3.7.1 Relative Association Studies

Relative association value relevance studies are those that compare the superiority of two sets of accounting standards or two accounting measures by comparing their ability to accurately reflect the firm stock price or return. The comparison can be either between independent samples within the same study period (e.g. Cussatt et al., 2018; Sami & Zhou, 2004) or within the same sample over different periods (e.g. Kouki, 2018). Examples of relative association value relevance (IFRS v. national GAAP) studies have been reported by Krishnan and Zhang (2019) and Alali and Foote (2012), who used a single-country sample from Canada, and the United Arab Emirates (UAE), respectively. Multi-country examples have also been reported—for instance, Barth et al. (2008) used a sample from 21 countries, and Kouki (2018), from three European countries. Moreover, other studies have compared the role of the main financial statements (i.e. balance sheet and income statement) represented by the book values and earnings in providing more value relevant information to equity investors (e.g. Arce & Mora, 2002; Black & White, 2003; King & Langli, 1998). The explanatory power (R^2) is the common metric used in the relative association studies to determine the superiority of one set of accounting standards over another where the higher R^2 value indicates more relevant accounting information. Changes in the R^2 value can be compared using the Cramer (1987) test for independent samples or the Vuong (1989) test for non-independent samples (see Section 5.7).

3.7.2 Incremental Association Studies

The incremental association type of study is not concerned about the superiority of one set of accounting standards over another. Instead, it is interested in the relevance of any additional accounting information that one set of accounting standards can provide beyond what is already provided by the other accounting standards in the comparison. This type of study is common in a setting where a firm is required to prepare its annual statements under different accounting standards for the same period (e.g. IFRS/US GAAP). Specifically, this type is common in the US

market since the SEC requires all foreign firms listed on the US stock market to use the 20-F reconciliation form, which shows the adjustment to earnings and book values of equity due to the application of US GAAP. Barth and Clinch's (1996) study is an example of these US-based studies. This type of study is also popular in cases of mandatory IFRS adoption since IFRS 1 requires all first-time adopters to restate their financial statements under IFRS for the year prior to the IFRS effective year. This type of study has been conducted in the case of IFRS adoption in Germany (Hung & Subramanyam, 2007), Australia (Goodwin, Ahmed, & Heaney, 2008) and Greece (Tsalavoutas et al., 2012).

In incremental studies, the primary metric is the regression coefficient of variables that represents the difference between accounting amounts produced under two sets of accounting standards. The additional information is considered value relevant when its coefficient is significantly different from 0 (Holthausen & Watts, 2001). Alternatively, incremental value relevance can be measured by comparing the R^2 of a local GAAP model with the R^2 of a model that contains both local GAAP and the difference between local GAAP and the newly introduced standards data (e.g. IFRS and local GAAP). The comparison is usually conducted using the Vuong (1989) test. Tsalavoutas et al. (2012) and Barth, Landsman, Young and Zhuang (2014). have applied this method.

3.8 Value Relevance Models

To examine the relationship between accounting amounts and firm value empirically, a valuation model is required (Ota, 2003). Accounting amounts are linked to the firm economic value because it reflects investors' collective beliefs (Barth et al., 2001). Although there are various empirical specifications,[22] the frequently employed models are the price regression model of Ohlson (1995) and the return regression model of Easton and Harris (1991; see Chapter 4). Both models are originally derived from the dividend-discounting model through the remarkable work of Ohlson (1995) and Feltham and Ohlson (1995), who revived the idea of residual income valuation (RIV).[23] The price regression model (known as level specification) expresses the value

[22] Examples include the balance sheet valuation model and the earnings capitalisation model.
[23] A comprehensive review of the development of different empirical specifications and their theoretical foundations is presented in Chapter 4.

of a firm as a combined function of book values of equity and earnings (Ohlson, 1995), and its conventional 'per share' form is specified as follows:

$$P_{it} = a_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it} \quad (3.1)$$

where:

P_{it} = the share price of firm i 4 months after the end of the fiscal year t.

$BVPS_{it}$ = the reported book value per equity share for firm i on 31 December of year t.

EPS_{it} = the reported earnings per share for firm i for year t.

e_{it} = the error term.

Model (3.1) has been applied in developed markets (e.g. Brimble & Hodgson, 2007; Chalmers et al., 2011) and in emerging markets (e.g. Alali & Foote, 2012; Almujamed & Alfraih, 2019; Sami & Zhou, 2004). Only the book value of equity and earnings are included in the model to be consistent with the theoretical framework of the model and because these accounting measures represent the summary of the two main financial statements (Clarkson et al., 2011).

The return regression model (known as the first-difference specification) regresses the stock returns on the per share earnings level and change (Easton & Harris, 1991), and its conventional form is specified as follows:

$$Ret_{it} = b_0 + b_1 \frac{EPS_{it}}{P_{it-1}} + b_2 \frac{\Delta EPS_{it}}{P_{it-1}} + e_{it} \quad (3.2)$$

where:

Ret_{it} = the stock returns per share over a period of 12 months starting (ending) 8 (4) months before (after) year end. It is measured by the ratio $[(P_{it} + DPS_{it}) - P_{it-1}]/(P_{it-1})$. P_{it} is the stock price at time t (4 months after year end), P_{it-1} is the stock price at time $t-1$ (8 months before year end) and DPS_{it} is the dividend per share for firm i during year t.

EPS_{it} = the earnings (net income) per share of firm i at time t, which is the year-end date.

ΔEPS_{it} = the annual change in earnings (net income) per share of firm i at time t, which is the year-end date. It is calculated as $\Delta EPS_{it} = EPS_{it} - EPS_{it-1}$.

All variables (Ret_{it}, EPS_{it}, ΔEPS_{it}) are deflated by P_{it-1}. Model (3.2) has been applied in developed markets (e.g. Bartov et al., 2005; Krishnan & Zhang, 2019) as well as in emerging markets (e.g. Filip & Raffournier, 2010; Key & Kim, 2017).

Chapter 4 describes the mathematical development of price and return models, while Chapter 5 discusses the econometrics of these models, their corrective approach and their application to research. The study employs both models to generate reliable results.

3.9 Value Relevance and Financial Reporting

Value relevance research designs have been used in comparisons between different sets of accounting standards in various ways within the same country (e.g. Bartov, Goldberg, & Kim, 2001), or across countries (e.g. Barth et al., 2008; Kouki, 2018). The comparison can be between two different local GAAP (e.g. Hellström, 2006), local GAAP v. US GAAP (e.g. Barth & Clinch, 1996), local GAAP v. IFRS (e.g. Badu & Appiah, 2018; Filip, 2010; Tsalavoutas et al., 2012) and IFRS v. US GAAP (e.g. Cussatt et al., 2018; Krishnan & Zhang, 2019). Given that most of the literature has compared various national GAAP with IFRS or US GAAP, and because Saudi Arabia is transitioning from Saudi GAAP (derived from US GAAP; see Chapter 2) to IFRS, the following subsections review empirical studies that have undertaken these types of comparison.

3.9.1 IFRS and National GAAP Comparisons

3.9.1.1 Value Relevance Where IFRS Is Voluntary

Voluntary IFRS adoption means that firms can choose whether or not to prepare financial statements in accordance with IFRS/IAS. Among the first studies to examine IFRS adoption is that of Auer (1996) on the **Swiss** market, which examined the relative value relevance of financial statements of a sample of non-financial firms that switched from Swiss GAAP to either IAS or EU directives (EC directives) in 1985–1993. This event study of the price reaction showed that the reaction to the announcement of net income under both IAS and EC directives was significantly higher than those under Swiss GAAP. However, IAS and EC directives do not differ significantly.

Niskanen, Kinnunen and Kasanen (2000) employed the return model to investigate the incremental value relevance of the earnings reconciliations of 18 firms (total of 97 matched observations) that voluntarily switched from the **Finnish** GAAP to IAS in1984–1992. They suggested that the reconciliations provide incremental value relevant information to equity investors.

Exploiting the unique setting of **Germany** (see Section 3.4), Bartov et al. (2005) compared the relative value relevance of earnings reported under German GAAP, US GAAP and IFRS during the period 1998–2000. Using on a sample of 417 firms listed on all German stock exchanges, the findings of the return model showed that earnings under US GAAP and IFRS are more value relevant than that under German GAAP. Similar results were found by Jermakowicz, Prather-Kinsey and Wulf (2007) for the major 30 German firms (DAX-30: the Deutscher Aktien Index for the 30 largest German firms). Appling a more refined research design, that controls for both time-series and cross-sectional differences, Hung and Subramanyam (2007) found while the relative value relevance of German GAAP and IAS is largely the same, IAS provides incremental value relevance to book values only. The authors attributed their findings to the use of fair value measurement under IAS/IFRS, which enhance the usefulness of book values of equity.

The unique institutional environment in **China** allows researchers to study the value relevance of financial information of listed firms that can issue A-, B- and H-shares, where A-share, B-share and H-share firms must comply Chinese GAAP, IAS/IFRS and Hong Kong GAAP, respectively (Bao & Chow, 1999; Sami & Zhou, 2004). Employing the price model on 213 B-share observations that applied Chinese GAAP and IAS during 1992–1996, Bao and Chow (1999) found that the combined value relevance of earnings and equity book values is higher when prepared under IAS. Similar findings were revealed by Sami and Zhou (2004), who included the A-share segment, and J. Liu and Liu (2007), who included all share segments. There is a consensus among these three Chinese-based studies about the use of the Ohlson (1995) price model and the Cramer (1987) test.

At the multi-country level, Barth et al. (2008) examined the relative value relevance of the accounting information of 327 firms from **21 countries (mostly EU** countries**)** that allowed IAS during 1994–2003. By using the price model, they were able to find that firms that voluntarily adopt IAS have more relevant accounting amounts. However, they could not distinguish whether

the change in value relevance can be attributed to the change in the accounting system or other factors, such as the economic environment and firms' incentives to apply IAS.

3.9.1.2 Value Relevance Where IFRS Is Mandatory

Mandatory IFRS adoption means a firm must prepare its annual reports using IFRS/IAS. Examining the value relevance of mandatory IFRS adoption is a preferred type of study since it removes the sample selection bias likely to occur when a firm may have incentives to adopt IFRS/IAS voluntarily (Barth et al., 2008).

As regards single-country studies that have revealed improvement in the value relevance of accounting information because of IFRS adoption, one such study is that of Gjerde, Knivsflå and Saettem (2008). They focused on 145 **Norwegian** firms that switched to IFRS in 2005, found that IFRS adjustments (e.g. capitalising goodwill) to book value and earnings provide incremental value relevance information. Further, Filip (2010) found that the switch to IFRS by 48 **Romanian** non-financial firms in 2001–2002 has increased the value relevance of accounting information and that smaller firms were the most affected by the adoption. An event study on a **UK**-sample conducted by Horton and Serafeim (2010) revealed that IFRS reconciliations provide incremental information content to equity investors since they react differently to annual reports restated under IFRS. Using pre-IFRS (2008–2009) and post-IFRS (2011–2013) analysis on a **Canadian** sample, Okafor, Anderson and Warsame (2016) found that IFRS-based accounting information exhibits higher (R^2). Similar findings were reported by Chua et al. (2012) for **Australian** firms that switched from Australian GAAP (2001–2004) to IFRS (2005–2008).

Moreover, several other single-country studies on emerging markets have reported a positive effect of IFRS adoption on the value relevance of accounting information. Using a large sample of 4,010 observations from the **Malaysian** market, Ismail et al. (2013) discovered that the accounting information during the IFRS convergence period (2007–2009) was more value relevant than that of the pre-adoption period (2002–2006). They attributed their findings to the greater disclosure requirement and the use of fair values under IFRS. These features of IFRS have also positively affected the value relevance of equity book values among **Turkish** listed firms—Karğın (2013) found that the regression coefficient of book value increased significantly only after the switch from Turkish GAAP (1998–2004) to IFRS (2005–2011). Similar findings have been revealed in the case of IFRS adoption in **Indonesia** (Srivastava & Muharam, 2022), **China** (C. Liu

et al., 2011), **Bahrain** (Desoky & Mousa, 2014), the **UAE** (Alali & Foote, 2012) and **Korea** (Key & Kim, 2017).

Among studies conducted at the multi-country level, one is that of Wang and Welker (2011). They examined the impact of mandatory IFRS adoption on the incremental value relevance of earnings for 2,916 firms from **Australia and 14 European countries** in 2004–2005. Using the return model, they found that the reconciliations of earnings to IFRS provide incremental relevant information. Similar results were reported by Barth et al. (2014) for 1,201 firms from **15 European countries**, using the price model. However, Kouki (2018) adopted a different approach to investigate whether voluntary and non-voluntary IFRS adopters had different value relevance levels when IFRS became mandatory in Europe in 2005. Employing a sample from **three European countries,** Kouki found that non-voluntary IFRS adopters have higher value relevance. The transition to IFRS has also improved the value relevance of firms from **four Latin American emerging market countries** (García, Alejandro, Sáenz, & Sánchez, 2017) and **seven African and Asian countries** (Chebaane & Othman, 2014).

In contrast, several other studies found a decrease in the value relevance after the introduction of IFRS. Among the earliest such studies is that of Callao, Jarne and Laínez (2007), who showed that IFRS implementation has reduced the relevance of the accounting information of 26 **Spanish** firms. They attributed this finding to the variation between book and market values caused by IFRS implementation. Further, C. Liu, Yao and Yao (2012) examined a **Peruvian** sample, and they also observed a decline in value relevance, which they attributed to the high discretion offered by IFRS to management to manipulate fair values estimates. Recent studies of **Ghanaian** (Badu & Appiah, 2018) and **Canadian** (Krishnan & Zhang, 2019) firms reached similar conclusions.

In fact, IFRS adoption does not always play a major role in altering the overall value relevance of accounting information. An example of such a case can be found in a study conducted by Tsalavoutas et al. (2012). They found that IFRS has no significant impact on the overall value relevance of accounting information for **Greek** firms. Tsalavoutas et al. were able to find that IFRS has a positive (negative) impact on equity book value (earnings). These positive and negative effects offset each other, resulting in no overall impact. They attributed these findings to fair value measurement, which increases book value reliability but adds volatility to earnings. Similar

findings were reported by Goodwin et al. (2008) for **Australian** firms during the comparative year (2004) of IFRS adoption.

3.9.2 US GAAP and National GAAP Comparisons

The US SEC requires all foreign firms listed on the US stock market to use the 20-F reconciliation form. This unique opportunity has motivated researchers to compare the value relevance of accounting information prepared under US GAAP and other national GAAP. Amir et al. (1993) compared the value relevance of the accounting information of 101 non-US firms from 20 countries that are required to file the 20-F form. Employing both the event study and value relevance approaches, they found that the results favoured the SEC's argument that the 20-F form is necessary because US GAAP-based accounting information provides useful information. Similar findings were reported by Barth and Clinch (1996) for a sample from the UK, Australia and Canada.

In addition, T. S. Harris, Lang and Mőller (1994) compared German firms with their size- and industry-matched US counterparts using both price and return models. While their price model findings suggest that US GAAP is superior in providing value relevant accounting information, their return model findings indicate that there is no significant difference between German and US GAAP. They attributed their findings to the excessive conservatism practices under German GAAP.

However, a few studies have shown that the accounting information under a local GAAP is more value relevant than that under US GAAP. For example, K. C. Chan and Seow (1996) showed that foreign-GAAP-based earnings are more associated with stock returns than US-GAAP-based earnings. They attributed these results to the possibility that foreign-GAAP-based earnings reflect specific institutional characteristics of that foreign country or that information could be lost when reconciling to US GAAP. The results are consistent with those of Alford, Jones, Leftwich and Zmijewski (1993) for firms applying GAAP from the UK, Australia, Netherlands and France.

3.9.3 IFRS and US GAAP Comparison

Comparisons of the value relevance of US GAAP and IFRS (IAS) accounting information are motivated by a dispute between the US SEC and the NYSE. The latter has argued that foreign firms that comply with IFRS (IAS) should not be required to file 20-F reconciliation forms. M. S.

Harris and Muller (1999) are among the first researchers to compare the value relevance of accounting information from 13 countries that follow IAS and US GAAP. Their results on using both the price and return models were inconclusive— the latter showed that US GAAP amounts are more value relevant with a high association with stock return, while the price model showed the opposite result. They attributed the inconsistent results to scale effect problems and heteroscedasticity in the price model and suggested putting more weight on the return model. Gordon, Jorgensen and Linthicum (2010), who limited their analysis to the return model, found that US reconciliations are incrementally value relevant as indicated by the Vuong (1989) test. Similar findings were reported by Barth, Landsman, Lang and Williams (2012) for firms from 27 countries applying IFRS compared with their size- and industry-matched US sample.

However, several studies have shown that the value relevance of the accounting information prepared under US GAAP is similar to that prepared under IFRS/IAS. Motivated by setting of Germany, where authorities allowed listed firms to comply with internationally accepted standards, Bartov et al. (2005), among others, found that German firms that apply either IFRS or US GAAP have similar value relevance levels. This finding is supported by the recent study of Cussatt et al. (2018). They compared the value relevance of German firms that mandatorily switched from US GAAP to IFRS in 2005 with that of German firms that have been applying IFRS and did not find a considerable difference between the two groups from the return model results.

3.9.4 Value Relevance Studies in Saudi Arabia

Few studies have assessed the value relevance of accounting information in Saudi Arabia, and none have considered the impact of IFRS adoption on the non-financial sector that was required to comply with IFRS starting from January 2017. However, the financial sector in Saudi Arabia, which is regulated by SAMA, has been required to comply with IFRS since 2008 (see Chapter 2).

As for studies on the Saudi financial sector, Oraby (2017) used a sample of 11 banks and the univariate and multivariate forms of the price model to investigate the value relevance of earnings and equity book values individually and jointly under IFRS during the period 2006–2015. This study revealed that while accounting information is jointly value relevant as indicated by the R^2 values of the multivariate model, the R^2 values of the earnings univariate model were higher

than those of the book value univariate model. This led Oraby to conclude that earnings are more informative than equity book value to investors in Saudi banks.

Further, Alnodel (2018) examined the value relevance of 21 listed insurance firms during 2007–2014 before and after IFRS adoption. The results of the price and return models showed that the regression coefficients on earnings (book value) increased (decreased) after the adoption. Alnodel attributed this finding to the nature of the insurance industry, claiming that it is less mature and less susceptible to IFRS implementation because insurance firms' assets and liabilities are valued close to fair value. In an additional analysis on firm size and profitability, the study found these to have a significant impact on the usefulness of accounting information among Saudi insurance firms.

A more recent study on 12 commercial Saudi listed banks conducted by Ebaid (2021) examined the impact of IFRS adoption on enhancing five qualitative characteristics [24] of accounting information. Using data from a Likert scale survey distributed to 68 accountants in these banks that sought their opinion about the impact of IFRS on these five qualitative characteristics, Ebaid concluded that IFRS has enhanced the qualitative characteristics of the accounting information of Saudi banks.

In addition, Alsalman (2003) analysed whether the difference between the value relevance of the accounting information of Saudi firms in the non-financial sector and Kuwaiti firms can be attributed to the use of different standards or different institutional factors during 1993–2001. A comparison of four samples,[25] through the price and return models, revealed that institutional factors have a greater influence on value relevance than do the use of accounting standards.

Motivated by the creation of SOCPA and the issuance of Saudi GAAP, a longitudinal study of 16 years conducted by Khanagha (2011) examined the value relevance of accounting information of 40 non-financial listed firms during the period 1993–2008. The results from the price and return models revealed that the value relevance of accounting information in Saudi Arabia increased from the pre-SOCPA period (1993–1999) to the post-SOCPA period (2000–2008). Khanagha attributed the findings to the efforts of SOCPA for developing accounting

[24] Relevance, faithful representation, understandability, comparability and timeliness.
[25] A Saudi sample and a US GAAP sample; a Kuwaiti sample and an IAS sample; a US GAAP sample and an IAS sample; and a Saudi sample and a Kuwaiti sample.

standards suitable for the Saudi environment. Using the same models and study period, Albarrak (2011) found that the accounting information of 97 listed non-financial firms was value relevant, as indicated by R^2, throughout the study period but decreased during 2004–2009. The author attributed this decline to high media coverage and the development of the investment profession in later years, which resulted in accounting information not conveying new information to be reflected on the share price. Recently, Belassi and Elbarrad (2020) examined only nine cement Saudi listed firms during 2008–2015 and revealed that accounting information is relevant to investors in making investment decisions.

On a cross-country scale, El-Diftar and Elkalla (2019) compared the value relevance of the accounting information of non-financial listed firms from GCC countries[26] and other Arab non-GCC countries[27] during 2007–2016. After using dummy variables to distinguish between the two regions (GCC and non-GCC) and their IFRS adoption status, they found that GCC countries have higher value relevance than non-GCC countries, despite IFRS having a negative effect on value relevance.

Nevertheless, these studies have provided a very limited insight into the impact of IFRS on the value relevance in Saudi Arabia, and none have considered the impact on the non-financial sector. They also have several limitations, including implementing the models improperly (Belassi & Elbarrad, 2020), neglecting the use of a deflator (Alnodel, 2018), using a multi-country comparison by overlooking the country-specific context (El-Diftar & Elkalla, 2019), using a small sample (Belassi & Elbarrad, 2020; Oraby, 2017), ignoring the use of valuation models (Ebaid, 2021) or failing to use R^2 comparison tests (Alnodel, 2018; Oraby, 2017). Therefore, a more refined research design is necessary to provide more valid results on this topic in the case of Saudi non-financial listed firms.

3.10 Country-Level Institutional Factors

The literature review shows that country-level institutional factors include the market financing system (Ali & Hwang, 2000), the stakeholders in the accounting standard setting process (Ball et al., 2000), the separation between tax and accounting rules (Bartov et al., 2005), the legal system (Arce & Mora, 2002), the level of investor protection (Leuz et al., 2003), market efficiency

[26] Oman, Qatar, Saudi Arabia, the UAE, Bahrain and Kuwait.
[27] Egypt, Jordan and Tunisia.

(Aboody et al., 2002), the ownership structure (Fan & Wong, 2002), corporate governance (Habib & Azim, 2008; Shan, 2015) and the efficiency of legal enforcement (A. S. Ahmed et al., 2013). The effect of these institutional factors is discussed in the following subsections.

3.10.1 Market Financing System

The term market financing system refers to the ways in which financial capital needs are met in a certain market. According to Nobes (2011), there are two types of market financing systems: equity-based and debt-based. The former refers to a market whose main financial suppliers are shareholders, as the case in the UK and the US, whereas the latter, to one in which banks play a significant role in providing capital to listed firms, as the case of France and Germany. There is debate over which market type provides more relevant accounting information. For instance, Ball, Robin and Sadka (2008) argued that debt covenants and accounting information are strongly linked, making the debt market more demanding of value relevant accounting information than the equity market. Conversely, Ali and Hwang (2000) argued that the demand for published accounting information in a debt market is reduced because banks have direct access to firm information before its publication. Similarly, Soderstrom and Sun (2007) argued that shareholders demand published financial statements more than banks do because the latter have close ties to firm managers and can thus access information on firms.

Furthermore, Ali and Hwang (2000) provided empirical evidence, mainly on 16 EU countries, that firms in countries with equity markets provide more value relevant information than their counterparts in countries with debt markets. In addition, Morais and Curto (2009) reported similar results on 14 European countries that have adopted IFRS. Recently, Kouki (2018) revealed that three European countries (Germany, France and Belgium) with debt markets have witnessed a significant increase in their value relevance after IFRS adoption, which is a shareholder-oriented system. A similar effect of IFRS adoption has been reported by Filip (2010) in the case of Romania's debt market. Therefore, it can be concluded that firms in equity markets provide more value relevant accounting information than their counterparts in debt markets.

3.10.2 Stakeholders Involved in Accounting Standards Setting Process

The source of accounting standards influences accounting practices because the parties involved in setting the standards may be biased and set accounting rules to satisfy their needs rather than those of investors. Many studies have proposed that the more the government involvement in

setting accounting standards, the lower the accounting quality, in general (Soderstrom & Sun, 2007), and value relevance, in particular (Ali & Hwang, 2000; Ball et al., 2000; Bartov et al., 2001). One reason is that the government would be interested in issuing standards to satisfy regulatory (political and legal) needs, such as computing taxes, at the expense of investors' needs (Ali & Hwang, 2000). Under the government-/stakeholder-driven model, income is viewed as a pie to be shared by shareholders, the government, banks and managers in the form of dividends, taxes, interest and bonuses, respectively (Ball et al., 2000). This aspect is more pronounced in code law countries (see Section 3.10.4). However, in common law countries (see Section 3.10.4), which adopt the shareholder model, private organisations set and enforce accounting standards with the primary purpose of satisfying investors' needs (see Section 3.4). Therefore, it can be argued that higher accounting quality is more prominent in countries with less governmental involvement in setting accounting standards (Soderstrom & Sun, 2007).

This argument has been supported by several multi-country studies (e.g. Ali & Hwang, 2000; Morais & Curto, 2009), which have found that the accounting information of firms in countries whose national GAAP was primarily developed by the private sector has higher value relevance. This finding also holds for firms that have switched from government-driven GAAP to IFRS because they have experienced improved value relevance (Bartov et al., 2001). Therefore, the more the private sector involvement in setting and enforcing accounting standards, the higher the value relevance of accounting information.

3.10.3 Influence of Tax Rules on Accounting Measurement

The influence of tax rules on accounting measurements can be measured through the book-tax conformity, which is the difference between accounting income (calculated using GAAP) and taxable income (calculated using tax rules; Benyasrisawat, 2011). The higher the difference, the lower the level of book-tax conformity (Hung, 2001). According to Alford et al. (1993), when GAAP is set by a private (governmental) body, there is more separation (alignment) between the tax and accounting rules. Alignment between financial reporting and tax rules has been found to affect financial reporting because when tax rules influence accounting information, it creates strong incentives for the firm management to manipulate accounting measures by reporting lower profits in order to reduce taxes (Ali & Hwang, 2000). An example of tax-minimising techniques to reduce the taxable amount is the application of accelerated depreciation and writing off assets

(Bartov et al., 2005). Both could result in financial information that does not reflect a firm's true economic performance, which is against investors' needs. However, when there is a weaker alignment between financial reporting and tax rules, financial statements are expected to satisfy investor needs. Therefore, a lower (higher) association between accounting measures and share price is expected in higher book-tax alignment (lower book-tax alignment) countries (Joos & Lang, 1994).

Several multi-country studies (e.g. Ali & Hwang, 2000; Bartov et al., 2005; Hung, 2001) have empirically found that accounting information has higher value relevance in countries where the accounting rules and tax rules are separated. Using a sample from 16 countries, Ali and Hwang (2000) found that the accounting information of firms in countries where tax rules do not affect the financial reporting measurement has higher value relevance. This finding has been confirmed in the case of IFRS adoption in Germany—Bartov et al. (2005) partially attributed the improvement in accounting information relevance of firms that switched from German GAAP (tax-based system) to IFRS (principle-based system) to the separation between accounting and tax rules under IFRS. Recently, K. H. Chan, Lin, Mo and Wong (2021) reported similar findings regarding IFRS implementation in China. They attributed these results to the fact that IFRS was developed by the private sector with no incentive to impose tax rules; rather its main purpose is to ensure that the accounting information reflects the intrinsic economic reality for aiding investors to make informed decisions.

3.10.4 Legal System

A country's legal system is an influential factor that indirectly affects accounting information quality through its influence over accounting regulations (Soderstrom & Sun, 2007). The literature has shown that there are two types of legal systems, which are often compared and discussed: code law and common law legal systems. The main difference between common law and code law systems is that the latter provides a wide set of rules for every possible case, but the former provides rules on a case-by-case basis (Alexander, Britton, Jorissen, Hoogendoorn, & Van Mourik, 2014).

Common law countries, which usually represent the shareholder governance model, usually have private sectors that constitute and govern the accounting practices and standards setting (Ball et al., 2000).This system is more pronounced in countries (e.g. Australia, the US and

the UK) that are characterised by separation between tax rules and accounting rules, less government involvement in establishing and enforcing accounting standards, a financing structure that mainly comprises public stocks and bonds, high investor protection and shareholders' right to elect governing board members (Arce & Mora, 2002; Dayanandan et al., 2016; Jermakowicz et al., 2007). Thus, the accounting reporting is highly influenced by the needs of shareholders.

Code law countries, which usually represent the stakeholder governance model, have governmental bodies that set, enforce and control accounting practices, regulations and standards (Ball et al., 2000). This system is more pronounced in countries (e.g. France, Germany and Japan) that are highly influenced by different political groups (e.g. labour unions, banks, government agencies and business associations) whose interest in the reported accounting income varies (Arce & Mora, 2002). Thus, the accounting income is highly influenced by the payout preferences of these stakeholders, who usually have insider communication (Ball et al., 2000).

In an empirical study, Hung (2001) examined a sample from 21 countries with different legal systems and revealed that accounting information is more value relevant for common law countries as indicated by the coefficient on the cross-product term of the accounting earnings variable and the legal origin variable. Several other studies have reported similar findings (e.g. Clarkson et al., 2011; King & Langli, 1998). However, in the case of IFRS adoption, Clarkson et al. (2011), who employed a sample from Europe and Australia, found that the value relevance of accounting information increased significantly only for code law counties. They attributed the finding to the idea that countries that switch to IFRS from stakeholder-oriented standards, which are very different from IFRS, will benefit more from IFRS adoption.

Therefore, in line with these arguments and the empirical evidence in the literature, it can be concluded that while the accounting information of firms in common law countries should be more value relevant than that of firms in code law countries, the latter should benefit more from IFRS adoption.

3.10.5 Investor Protection

Investor protection is the degree to which firm insiders (controlling shareholders and managers) can manipulate or conceal accounting information to benefit themselves at the expense of minority shareholders (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2002). Strong investor protection limits insiders' ability to manipulate accounting information, leading to higher-quality

earnings, and consequently, higher value relevance (Leuz et al., 2003). Notably, common law countries, which require more private information disclosure, have higher investor protection than code law countries (Hung, 2001).

Empirical studies have shown that accounting quality is positively associated with the investor protection level. Leuz et al. (2003) have confirmed this finding by examining a sample of 31 countries with varying levels of investor protection, as measured by the Anti-Director Rights Index. J. R. Francis and Wang (2008) found similar results for a sample from 42 countries, but only for firms audited by a Big4 firm. Using the value relevance as a metric of earnings quality, Hung (2001), who analysed 17,743 firm-year observations from 21 countries, found that the higher the anti-director rights score, the higher the earnings value relevance. Similar findings were reported by Gaio (2010) for a sample from 38 countries.

Further, Houqe et al. (2012) investigated the impact of IFRS on 46 countries with different investor protection levels. They found that only countries with strong investor protection had higher earnings quality after IFRS adoption. In a similar vein, Narktabtee and Patpanichchot (2011) and Van Tendeloo and Vanstraelen (2005) attributed the lack of improvement in earnings quality after IFRS adoption in some European countries to the poor investor protection in these countries.

In contrast, other studies have argued that the impact of IFRS on improving accounting information should be more pronounced in countries with poor investor protection rights because IFRS should constrain opportunistic behaviours (e.g. Dayanandan et al., 2016; Houqe, Easton, & van Zijl, 2014). Through empirical studies, Dayanandan et al. (2016), who employed a sample from 35 countries, and Houqe et al. (2014), who focused on three EU countries, confirmed this finding. They found that only countries with weak investor protection rights benefited from IFRS adoption in terms of improved accounting quality. According to these authors, their results indicating a lack of improvement in common law nations with strong investor protection rights may be attributable to the similarity of their national GAAP to IFRS.

Therefore, despite the controversy over the impact of IFRS on countries with different levels of investors protection, there is a consensus that the higher the investor protection, the better the accounting quality.

3.10.6 Market Efficiency

The assumptions of the market efficiency hypothesis must be satisfied when conducting market-based accounting studies, such as those on value relevance (see Chapter 4). This is because there is severe information asymmetry between insiders and outsiders in an inefficient market (Scott, 2015). In value relevance studies, this could lead to low magnitude of ERC (Kothari, 2001) since market participants are valuing firms by using non-information-based trading activity (Dontoh, Radhakrishnan, & Ronen, 2004) or according to future or private information that is available to certain groups or individuals (Abdel-Khalik et al., 1999). This view has been supported by several empirical studies (e.g. Alali & Foote, 2012; Filip & Raffournier, 2010) that have found low value relevance of accounting information to be linked to market inefficiency. Therefore, the validity of value relevance studies' results is contingent on satisfying the market efficiency hypothesis (Abdel-Khalik et al., 1999).

However, Barth et al. (2001) claimed that satisfying this hypothesis would be necessary in certain types of value relevance studies, such as those that compare whether the estimated regression coefficients of the valuation model differ from their theoretical benchmarks as illustrated in the original valuation model (see Chapter 4). This claim is consistent with Hellström's (2006) assertion that unlike information content studies, which use regression coefficients (i.e. ERC) as the measure of usefulness of accounting information over a short period, value relevance studies that use R^2 as the main metric can be conducted for inefficient markets. Therefore, since the idea of value relevance is to assess the extent to which financial information is processed by equity investors, which is reflected in the share price, it is not necessary to assume that the market is efficient (Barth et al., 2001).

Several studies have argued that association studies do not have to assume that the market satisfies the semi-strong form of efficiency (Dobija & Klimczak, 2010; Filip & Raffournier, 2010), because the effect of market inefficiency can be mitigated by extending the return window (Barth et al., 2001; Filip & Raffournier, 2010). Aboody et al. (2002) provided empirical evidence that the price model is less affected than the return model by market inefficiency. Moreover, several subsequent long-term association studies, which focused on developing countries with inefficient markets, have reported results similar to those of studies on developed countries with efficient markets (Almujamed & Alfraih, 2019; Tsalavoutas et al., 2012). Therefore, market inefficiency

should not pose any serious problem to long-window association (i.e. value relevance) studies, especially when the price model is used.

3.10.7 Ownership Structure

The literature on the effect of the ownership structure on value relevance often refers to the concentrated ownership form where the majority of shares are owned by a few individuals or institutions, termed blockholders. They usually influence management decisions because they participate directly and indirectly in managing the firm (Shleifer & Vishny, 1997). In this context, the effect of the ownership structure is explored at the country level rather than the firm level. Specifically, the impact on the value relevance of accounting information of countries where concentrated ownership is dominant may differ from that of countries where the ownership is dispersed. Two arguments have been put forth to explain the impact of concentrated ownership on accounting information quality.

The first argument derives from agency theory, which explains the relationship between the owner and the manager (agent)—the former wants to maximise the firm's wealth, while the latter may have personal incentives such as compensation. According to Jensen and Meckling (1976), increasing owner holdings can reduce agency costs by aligning the interests of owner and manager. In this case, earnings management practices are not expected to occur since blockholders oversee the management activities and work towards maximising the firm's wealth. Therefore, minority investors would regard the financial reports to be of high quality and may place greater weight on this accounting information in their investment decisions.

The second argument is derived from a phenomenon termed management entrenchment, where blockholders' activities are viewed as being made for their own interests at the expense of minority shareholders. In this case, minority investors and lenders may impose more contractual constraints, causing management to manipulate earnings. The use of earnings management results in poor accounting information quality. Therefore, investors do rely on accounting information when making investment decisions.

Several empirical studies have investigated the effect of ownership structure on the value relevance of accounting but have not arrived at a consensus. Unlike in Western countries, such as the US and the UK, ownership is commonly concentrated in Asian firms (Fan & Wong, 2002). Thus, most empirical studies have focused on Asian firms. For instance, Jung and Kwon (2002),

who compared the earnings usefulness of chaebol (concentrated ownership) with that of non-chaebol (dispersed ownership) firms in Korea, found no difference in earnings informativeness between the two groups. In addition, Kwak and Armitage (2009) reported similar observations in a Japan-based study.

In contrast, Fan and Wong (2002) who analysed data for 1991–1995 on 977 firms from seven Asian countries [28] found the value relevance of earnings to be lower for firms with highly concentrated ownership. They attributed this finding to the perception of outside investors who viewed the accounting information as if it were prepared for the controlling investors' self-interest. Furthermore, Bae and Jeong (2007) reported similar findings for a sample of 4,285 firms-year observations from Korea during 1987–1998.

Therefore, these arguments, and the results of the empirical studies, have indicated that the impact of ownership structure on the value relevance is an empirical issue and depends on investors' perceptions of the accounting information quality disclosed by the firm.

3.10.8 Corporate Governance

Although the corporate governance practices of firms in the same country may differ, the overall influence of a country's corporate governance system on the value relevance of accounting information is the main topic of interest of the current study. An effective corporate governance mechanism at the country level should constrain any opportunistic behaviour exerted by management and lead to the reporting of reliable, relevant accounting information (Habib & Azim, 2008). Therefore, the efficiency of the corporate governance code at the country level should be associated with higher value relevance of accounting information.

Several studies have investigated the link between corporate governance and the value relevance of accounting information. For example, Bae and Jeong (2007) revealed that the accounting information of chaebol firms, which are characterised by concentrated ownership and a weak governance system, is less value relevant than that of non-chaebol firms in Korea. Similarly, Habib and Azim (2008) found that Australian firms with an efficient corporate governance system are associated with higher value relevance. This finding is consistent with that

[28] These countries are China, Indonesia, Malaysia, Singapore, South Korea, Taiwan and Thailand.

of Goncharov, Werner and Zimmermann (2006) on firms in Germany and of Morris, Pham and Gray (2011) on firms in Malaysia.

Other studies have considered the role of both IFRS adoption and the corporate governance code in enhancing the value relevance of accounting information. For example, Malik and Shah's (2013) longitudinal study revealed that the implementation of a corporate governance code in 2002 and the adoption of IFRS in 2005 had a positive impact on the value relevance of accounting information of all non-financial listed firms on the Karachi Stock Exchange (Pakistan). Further, Krismiaji, Aryani and Suhardjanto (2016) found the cross-product variable of IFRS adoption and the corporate governance compliance score to be positive and significant, indicating that, in Indonesia, accounting relevance is a joint function of high-quality accounting standards and an effective corporate governance system. This finding is consistent with that of Cormier (2014), who showed that the value relevance of accounting information increased after IFRS implementation in Canada but only for firms with an effective corporate governance system.

3.10.9 Efficiency of Legal Enforcement

Kothari (2000) asserted that the quality of accounting information is a function of both enforcement and accounting standards. This is because managers are more likely to comply with accounting and disclosure rules when regulations are more strictly enforced (Hope, 2003). Strong enforcement restricts the access of insiders to any type of private control benefits; thus, it reduces their incentive to manage earnings, for they have little to hide from outsiders (Leuz et al., 2003). Therefore, investors and creditors are more likely to invest in firms that have strong investor protection and enforceable legal systems in place (Kothari, 2000).

In the case of IFRS, the variation in the findings of empirical studies examining the impact of IFRS on financial reporting quality in different countries highlights the importance of legal enforcement efficacy. This variation in the effect of IFRS is partly due to enforcement regimes (Callao, Cimini, & Jarne, 2016). Ball (2006) claimed that countries and firms adopt IFRS as a 'brand name' to signal they are implementing high-quality accounting standards. In the presence of incentives to adopt IFRS and the absence of an effective enforcement mechanism, in reality, implementation across firms is far from uniform (Ball, 2006) since IASB has no power over local security exchanges to enforce IFRS (Soderstrom & Sun, 2007). IFRS, in particular, requires effective enforcement since the principle-based nature gives discretion to apply professional

judgement in situations not defined or interpreted by IFRS (Soderstrom & Sun, 2007). This aspect has led A. S. Ahmed et al. (2013) to conclude that the impact of IFRS on accounting quality is determined by enforcement mechanisms and the quality of local GAAP before IFRS adoption. This conclusion is consistent with the finding of a recent review study by Houqe (2018) that the positive effects of IFRS adoption are limited to countries with strong enforcement regimes.

Empirical IFRS-based studies have confirmed that only countries with strong enforcement would benefit from IFRS adoption. For example, Callao et al. (2016), who used a sample from 14 European countries, found that earnings are of higher value relevance and less managed in countries with strong enforcement mechanisms. This finding is supported by a recent study of Liao, Yao, Kang and Morris (2021), who found fair value estimates to be more (less) value relevant for countries with strong (weak) legal enforcement. In another setting, that of Greece where legal enforcement is weak, Tsalavoutas et al. (2012) found IFRS adoption had a minor impact on the value relevance of accounting information. They urged Greek regulators to strengthen enforcement in order to improve the quality of financial reporting. Therefore, effective enforcement is essential to achieve high-quality accounting information, especially in case of IFRS implementation.

3.11 Firm-Level Factors

To provide a comprehensive analysis about value relevance in a single-country study, firm-level factors must be considered because value relevance varies among firms with different characteristics. Considering firm characteristics is essential to this study for it helps to distinguish whether the change in value relevance after IFRS adoption is driven by the change in the accounting regime or the firm characteristics (Van der Meulen et al., 2007). This is supported by the empirical findings of Gaio (2010) that firm characteristics provide better explanation of the earnings quality variation than country-level factors. According to the value relevance literature, firm characteristics that exert such influence include firm size (Collins, Maydew, & Weiss, 1997; Goodwin et al., 2008; Wakil & Petruska, 2022), profitability (C. J. Chen, Chen, & Su, 2001; Hayn, 1995; Jiang & Stark, 2013), audit quality (Alali & Foote, 2012; Gul, Tsui, & Dhaliwal, 2006; C. Lee & Park, 2013), potential growth (Frank, 2002; Habib & Azim, 2008; Lam, Sami, & Zhou, 2013), industry (Badu & Appiah, 2018; Chalmers et al., 2011; Collins et al., 1997) and leverage (Gaio, 2010). These characteristics are discussed separately in the following subsections:

3.11.1 Size

There are two arguments about the effect of firm size on the value relevance of accounting information. The first argument is based on the idea that small and large firms have different information sources. It assumes that since large firms have more competing sources of information than small firms do, due to pressure from analysts, investors and the media (C. J. Chen et al., 2001), their accounting information is of lower value relevance for their share price may reflect information other than that disclosed in their financial statements. In contrast, small firms have limited sources of information (i.e. media and investment analysts) compared with large firms (Brimble & Hodgson, 2007). Hence, the accounting information of small firms could be of higher value relevance and may be reflected to a greater extent in their share price. The empirical studies of C. J. Chen et al. (2001), Brimble and Hodgson (2007) and Lam et al. (2013) have supported this argument; they compared the value relevance of accounting of firms of different sizes by splitting the sample according to the median firm size.

The second argument suggests that the category of small firms usually includes loss-making firms and startups that are yet to generate profits (Collins et al., 1997). In addition, the earnings of small firms usually include transitory components, resulting in inconsistent earnings. In such cases, investors make investment decisions by considering firms' potential growth prospects rather than the disclosed accounting information (Habib & Azim, 2008). This fact could diminish the role of accounting information in explaining the variation in share price, which results in the lower value relevance of the accounting information of small firms. However, investors in small firms would still be interested in the book value of equity as an exit (liquidation) value (Collins et al., 1997). Large firms, in contrast, are expected to be better diversified than small firms and have more persistent earnings owing to their experience in the market. In this case, investors rely more on the disclosed accounting information of large firms, than they do on that of small firms, when making investment decisions. Investors in large firms place a greater weight on the earnings than on the book value of equity as a predictor of future earnings. Thus, the accounting information of large firms is more value relevant than that of small firms. Notably, the empirical studies of Collins et al. (1997), Bae and Jeong (2007) and Badu and Appiah (2018), who considered a sample from the US, Korea and Ghana, respectively, have supported this argument.

As for the impact of IFRS on the variation in value relevance, two arguments have been put forward. The first argument is as follows. Because it is assumed that the quality of IFRS is greater than that of the previous GAAP, IFRS adoption is expected to affect smaller firms, which are labelled as immature, more than it will large firms, because it is expected to provide creditability to the financial reports of firms whose information used be of lower value relevance (Wakil & Petruska, 2022. However, the other argument is based on the idea that large firms are mature and more capable of adopting a new set of accounting standards, which is expected to result in more effective implementation of IFRS. Thus, because of the effective implementation of IFRS as well as the perception that IFRS is of higher quality, the value relevance of the accounting information of large firms is expected to be higher than that of small firms (Gastón, García, Jarne, & Gadea, 2010).

Despite these arguments that suggest that firms of different sizes are affected differently by IFRS adoption, prior empirical studies (e.g. Chalmers et al., 2011; Goodwin et al., 2008; Van der Meulen et al., 2007) find no significant difference in the impact of IFRS on the value relevance of firms of any size. These findings could be attributed to the argument that larger firms likely already apply advanced accounting practices that are closer to IFRS before their adoption of IFRS, which thus has little impact. Moreover, smaller firms are less likely to be affected by IFRS adoption since the nature of their economic operations are not complicated and, thus, the adoption has no significant impact (Gastón et al., 2010).

3.11.2 Profitability

Firms' profitability in the context of value relevance studies refers to whether firms generate a loss or a profit. The value relevance of accounting information differs between firms with positive earnings and firms with negative earnings. This difference depends on how investors of loss-making firms view losses. According to Hayn (1995), investors usually view losses as transitory, and thus, they base their decisions to continue investing in loss-making firms on the potential earnings growth in the future. However, profit-making firms are valued by investors according to the notion that these firms' earnings will persist in the future. Therefore, the accounting information of profit-making firms (loss-making firms) is expected to be correlated (less or not correlated) with market value This argument has been confirmed by numerous

empirical studies on developed markets (e.g. Ely & Waymire, 1999; Goodwin & Ahmed, 2006) and emerging markets (e.g. Badu & Appiah, 2018; C. J. Chen et al., 2001).

Furthermore, the literature has shown the role of the book value of equity and earnings in explaining variations in market value between loss-making firms and profit-making firms. It has revealed that the relative value relevance of earnings (book values of equity) is higher among profit-making firms (loss-making firms). The rationale is that investors of profit-making firms (loss-making firms) view earnings as permanent (transitory). Thus, they place greater weight on earnings (book value) as an indicator of future earnings that profitable firms may continue to generate (as a value of abandonment, or the liquidation value of loss-making firms; Collins, Pincus, & Xie, 1999). Therefore, the ERC of profit-making firms (loss-making firms) is positive (negative) and significant (insignificant; Hayn, 1995). This finding has been empirically supported by the longitudinal studies of Collins et al. (1999) and Hayn (1995) for a period of 20 and 29 years, respectively.

The negative coefficient of earnings for loss-making firms is difficult to interpret, as reported by Collins et al. (1999) who raised a concern about the possibility of mis-specifying the model or omitting correlated variables. Other value relevance researchers have suggested including the book value of equity to correct this problem (e.g. Collins et al., 1999; Jiang & Stark, 2013). The point of including book value is that it is to be used by investors of loss-making firms as a proxy for the abandonment or adaptation value (Collins et al., 1999). Moreover, Barth, Beaver and Landsman (1998) confirmed the importance of the book value for valuing loss-making firms—they found that the value relevance of earnings (book value) decreased (increased) for 396 US firms approaching bankruptcy. In addition, Collins et al. (1997), Kwon (2009) and Jiang and Stark (2013) reported similar findings for a sample from the US, Korea and the UK, respectively.

With regard to the impact of IFRS, prior studies have documented that if IFRS has a positive impact on the value relevance of accounting information, this impact is limited to profit-making firms alone. This finding has been supported by the empirical studies of Elbakry, Nwachukwu, Abdou and Elshandidy (2017), Bartov et al. (2005) and Karampinis and Hevas (2011) on firms from the UK, Germany and Greece, respectively.

3.11.3 Audit Quality

Audit quality has always been used as an indicator of higher accounting quality (Becker, DeFond, Jiambalvo, & Subramanyam, 1998). Concerning the use of value relevance as a metric of accounting quality, various indicators of audit quality (e.g. expenditure on audit services, the use of non-audit services, audit opinions and audit firm size) have been used in the literature to investigate the impact of audit quality on value relevance. As regards the use of expenditure on auditing as an indicator of audit quality, Ali and Hwang (2000) assumed that the higher the expenditure, the higher the value relevance of accounting information. The rationale is that investors view the expenditure on external auditing services as an indicator of financial information reliability and accuracy. The authors have empirically confirmed their argument by using data for 1986–1995 on a sample from 16 countries.

Further, Gul et al. (2006) incorporated the use of non-audit services as an indicator of poor audit quality to investigate its impact on the value relevance of accounting information. In line with the authors' expectation, firms that used non-audit services from the same external auditor had accounting information of lower value relevance compared with their counterparts. This suggests that investors become suspicious about the quality of financial information of such firms. Further, Dang, Brown and McCullough (2011) used audit opinion as an indicator of audit quality to investigate whether audit failure diminishes the value relevance of accounting information. They reported that, regardless of the reputation of the auditor, less value relevance of accounting information is found among firms that experience audit failure, such as the issuance of an 'unqualified opinion on materially misstated financial statements' (p. 135).

The dominant metric of audit quality is audit firm size. Big4 firms are assumed to provide better audit quality than non-Big4 firms, given that the former firms are more independent (DeAngelo, 1981) and sensitive about their reputation than the latter (J. R. Francis & Wang, 2008) and have better training programs for their staff to detect any creative or earnings management practices (Becker et al., 1998). Thus, investors should be confident about the quality of accounting information audited by the Big4. Prior empirical studies found that the value relevance of accounting information is higher among firms audited by a Big4 firm than among those audited by a non-Big4 firm (e.g. Alali & Foote, 2012; C. J. Chen et al., 2001; C. Lee & Park, 2013).

In addition, for several reasons the difference between the value relevance of accounting information audited by Big4 and non-Big4 firms is expected to be wider in favour of the Big4 after the adoption of IFRS. First, the Big4 are multinational firms and provide their services in most countries. Thus, they have expertise in IFRS implementation globally. This view is consistent with that of Armstrong et al. (2010), who assumed that the Big4 firms are better equipped for the IFRS reporting regime. This fact is expected to affect the credibility of financial reports audited by the Big4, which leads investors to place greater weight on these reports. Further, the Big4 have been supporting IASB by providing financial and professional resources in the form of funds and volunteers (Camfferman & Zeff, 2007). Their close collaboration with IASB is expected to result in their having more IFRS-experienced staff. These arguments are supported by the empirical studies of C. Lee and Park (2013) and Iatridis and Dimitras (2013), who found that accounting information is more value relevant among Big4 clients than among non-Big4 clients.

3.11.4 Potential Growth

Value relevance studies have differentiated the value relevance of accounting information of firms with different level of potential growth. That is, firms with high potential growth, which include young, smaller and riskier firms with a modest level of earnings or even losses, have a high level of transitory and unpredictable earnings at their early economic stage (Frank, 2002). Conversely, firms with low potential growth, which usually include mature firms with stable level of earnings, are more likely to have highly persistent earnings, which helps investors to predict future abnormal earnings (Charitou, Clubb, & Andreou, 2001). This leads investors in firms with high (low) potential growth to place greater weight on non-financial information (the current accounting information) about their potential growth when making investment decisions. Therefore, the value relevance of the accounting information of firms with high (low) potential growth is lower (higher).

Using the common measure of firm growth, that is, the market-to-book ratio (MTB),[29] empirical studies have provided inconclusive evidence about the relationship between the firm's potential growth and value relevance. For example, Frank (2002), who employed a sample of 6,164

[29] The MTB ratio shows the valuation assigned to the net assets of a firm by market participants. If a firm's MTB ratio exceeds 1, it is overvalued, indicating that investors expect future growth. Liu and Thomas (2000) and Dontoh et al. (2004) found that a high MTB ratio is common among growing firms with high intangible asset intensity (i.e., high technology and services-oriented firms).

observations, found that the greater the growth opportunities of a firm, the lower the usefulness of its financial statements. Dontoh, Radhakrishnan and Ronen (2007) reported similar findings in a longitudinal study based on a sample of 16,951 firm-year observations. In a China-based study that covered a period of more than 20 years, Lam et al. (2013) found that firms with low growth rates have accounting information that is of more value relevance.

In contrast, Charitou et al. (2001), who used a sample of 3,364 firm-year observations during 1985–1993, predicted and found that the accounting information of firms with a high MTB ratio will be more value relevant. They based their prediction on the idea that such firms have unexpected earnings that should be relevant in light of valuation theory, which predicts that a firm's market value is the sum of its current book value of equity and its expected future earnings (Ohlson, 1995). Similar findings have been reported by Habib and Weil (2008) and Habib and Azim (2008), using samples from New Zealand and Australia, respectively. Gaio (2010) attributed these findings to the notion that firms with high MTB ratios are usually small firms and startups, which have the incentive to produce high-quality accounting information to gain investors' and lenders' trust. Thus, investors place a greater weight on the accounting information of such firms.

Furthermore, although IFRS are high-quality accounting standards, their impact on the value relevance of accounting information of firms with high potential growth is expected to be minimal. This is because the accounting information itself would not be of high relevance to investors who invest in firms with high potential growth because they rely on non-financial information when assessing such firms (Dontoh et al., 2004). Thus, if IFRS adoption would enhance the value relevance, it would be confined to firms that have low potential growth.

3.11.5 Industry

Variation in value relevance across industries is often attributed to differences in intangible asset use. The reason is that the financial statements of firms that invest heavily in intangible assets are of limited value to equity investors (Amir & Lev, 1996; Barth et al., 1998). Further, the application of the unconditional conservatism principle in industries with high research and development (R&D) expenditures could distort the value relevance of accounting information, for R&D must be immediately expensed under most GAAP (Lev & Zarowin, 1999). Immediate R&D expensing results in mismatched revenue and expenses for that period. This is because the R&D could be expensed in a certain period, but its benefits could be gained in a future period.

Thus, in high-tech sectors, firms' earnings may not be the best indicator to predict future unexpected earnings since they produce volatile and transitory earnings (Hayn, 1995). The stock price of firms in sectors with high potential growth usually reflects other information, such as their use of new technology, their manufacture of innovative products and the grant of new patents to them. Further, the value relevance of accounting information across industries is heterogeneous because the nature of their business differs as does their earnings persistence levels (Ballas & Hevas, 2005). For example, the nature of a product-based business differs from that of a service-based business, where the former has a large volume of inventories unlike the latter. Different industries also have different demand seasons and credit terms, and hence, their earnings persistence varies. Thus, the accounting information of high-tech/service-based firms with high intangible assets is of lower value relevance than that of non-tech/product-based firms. The rationale is that investors assess high-tech-based firms by considering their potential for future growth.

Empirical studies have shown that the financial information of technology-based firms with intensive expensed intangible assets is not value relevant or has low value relevance (e.g. Amir & Lev, 1996; Kothari & Shanken, 2003; Lev & Zarowin, 1999). Zhao (2002) assessed the value relevance of accounting information of firms from different countries whose treatment of R&D differed. The author found that the value relevance of book values and earnings is higher among capitalising countries (i.e. UK and France) than among expensing countries (i.e. US and Germany). Collins et al. (1997) revealed through a longitudinal study of 40 years that the decline in value relevance of accounting information over time is due to the shift from an industrialised economy to a service-oriented economy.

With regard to IFRS implementation, the accounting treatment for R&D under IAS 38 (intangible assets) leads to R&D capitalisation when certain criteria are met, which is expected to increase the value relevance of firms with intensive intangible assets. This is empirically confirmed by Oliveira, Rodrigues and Craig (2010), who showed that IFRS increases the value relevance of goodwill, R&D and other intangible assets. However, Lin, Riccardi and Wang (2012) and Cussatt et al. (2018) found no significant difference in the value relevance of high-tech German firms that switched to IFRS. Conversely, Ji and Lu (2014) reported that IFRS adoption reduces the value relevance of accounting information for firms with high levels of intangible assets; they found that capitalised intangibles are always more value relevant, regardless of the accounting standards used.

Therefore, it can be concluded that IFRS does not always have a positive impact on the relevance of intangible assets.

3.11.6 Leverage

Theoretically, there is controversy concerning the quality of accounting information of firms with different levels of leverage. Three arguments are used in the literature to link leverage to the value relevance of accounting information. The first argument stems from the agency problem, which predicts that managers of high leveraged firms may have incentives to manipulate financial statements by increasing transitory earnings to avoid debt covenant violations (Habib & Azim, 2008). Further, high leveraged firms share private information with creditors directly to avoid disclosing material information regarding their ability to repay their debts (Ali & Hwang, 2000). Less disclosure and incentives to manipulate earnings, together, lower the quality of accounting information as well as its value relevance.

However, the second argument suggests that firms with a high level of debt have a higher incentive to disclose more information to satisfy the needs of their creditors and to gain their trust. Further, high leveraged firms are monitored by lenders (debt holders) to ensure that the financial statements of these firms are accurate and that they have not engaged in earnings management practices (Habib & Weil, 2008). In this case, the accounting information of high leveraged firms should be strongly associated with market values.

The third argument is provided by I. Martinez (2003), who argued that small and less mature firms often have a high level of debt and transitory earnings owing to their lack of experience in the market and their high expenditure on R&D and expansion. These attributes have been found in the literature to lower the value relevance of accounting information. Various empirical studies have shown that low leveraged firms usually provide accounting information that is more value relevant than that of high leveraged firms (Ertugrul, 2021; Gaio, 2010; Habib & Azim, 2008). These studies have generally attributed their findings to both the first and third arguments. A contrary result was reported by Habib and Weil (2008), who found that the earnings of high leveraged firms is of high value relevance. They attributed their findings to the second argument.

Further, IFRS could positively affect the accounting quality of high leveraged firms by limiting the opportunistic behaviour of managers. However, prior empirical studies have

consistently found that high leveraged firms produce accounting information with less value relevance compared with that of low leveraged firms, regardless of the accounting standards implemented by these firms (e.g. Ertugrul, 2021; J. A. Martínez, Martínez, & Lin, 2014). Moreover, high leveraged firms that report under US GAAP provide information with higher value relevance than the information of firms that report under IFRS (Van der Meulen et al., 2007). Therefore, while prior studies have suggested that IFRS adoption does not affect the value relevance of high leveraged firms, whether it does or not remains an empirical issue.

3.11.7 Female membership on listed firms board in Saudi Arabia

Female board members in Saudi Arabia may face a range of challenges, including limited representation, cultural barriers (see Section 2.3.1), limited networks, limited access to information, and limited support (Al-Matari & Alosaimi, 2022; Shukeri & Alfordy, 2022). However, to ensure the effectiveness of female members on the board of directors, firms in Saudi Arabia should foster a culture of inclusion and diversity, provide training and development opportunities, ensure equal access to information, encourage active participation, and monitor and evaluate performance on an ongoing basis (Al-Qahtani, Alkhateeb, Mahmood, Abdalla & Qaralleh, 2020).

Saudi Arabia has witnessed recent reforms (e.g. Saudi Vision 2030) which aimed to increase gender diversity and inclusivity, including the appointment of female members to the board of directors (see Section 2.3.1). This is supported by a recent study by Al-Matari and Alosaimi (2018), which found that the appointment of female members to the board of directors has increased in Saudi Arabia in recent years.

The inclusion of female members on listed firms' board of directors may enhance the quality of decision-making and risk management. This is supported by studies that have found a positive relationship between gender diversity on boards and firm performance (Carter, Simkins & Simpson, 2003; Erhardt, Werbel & Shrader, 2003). In the Saudi Arabian context, where there is a need for improvements in corporate governance practices, the appointment of female members to the board of directors may lead to better decision-making and risk management, which may enhance the value relevance of accounting information produced by the firms.

Furthermore, the appointment of female members to the board of directors may also enhance the reputation of the firm, leading to higher value relevance of accounting information.

This is because firms with diverse boards, including gender diversity, may be seen as more progressive and forward-thinking, which may enhance their reputation and attract more investors (Terjesen, Sealy & Singh, 2009). In the Saudi Arabian context, where there is a need to attract more foreign investment, the appointment of female members to the board of directors may enhance the reputation of firms and lead to higher value relevance of their accounting information.

The impact of IFRS adoption is expected to be different for firms with only male members versus firms with mixed-gender board members due to the following reasons. First, gender diversity on boards in Saudi listed firms can result in better decision-making and improved corporate performance due to the different perspectives and expertise that female board members bring, which can enhance the application of professional judgment required by IFRS (Adams & Ferreira, 2009). Furthermore, women's risk-averse nature can lead to a more conservative approach to financial reporting, thus improving the quality of accounting information (Byrnes, Miller, & Schafer, 1999). In Saudi Arabia's male-dominated environment, women in leadership positions might be more inclined to exercise professional judgment and adhere to IFRS to prove their competence and legitimacy (see Section 2.3.1). Firms with female board members may also adopt IFRS to demonstrate their commitment to gender equality and improve their corporate reputation, in line with the institutional theory.

From a corporate governance perspective, gender diversity on boards can contribute to increased board independence, improved monitoring, and enhanced stakeholder trust (Adams & Ferreira, 2009; Bear et al., 2010). Independent boards with female members are more likely to exercise effective oversight over financial reporting processes and ensure adherence to IFRS requirements. Female directors' diligence in their monitoring duties is crucial for overseeing the adoption and application of IFRS, leading to better financial reporting. By adopting IFRS under the guidance of a gender-diverse board, Saudi Arabian firms can signal their commitment to good corporate governance and high-quality financial reporting, boosting stakeholder confidence. Therefore, firms with gender-diverse boards in Saudi Arabia are expected to provide more value relevant accounting information than their counterparts when adopting IFRS.

3.11.8 The Sentiment of firm's financial news

The value relevance of accounting information for good news firms (positive returns) and bad news firms (negative returns) can differ for several reasons. One possible reason is that investors tend to be more optimistic about good news firms, which may lead them to place a higher value on positive information (Francis et al., 2005). For example, if a firm announces positive earnings surprises, investors may view this as a signal of the firm's superior performance and growth potential, leading to an increase in demand for the firm's shares and an increase in the stock price (Ball & Brown, 1968; Francis & Schipper, 1999). In contrast, investors may be more pessimistic about bad news firms, leading them to place a lower value on negative information such as negative return (Ball & Brown, 1968; Francis & Schipper, 1999).

Another possible reason for the difference in value relevance is that good news firms may have better growth potential and higher expected future earnings, which can lead investors to place a higher value on their accounting information (Francis et al., 2005). Good news firms may also attract more attention from analysts, resulting in more accurate forecasts and greater coverage, which can increase the value relevance of accounting information (Francis et al., 2005).

Conversely, bad news firms may have lower growth potential and lower expected future earnings, which can lead investors to place a lower value on their accounting information (Francis et al., 2005). Moreover, bad news firms may be subject to negative sentiment and loss aversion, which can lead investors to overreact to negative information and underreact to positive information (De Bondt & Thaler, 1985).

Overall, the difference in value relevance of accounting information for good news firms and bad news firms can be attributed to a combination of factors such as optimism bias, growth prospects, expected future earnings, signalling effects, and sentiment. These findings have important implications for investors and analysts, as they suggest that positive accounting information can have a greater impact on the stock price of good news firms, while negative accounting information may not have as much impact on the stock price of bad news firms.

Empirically, several studies have found that accounting information is more value relevant for good news firms than bad news firms. For instance, the seminal study of Ball and Brown (1968) found that earnings announcements have a greater impact on stock prices for firms with positive earnings surprises than for firms with negative earnings surprises. Similarly, Francis and Schipper

(1999) found that earnings announcements have a greater impact on stock prices for firms with positive earnings trends than for firms with negative earnings trends. Furthermore, Koonce and Lipe (2010) found that the market reacts more strongly to earnings announcements for firms with high forecast accuracy. This effect is more pronounced for firms with positive earnings surprises, suggesting that the value relevance of accounting information is higher for good news firms.

While the adoption of IFRS is expected to improve the comparability of financial statements across countries and reduce information asymmetry between investors and firms, its impact on the value relevance of accounting information of good news and bad news firms is not clear. Some researchers suggest that IFRS adoption may increase the value relevance of accounting information for both good news and bad news firms (e.g. Barth et al., 2008). Others suggest that IFRS adoption may have a greater impact on the value relevance of accounting information for bad news firms (Christensen et al., 2013). This is because bad news firms may benefit more from the increased comparability of financial statements provided by IFRS which could help to mitigate negative perceptions of their financial health.

3.12 Chapter Summary

This chapter presented a comprehensive review of literature on motivators for, and barriers to, IFRS adoption, with special reference to Saudi Arabia, as well as the effect of IFRS implementation on accounting quality, with a focus on value relevance. The reviewed literature has offered mixed results— some studies found that IFRS has a positive impact on the value relevance of accounting information, while others found either a negative impact or no impact. Many researchers have attributed IFRS's failure to improve financial reporting quality to weak enforcement, a lack of incentives to adopt IFRS and similarities between IFRS and national GAAP. This suggests that each country must be examined separately to determine the suitability and impact of IFRS on the value relevance of accounting information. Therefore, the question of whether IFRS adoption leads to more value relevant accounting information is still open.

The literature has shown that variation in the value relevance of accounting information can be due to country-level or firm-level factors. Multi-country studies have explored country-level factors, while single-country studies have focused on firm-level factors. The country-level institutional factors include the market financing system, the stakeholders of the accounting

standard setting process, the separation between tax and accounting rules, the legal system, the level of investor protection, market efficiency, the ownership structure, corporate governance and the efficiency of legal enforcement. The firm-level factors include firm size, profitability, audit quality, potential growth, industry and leverage. Regardless of whether the effects of these factors persist after IFRS adoption, considering them should help clarify the effects of IFRS. Therefore, since this study is a single-country study, the effect of firm-level factors is considered in the analysis to distinguish between the effect of IFRS and of these firm-level factors.

Furthermore, studies on the impact of IFRS on the value relevance of accounting information vary in terms of their sample size (i.e. single country v. across countries), IFRS adoption status (i.e. mandatory v. voluntary) and the sample selected (developed v. developing countries). Different settings lead to different results. Single-country studies are preferred over across-countries studies, which are common in the case of EU countries, owing to the effect of different institutional factors. Examining the impact of mandatory adoption is also a preferred research design over voluntary adoption because the former shows the real test of IFRS, while the latter has been criticised as being driven by self-selection bias since a firm may have incentives to adopt IFRS. Most prior studies have focused on developed countries, in particular EU countries, and have largely overlooked developing countries. While the developed countries have national GAAP that are similar to IFRS, developing countries' GAAP differs significantly from IFRS. This would lead to the conclusion that the potential benefits of IFRS adoption could be higher for developing countries than for developed countries. Therefore, this study, as a single-country study that examines the mandatory IFRS adoption in the developing country of Saudi Arabia, is free from the criticisms of the influence of institutional factors and self-selection bias and is expected to make a significant contribution to the limited literature on developing countries. Chapter 4 will discuss the theoretical framework and hypothesis development.

Chapter 4: Theoretical Framework and Hypothesis Development

4.1 Introduction

This chapter reviews the relevant theories and literature to formulate the study hypotheses in order to address the research questions. A theoretical framework comprises the research beliefs on how and why certain variables are related to each other (Sekaran & Bougie, 2016). Since the main objective of this study is to empirically examine the impact of IFRS adoption on the value relevance of accounting information of firms with different characteristics listed on Tadawul, the theoretical framework is discussed as follows. Section 4.2 presents a mathematical discussion of valuation theory and its various forms and assumptions. Section 0 reviews the market efficiency hypothesis. Section 4.4 discusses the application of institutional theory in the context of IFRS adoption**Error! Reference source not found.** Section **Error! Reference source not found.** develops the hypotheses on the basis of the multi-theoretical analytic framework adopted by this study and prior relevant studies. Last, Section4.6 summarises this chapter.

4.2 Valuation Theory

Value relevance examines the association between accounting numbers and market value (Barth et al., 2001). This association lacks a descriptive theory, given that the first attempt at linking accounting numbers to market value was empirically conducted by Ball and Brown (1968) whose motive was to prove that accounting information has substantial value, which contradicted the main argument at the time. This remained the case (e.g. Beaver, 1968) until the influential studies of Ohlson (1995) and Feltham and Ohlson (1995) who revived the use of valuation theory. Thus, the value relevance literature relies on the use of valuation analysis, which is a branch of the fundamental analysis (Kothari, 2001). The fundamental analysis is concerned with the study of firm value. The use of fundamental analysis helps to better understand the determinants of firm intrinsic value and consequently facilitates making an informed investment decision (Kothari, 2001). However, researchers utilising valuation models should have thorough understanding of models and techniques of the fundamental analysis (Kothari, 2001). According to Kothari (2001) and Beaver (2002), the most extensively used valuations models are those related to the dividend-discounting model or its transformations (e.g. earnings capitalisation model and the Ohlson model: 'the residual income model').

However, the valuation model cannot be used as the only theoretical foundation of value relevance studies for it lacks underlying descriptive theory to support the motive behind such studies (Holthausen & Watts, 2001). Thus, Holthausen and Watts (2001) have argued that inferences cannot be drawn from these studies to inform accounting standards setters. In response, Barth et al. (2001) have asserted that these can be of high relevance to accounting standards setters since such studies measure the relevance and reliability of accounting information, which are the main objectives of any accounting standards setter. They also asserted that value relevance studies are not meant to provide policy recommendations to accounting standards setters—rather, their results can inform the setters on how accounting numbers are reflected in share price, and thus, these results can be used in accounting setting deliberations. This view is consistent with that of Brown and Howieson (1998), who argued that research on capital markets could contribute to standard setting if executed properly.

Further, Beaver (2002) asserted that capital market-based accounting research is mainly empirical, implying descriptive theory is not as important as in other accounting research. Beaver has contributed to addressing the lack of descriptive theory in value relevance studies by highlighting the importance of combining valuation theory (the theoretical background of valuation models) and the 'contextual accounting arguments' (p. 462; e.g. IFRS/the US Financial Accounting Standards Board/SOCPA arguments and objectives) to validate the implications of value relevance studies. The contextual accounting arguments commonly used in these studies are that the main users of accounting information are equity investors, and accounting standards aim to provide value relevant, reliable information (Barth et al., 2001). Beaver (2002) categorised the valuation models into three approaches: earnings (capitalisation), balance sheet and a combination of book value and earnings. Accordingly, the following subsections review these valuation models, consistent with Beaver's (2002) approach, that is, not in the form of descriptive theory, rather in the form of econometric models.

4.2.1 Earnings Capitalisation Approach

The earnings capitalisation model expresses share price as a function of only earnings by assuming that earnings reflect all information about future cash flow (Vázquez, Valdés, & Herrera, 2007). This model is derived from the dividend-discounting model proposed by Williams in 1938, as indicated by Kothari (2001). The dividend-discounting model, which is widely used in finance

theory, assumes that the market value per share of a firm equals the present value of the expected future dividends using an appropriate risk-adjusted rate of returns as a discount (King & Langli, 1998; Kothari, 2001; Ota, 2003). The equation is formally presented as follows:

$$MV_t = \sum_{j=1}^{\infty} \frac{E_t(d_{t+j})}{(1+r)^j} \tag{4.1}$$

where:

MV_t = the market value of a firm at time t.

$E_t(d_{t+j})$ = the expected dividend to be paid at time $t+j$ on the basis of information revealed at time *t*.

r = the risk-adjusted discount rate, which is assumed to be constant.

According to Kothari (1992), four assumptions should be considered when estimating the relationship between market value (MV) and earnings (X). First, price does not lead earnings, meaning that the earnings of the current period can reflect all information reflected in the returns for the same period. Second, price is only affected by the information of earnings and not by any other factor. Third, the dividend payout ratio is 100%. A 100% dividend payout ratio sounds impractical, but Kothari (1992) has asserted that it does not sacrifice the economic intuition and is used for simplification purposes. Fourth, earnings must follow a random walk—that is, the expected earnings can be predicted by using the earnings of the current period. If these assumptions are met, the expected dividend as in Equation (4.1) can be replaced with the expected earnings, resulting in the following (i.e. the perpetuity formula):

$$MV_t = \sum_{j=1}^{\infty} \frac{E_t(X_{t+j})}{(1+r)^j} = \sum_{j=1}^{\infty} \frac{X_t}{(1+r)^j} = \frac{1}{r} X_t \qquad (4.2)$$

where:

$E_t(X_{t+j})$ = the expected earnings of time $t + j$ based on earnings (X_t) at time *t*.

r = the risk-adjusted discount rate, which is assumed to be constant.

To estimate Equation (4.2) empirically, using X_t as the time-series earnings expectation, it can then be specified as the following:

$$MV_{it} = a + bX_{it} + e_{1it} \qquad (4.2)$$

where:

a = the intercept, which is expected to be 0 since it is assumed that (MV_{it}) is only affected by (X_{it}) of firm i at time t.

b = the earnings response coefficient (ERC), which equals 1/r.

ERC estimate = [covariate (X_t, P_{it})/variance (X_{it})].

e_{1it} = the error term.

Alternatives of earnings capitalisation (the price–earnings relationship) models have been employed in the value relevance literature (Kothari & Zimmerman, 1995). These have assumptions similar to that of Model (4.3) and are specified as follows:

$$MV_{it}/MV_{it-1} = a + bX_{it}/MV_{it-1} + e_{2it} \quad (4.3)$$

$$\Delta MV_{it} = a + b\Delta X_{it} + e_{3it} \quad (4.4)$$

where:

MV_{it-1} = the market value for firm i at time $t-1$.

$\Delta MV_{it} = MV_{it} - MV_{it-1}$

$\Delta X_{it} = X_{it} - X_{it-1}$, where X_{it-1} = the earnings information of firm i at time $t-1$.

e_{2it} and e_{3it} = error terms.

Models (4.4) and (4.5) are equivalent to Model (4.3), except for the distribution of the residuals, where the difference is that Model (4.4) is deflated by the lagged share price, while in Model (4.5), the difference in share price is regressed on the difference in earnings. Models (4.3), (4.4) and (4.5), which are used in value relevance studies, have been used extensively when valuing firms using earnings as the only independent variable and are usually referred to as price model, return model and differenced-price model, respectively. The b of these models is often referred to in the literature as the earnings response coefficient (ERC), which is a measure of the magnitude of the price–earning relationship. Although these three models produce equivalent slope coefficients of $1/r$, Kothari and Zimmerman (1995) have highlighted that model selection must be related to an econometric issue or to a violation of any of the four aforementioned assumptions (e.g. if price leads earnings, Model (4.4) is the best choice among these models). Christie (1987) has argued that Model (4.4) is the correct choice among these models in case there are heteroscedastic errors. This argument has likely influenced much of the extant literature because the vast majority of empirical studies have regressed returns on earnings to measure the price–earnings relationship.

4.2.2 Balance Sheet Valuation Approach

The balance sheet valuation approach implicitly assumes that a firm's value equals its separable assets, which can be used as estimates of their market value (Kothari, 2001). In other

words, it is based on the idea that the book value (BV) and the market value (MV) can both serve as measures of the underlying value of shareholder equity. While the market value (MV) equals the value of stocks, the book value (BV) should also be equivalent to (MV), but some errors (e) may cause them to differ. These errors (e) are usually factors related to any conservative accounting practice or information that has already been reflected in the share price but is not yet reflected in the book value (Easton & Harris, 1991). Thus, the market value at any time can be expressed as follows:

$$MV_{it} = BV_{it} + e'_{it} \tag{4.5}$$

where:

BV_{it} = the book value of equity of firm i at time t.

e_{it} = errors due to conservative accounting practices or information reflected in market value, but not yet in the book value.

Model (4.6) is the balance sheet valuation model, and prior studies have used it to investigate the incremental value relevance of one component of assets or liabilities along with other variables of interest from the balance sheet. The significance of the estimated regression coefficient of interest indicates whether this component provides incremental value relevant information. Landsman (1986) and Barth, Beaver and Landsman (1996) have applied Model (4.6) to study the additional information that pension funds and loan-related variables, respectively, can provide beyond the book value of equity when valuing firms. Another example is the study of Khurana and Kim (2003), who compare the informativeness of assets measured at fair value and at historical cost.

Model (4.6) has also been applied in the per share form—for instance, Brimble and Hodgson (2007) and Lam et al. (2013) used it to analyse Australian and Chinese samples, respectively. The per share form of Model (4.6) can expressed as follows:

$$P_{it} = BVPS_{it} + e'_{it} \quad (4.7)$$

where:

P_{it} = the share price of firm i at time t.

$BVPS_{it}$ = the book value of equity per share of firm i at time t.

From Equation (4.7), the relationship between return and earnings can be obtained by (a) taking the first differences of the variables at the beginning and at the ending of the return window, (b) assuming the accounting clean surplus relation[30] holds and (c) deflating variables by price at the beginning of the return window (Easton & Harris, 1991). Taking the first differences of the variables in Equation (4.7) results in the following model:

$$\Delta P_{it} = \Delta BVPS_{it} + e'_{it} \quad (4.8)$$

where:

$\Delta P_{it} = P_{it} - P_{it-1}$, where P_{it-1} = the share price at the beginning of the return window.

$\Delta BVPS_{it}$ = the change in book value per equity share (BVPS) between two periods ($BVPS_{it} - BVPS_{it-1}$).

[30] Clean surplus relationship is a concept that has been usually assumed in valuation models (see Ohlson, 1995; Peasnell, 1982).

The assumption of the accounting clean surplus relation expresses that the change in the book value of equity per share *BVPS* is a result of only net dividend per share (DPS) paid at time *t* and net earnings per share (EPS) earned at time *t*.[31] This is formally expressed as follows:

$$BVPS_{it} = BVPS_{it-1} + EPS_{it} - DPS_{it} \tag{4.9}$$

Moving the $BVPS_{it-1}$ to the left-hand side gives the following:

$$\Delta BVPS_{it} = EPS_{it} - DPS_{it} \tag{4.10}$$

where:

EPS_{it}= the earnings per share earned at time *t*.

DPS_{it}= the net dividend per share paid at time *t*.

Substituting Equation (4.10) into Equation (4.8) gives the following:

$$\Delta P_{it} = EPS_{it} - DPS_{it} + e'_{it} \tag{4.11}$$

Moving (DPS_{it}) to the left-hand side and dividing both sides of Equation (4.11) by the share price of the beginning of period (P_{it-1}) yields:

[31] Any change in the book value of equity as a result of anything other than net dividend per share (DPS) and net earnings per share (EPS) is called 'dirty surplus'.

$$Ret_{it} = a + b\frac{EPS_{it}}{P_{it-1}} + e''_{it} \quad (4.6)$$

where $Ret_{it} = [(\mathrm{P_{it}} - \mathrm{P_{it-1}}) + DPS_{it}$

As shown above, the return–earnings relation as in specification (4.7) can be derived from Model (4.8), the balance sheet valuation model. Model (4.9) has also been popular in the value relevance literature (see, e.g. Bartov et al., 2005; Dechow, 1994; Van der Meulen et al., 2007). However, according to Kothari (2001), the major disadvantage of Model (4.10) is that it assumes that there is a one-to-one link between the change in earnings and the change in price (market expectation). This leads to the assumption that the earnings are entirely transitory, which is not always the case. Therefore, there is an evident shift in the value relevance literature from a model that investigates the return–earnings relation as in Model (4.11) to a model that combines the balance sheet and earnings capitalisation approaches, which is explained in the next subsection.

4.2.3 Combining Balance Sheet and Earnings Capitalisation Approaches

When using returns as the dependent variable in a valuation model, both earnings level and change are usually included as independent variables (e.g. Amir et al., 1993; Barth et al., 2012). Easton and Harris (1991) were the first to suggest combining the balance sheet and earnings capitalisation approaches in line with the argument that when the earnings level and change are included, the model exhibits much higher R^2, which indicates that the combined earnings level and change model provides a stronger explanation for returns variation than does either model separately.

Later, Ohlson (1995), who published a working paper on this topic, showed that the market value is a weighted function of the book value and earnings. Easton and Harris (1991) exploited an argument by Ohlson that the market value is a weighted function of the book value and earnings (which was later published by Ohlson in a working paper in 1995) in their empirical examination of the role of both earnings level (derived from the balance sheet approach using Model 4.12) and earnings change (derived from the earnings capitalisation approach using Model 4.13) to explain

stock returns. Following Miller and Modigliani (1966), who assumed that dividend does not affect firm value since it does not provide information about future investment (Kothari, 1992), Easton and Harris (1991) showed that Model (4.14) should be rewritten in per share form as follows by including the dividend per share (DPS_{it}):

$$\Delta P_{it} + DPS_{it} = a + b\Delta EPS_{it} + e_{3it} \quad (4.15)$$

Then, when dividing both sides by P_{it-1}, the equation can be written as follows:

$$Ret_{it} = a + b\frac{\Delta EPS_{it}}{P_{it-1}} + e_{3it} \quad (4.16)$$

Notably, Easton and Harris's (1991) contribution lies in combining Models (4.17) and (4.18) since both have similar dependent variables. Thus, the combined model can be rewritten as follows:

$$Ret_{it} = a + b_1\frac{\Delta EPS_{it}}{P_{it-1}} + b_2\frac{EPS_{it}}{P_{it-1}} + w_{it} \quad (4.19)$$

where w_{it} = value relevant information other than earnings level and change.

The equation ERC = $b_1 + b_2$ shows the size of the unit change in return for every unit change in earnings (Lev & Zarowin, 1999). A high (low) ERC indicates that earnings are informative (not relevant) to equity investors and are mostly permanent (transitory or manipulated). Ali and Zarowin (1992) argued that the inclusion of earnings level serves as a proxy

for unexpected earnings when the earnings from the previous period are not completely permanent, while the inclusion of earnings change serves as a proxy for unexpected earnings that are assumed to be mostly permanent. They empirically showed that the explanatory power (R^2) is higher on including the earnings level in a model that has a sample that includes a high level of transitory earnings from the previous period. This finding indicates that the higher the transitory earnings from the previous period, the more important it is to include the earnings level in the model.

4.2.4 Residual Income Valuation Approach

The RIV model expresses the value of a firm as the sum of the current book value of equity and the present value of forecasted future abnormal earnings (Kothari, 2001; Ohlson, 1995). The basic form of the RIV model, as shown in C. M. Lee's (1999) study, is as follows:

$$\text{Firm Value} = \text{BV (Capital)} + \text{present value (PV)of all future abnormal (residual) income} \quad (4.20)$$

To achieve this equation, the RIV model is designed on the basis of three direct assumptions (Ota, 2003): (a) The value of a firm is the present value of expected future dividends. (b) It must satisfy the accounting clean surplus relation. (c) The book value of equity grows at a rate less than 1 + r. Taking into account these three assumptions yields the RIV model, which is expressed as follows.

First, the dividend-discounting model is expressed as follows:

$$MV_t = \sum_{j=1}^{\infty} \frac{E_t(d_{t+j})}{(1+r)^j} \quad \text{(Prior 4.1)}$$

Second, the clean surplus relation is assumed to hold, and it can be expressed as follows:

$$BV_{it} = BV_{it-1} + X_{it} - d_{it} \quad (4.17)$$

By rearranging this equation, dividends (d_{it}) can be expressed as follows:

$$d_{it} = BV_{it-1} - BV_{it} + X_{it} \quad (4.21)$$

where d_{it} = the dividends paid by firm *i* at time *t*.

There are two types of earnings, namely, normal and abnormal earnings. The former is defined as the earnings that equal the book value at time *t*-1(BV_{it-1}) multiplied by the risk-free rate (r), while the latter is defined as the difference between the realised earnings (X_{it})and normal earnings (X_{it}^{n}). Thus, normal and abnormal earnings can be expressed as follows:

$$X_{it}^{n} = r * BV_{it-1} \quad (4.22)$$

$$X_{it}^{a} = X_{it} - r * BV_{it-1} \quad (4.23)$$

where:

X_{it}^{n} = the normal earnings of firm *i* at time *t*.

X_{it}^{a} = the abnormal (residual) earnings of firm *i* at time *t*.

r = the risk-free rate.

Rearranging Equation (4.24) gives the following:

$$X_{it} = X_{it}^{a} + r * BV_{it-1} \quad (4.25)$$

Substituting Equation (4.26) into Equation (4.27) gives the following:

$$d_{it} = X_{it}^{a} + (1 + r) * BV_{it-1} - BV_{it} \tag{4.28}$$

The final step, which yields the RIV model, is substituting this expression (4.22) for d_{it} in the dividend-discounting model in Equation (2.4). The RIV model is formally presented as the following:

$$MV_t = BV_t + \sum_{i=1}^{\infty} \frac{E_t(X_{t+i}^{a})}{(1 + r)^i} \tag{4.29}$$

where $\sum_{i=1}^{\infty} \frac{E_t(X_{t+i}^{a})}{(1+r)^i}$ = the present value of future anticipated abnormal earnings.

As can be clearly seen, this specification (4.30) expresses the value of a firm as the sum the current book value of equity and the present value of future abnormal earnings. This model is known as the RIV model and has been applied prior to the work of Ohlson (1995) and Feltham and Ohlson (1995). However, according to Kothari (2001), Ohlson (1995) and Feltham and Ohlson (1995) deserve the credit for reviving the RIV model and for their contribution to the RIV model, which allows it to be operationalised in studies about valuing firms.

4.2.5 Price and Return Models

The contribution of Ohlson (1995) and Feltham and Ohlson (1995) lies in what is known as 'the linear information dynamics (LID)', which provide a description of the time-series behaviour of residual earnings (Kothari, 2001; Ota, 2002). Their contribution to the RIV model is considered a major development in capital market-based accounting literature (Beaver, 2002).

Dechow, Hutton and Sloan (1999) asserted that the real contribution of Ohlson (1995) and Feltham and Ohlson (1995) is that they have provided a valuation model that can link the current accounting information with firms' market value. A similar assertion was made by C. M. Lee (1999), who argued that although the major limitation of the RIV model (4.31) is that firm value is a function of forecast numbers and not past (reported) numbers, the introduction of the LID provides a solution to this limitation. Ohlson (1995) stated that the LID assumption is introduced to complete the RIV model. The LID assumes the time-series behaviour of residual earnings should be generated as follows:

$$X^a_{t+1} = \omega X^a_t + v_t + e_{1,t+1} \tag{4.32}$$

$$v_{t+1} = \gamma v_t + e_{2,t+1} \tag{4.33}$$

where:

v_t = relevant information other than abnormal earnings that have not yet been captured in financial statements.

ω (γ) = the persistence parameter of X^a_t (v_t) and its theoretical value, which should be between 0 and 1.

e_1 and e_2 = error terms.

Combining Equations (4.34) and (4.25) with the RIV model (4.23) yields the following Ohlson (1995) model:

$$MV_{it} = BV_{it} + a_1 X^a_{it} + a_2 v_{it} \tag{4.35}$$

$$a_1 = \frac{\omega}{1 + r - \omega}$$

$$a_2 = \frac{1+r}{(1+r-\omega)*(1+r-\gamma)}$$

Replacing abnormal (residual) earnings (X_{it}^a) as in Model (4.36) with reported earnings (X_{it}) by using Equation (4.37), which is $X_{it}^a = X_{it} - r * BV_{it-1}$, and then the clean surplus relation, as in Equation (4.17), which is $BV_{it} = BV_{it-1} + X_{it} - d_{it}$, to replace BV_{it-1} yields the following:

$$MV_{it} = (1-k)BV_{it} + k(\varphi X_{it} - d_{it}) + a_2 v_{it} \tag{4.38}$$

$$k = r * a_1 = \frac{r\omega}{1+r-\omega}$$

$$\varphi = \frac{1+r}{r}$$

This specification (4.27) expresses the market value of a firm as a weighted average of the book value of equity and current earnings minus dividends paid at time *t* and other relevant information that has not been reflected in the financial statements. k (φ) is a combined a function of r and the abnormal earnings persistence (a function of the risk-adjusted discount rate r).

From Model (4.27), it can be seen that Ohlson (1995) did not provide a theoretical role for the intercept; therefore, a significant intercept is a signal for misspecification (correlated omitted variables problems) that leads to slope coefficient bias (Kothari & Zimmerman, 1995). Moreover, Kothari and Zimmerman (1995) asserted that the intercept of price and return models should be 0 and non-significant as long as earnings follow a random walk. Barth et al. (1998) argued that a significant intercept may be due to the fact that price reflects unrecognised assets more than accounting information; in this case, book value and earnings cannot be perfect estimates. However, this is not the case in many value relevance studies that found a significant intercept (e.g. Bartov et al., 2005; Easton & Harris, 1991; Goodwin et al., 2008).

As for the regression coefficients on book value and earnings (known as ERC), the former is theoretically predicted to be between 0 and 1, while the latter (ERC) is predicted to be more than 1 (Barth, 2000; Ohlson, 1995). Both coefficients are theoretically predicted to be positive and significant except in case of negative earnings, the presence of transitory items, and the increased importance of unrecognised assets. According to Barth (2000), the k term plays a significant role in determining the relative importance of book value and earnings since the coefficient on earnings (book value) equals $k^{*}\varphi$ $(1 - k)$. The value of k can vary between 0 and 1, depending on the state of the firm and the measurement attributes of book value and earnings (Barth, 2000). As for the state of the firm, k can take a value closer to 1 (0) when the firm has permanent earnings (is approaching bankruptcy), resulting in higher importance of earnings (book values of equity). In contrast, the assets measurement can also affect the value of k, which can take a value closer to 1 (0) when the assets are measured at historical cost (fair value), resulting in a larger coefficient on earnings (book values of equity). In short, the weaker the financial health of the firm and the higher the use of fair value when measuring assets, the higher the importance of the book values of equity, and the closer the value of k to 0 and vice versa (Barth, 2000).

The specification (4.27) also has been used in the value relevance literature as the theoretical foundation for the most popular valuation models (i.e. price and return models). To empirically apply this specification (4.27) as a linear model, it can be rewritten as follows:

$$MV_{it} = b_1 BV_{it} + b_2 X_{it} + b_3 d_{it} + b_4 v_{it} + e_{it} \tag{4.39}$$

Ohlson (1995) explained that the other relevant information (v_{it}) can be ignored and the model can be estimated by assuming v_{it} = 0. By doing so, the model will be similar to the model that combines the earnings capitalisation model and balance sheet model (4.40). Dividends are also often ignored (i.e. treated as a random error) in value relevance studies. Firm value is usually expressed as the sum of the book values of equity and current earnings because they serve as the summary of information in the key financial statements (Easton, 1999). Researchers have often applied either or both the price and return specifications by referring to Ohlson's (1995) theoretical foundation as the basis for their models and by ignoring the role of (v_{it}) and (d_{it}; e.g. Collins et

al., 1997; Hung & Subramanyam, 2007; Tsalavoutas et al., 2012). Thus, the 'conventional' form of the price model is often specified in the per share form as follows:

$$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it} \quad (4.41)$$

The return model can be derived from the price model (4.29) by applying three further steps (Easton, 1999). First, taking the first difference of the variables in the price model (4.29) yields the following:

$$\Delta P_{it} = b_0 + b_1 \Delta BVPS_{it} + b_2 \Delta EPS_{it} + e_{it} \quad (4.42)$$

Second, applying the clean surplus relation, which assumes $\Delta BV_{it} = X_{it} - d_{it}$, to Equation (4.43) yields:

$$\Delta P_{it} = b_0 + b_1 EPS_{it} - DPS_{it} + b_2 \Delta EPS_{it} + e_{it} \quad (4.44)$$

Third, deflating both sides of Equation (4.31) by the share price at the beginning of period (P_{it-1}) and moving dividend per share (DPS_{it}) to the left-hand side of the equation yields the 'conventional' form of the return model:

$$Ret_{it} = b_0 + b_1 \frac{EPS_{it}}{P_{it-1}} + b_2 \frac{\Delta EPS_{it}}{P_{it-1}} + e_{it} \quad (4.45)$$

In summary, the price (4.46) and return (4.47) models are both derived from the Ohlson (1995) theoretical framework by applying the idea of the LID to the RIV model, which is originally derived from the dividend-discounting model. Although both models are derived from the same theoretical framework, they may yield contradictory results (e.g. J. Francis & Schipper, 1999; Goodwin et al., 2008; M. S. Harris & Muller, 1999; Lev & Zarowin, 1999).

The major advantage of the price model is that unlike the return model, it allows to measure the value relevance of earnings as well as book values of equity, which represent the summary of the two key financial statements (Clarkson et al., 2011; Ohlson, 1995). The book value of equity indicates the past performance of a firm, whereas its earnings can be used as a proxy for its future performance. Moreover, the key difference between the price and return models is that while the former is concerned with what accounting information has been reflected in firm value, the latter is interested in examining the role of accounting information in affecting firm value over a specific period (Barth et al., 2001; Beaver, 2002; Beisland, 2009).

While many studies have applied either the price model (e.g. Badu & Appiah, 2018; Collins et al., 1997; Hung & Subramanyam, 2007) or the return model (e.g. Bartov et al., 2005; Filip & Raffournier, 2010), many other studies have applied both models (e.g. Chalmers et al., 2011; Goodwin et al., 2008; Krishnan & Zhang, 2019). The literature has suggested that it is reasonable to use the price model (Barth, 2000), especially in investigating IFRS adoption (Clarkson et al., 2011), for it allows researchers to examine both earnings and book values of equity.

Although the selection between these two models is subject to an ongoing debate[32] since both models suffer from econometric issues[33] (see Chapter 5), Kothari and Zimmerman (1995), and Ota (2003), who evaluated both models, concluded that implementing both models may be an appropriate choice and could lead to better inferences. Therefore, this study will employ both models to measure the impact of IFRS adoption on the relative and incremental value relevance of the accounting information of non-financial firms listed on Tadawul.

The adjusted explanatory power (Adj R^2) value of price and return models is the main metric used to measure the combined value relevance of accounting information since it shows the

[32] Barth (2000), Barth et al. (2001), Chen et al. (2001), Kothari and Zimmerman (1995) and Ota (2003), among others, have discussed the advantages and disadvantages of both models and the selection criteria.
[33] Econometric issues include heteroscedasticity, spurious ratio and non-stationarity problems.

extent of the variation in the dependent variable that can be explained by the independent variables (e.g. Barth et al., 2008; Collins et al., 1997; Sami & Zhou, 2004). Theil (1971) suggested decomposing the multivariate models (4.48) and (4.49) into univariate models to measure the individual value relevance of each accounting number as measured by the Adj R^2 value of each univariate model. For the price model (4.50), the two univariate models are the following:

$$P_{it} = a_0 + b_1 BVPS_{it} + e_{it} \tag{51.33}$$

$$P_{it} = a_0 + b_1 EPS_{it} + e_{it} \tag{52.34}$$

For the return model (4.53), Easton and Harris (1991) showed that the two univariate models can be specified as follows:

$$Ret_{it} = b_0 + b_1 \frac{EPS_{it}}{P_{it-1}} + e_{it} \tag{54.35}$$

$$Ret_{it} = b_0 + b_1 \frac{\Delta EPS_{it}}{P_{it-1}} + e_{it} \tag{55.36}$$

4.3 Efficient Market Hypothesis

Market efficiency theory (hypothesis) explains the way that market participants process all available information, and, in particular, financial information, by reflecting it in the share price. Kothari (2001) stated that the theoretical framework used in capital market accounting research is based on efficient market theory. Similarly, Deegan and Unerman (2006) asserted that the more the degree of market inefficiency, the less reliable the results of capital market accounting research.

Fama (1970) categorised market efficiency into three forms: strong, semi-strong and weak. In the first, the strong form, the share price should reflect all available information, including information that is only available to certain individuals or group of people. The second form is the semi-strong where the share price reflects only the information that is available to the public, such as annual reports. This is in line with Watts and Zimmerman's (1986) assumption that when accounting information is publicly available, it indicates that capital market efficiency is in the semi-strong form. The last, the weak form of market efficiency, refers to a market where the stock price reflects the historical information of the share price and its trading volumes (Fama, 1970). Intuitively, market efficiency theory about the semi-strong form is essential to value relevance studies since it explains the movements of share price as the outcome of the release of the financial reports of listed firms. Therefore, without market efficiency theory, it is impossible to link market values with accounting information.

Although the value relevance literature implicitly assumes that the market satisfies at least the semi-strong form (Abdel-Khalik et al., 1999), Section 3.10.6 discusses why this assumption can violated if a corrective procedure is applied. While the market efficiency hypothesis is important for valuation models to link financial information with market value, the IFRS adoption is considered an institutional change to the accounting profession in Saudi Arabia, which adopted IFRS owing to institutional pressures (see Chapter 3). Therefore, the following section explains the role of institutional theory in the context of IFRS implementation at country and firm levels.

4.4 Institutional Theory

Institutional theory in its various forms has become popular among international accounting researchers (e.g. DiMaggio & Powell, 1983; Scott, 1987). The reason is that it provides a richer explanation of organisational behaviour than the classical economic theory perspective does. From the institutional perspective, an organisation's behaviour is shaped by how it interacts with social, political, cultural, economic and environmental factors (Dillard, Rigsby, & Goodman, 2004). The rationale behind the impact of these factors is that firms not only compete for economic sources, but also seek political and institutional legitimacy (DiMaggio & Powell, 1983). Thus, institutional theory offers insights into the driving forces and processes of the organisation's behaviour and its responses to the external environment. Such behaviours could include embracing, adapting, adopting and implementing certain rules and practices. Thus, according to

Fogarty (1996), the fundamental purpose of the use of institutional theory is to identify the distinction between the expected and actual status of implementation of these rules and practices. This view is in line with Meyer and Rowan's (1977) assertion that in some cases, an organisation may engage in decoupling, which means that it may exhibit to the external environment that it operates in accordance with the expectations of the external environment, but, in reality, does not follow the procedure by which it would meet these expectations.

According to DiMaggio and Powell (1983), there are three forms of isomorphism. The first, coercive isomorphism, explains how firms must comply with the demands of powerful stakeholders to gain and maintain legitimacy (DiMaggio & Powell, 1983). Firms face coercive institutional pressure in the form of compulsory rules, capital market competition and regulatory oversight, which may result in either recompense or punishment (Scott, 1987). In the context of IFRS, an example of this form would be the pressure exerted by the World Bank by requiring IAS adoption for loan eligibility. The second form, mimetic isomorphism, explains how firms are influenced by successful firms in their field and try to emulate them in order to be viewed as successful and legitimate firms. Mimetic pressure usually occurs when a firm considers itself to be in an uncertain situation, which leads it to adopt or abandon certain practices for following a course of action taken by similar, large or successful firms (Haveman, 1993). In the context of IFRS adoption, firms are influenced by their trade partners—for instance, in EU countries when a successful firm adopts IFRS, other firms follow it and also adopt IFRS.

The third form, normative isomorphism, refers to the group norms of professional associations that influence firms to adopt best practices. Unlike in the case of coercive pressure, firms are not required, nor forced, to adopt certain practices to gain legitimacy; rather, they view these practices as professional ethical obligations that they should adopt in order to comply with the norms in that field (Hoffman, 1999). In the context of IFRS, an example would be the effort of the Big4 accounting firms, as professionally trained accounting firms, which is considered a normative pressure to globalising the use of IFRS. Prior studies have adopted institutional theory to examine factors influencing mandatory IFRS adoption in developing countries, such as the UAE (Irvine, 2008), Iraq (Hassan et al., 2014) and Bangladesh (Mir & Rahaman, 2005); in developed countries, such as the EU countries (Kouki, 2018); and in a mixture of both (Judge, Li, & Pinsker, 2010). Therefore, this theory is essential when studying the effect of a major event, such as IFRS adoption.

In the case of IFRS adoption at the country level, institutional theory has been employed to interpret factors influencing a country's adoption decision as well as the differences between the expected and actual outcomes of IFRS implementation. For example, Irvine (2008), Judge et al. (2010), Hassan et al. (2014) and Pricope (2016) tried to explain the driving forces of IFRS adoption by employing institutional theory. They contended that IFRS has been adopted by many countries to gain legitimacy, access the international market, attract FDI, improve financial reporting quality and, ultimately, to ensure survival. However, at the firm level, institutional theory assumes that when IFRS adoption is only voluntary, a firm tends to adopt it in order to gain legitimacy, whereas when the adoption is mandatory, it explains how a firm chooses to implement IFRS (Guerreiro et al., 2012). The theory also predicts that IFRS adoption by itself does not ensure improved quality since firms may have adopted it owing to one or all of the three forms of isomorphism. For example, large firms are usually followed by media, financial analysts (Bhushan, 1989) and institutional investors (institutional pressures), and thus, they are most likely than smaller firms are to implement IFRS in a more professional manner. This is in line with the recent empirical study of Alnaas and Rashid (2019), who found that the level of IFRS compliance is higher among large firms listed on the stock exchanges of Egypt, Morocco and Tunisia. Similarly, firms with other characteristics encounter other institutional pressures, which results in a similar response to IFRS adoption. The accounting literature shows a diversity of IFRS adoption effects due to different institutional factors, such as values, religion, politics, economy, legal system, enforcement efficiency and culture of the adopting countries. Thus, the role of institutional theory is to examine these factors (Choi & Meek, 2008; Judge et al., 2010; Wallace & Gernon, 1991) and their effects on IFRS implementation. Therefore, the use of institutional theory is essential in this study since it provides insight into the differences between the expected and actual results of IFRS implementation.

4.5 Conceptual Framework and Hypotheses Development

Since the purpose of this study is to empirically examine the impact of IFRS on the value relevance of accounting information in Saudi Arabia, it employs both valuation theory (Section 4.2) and institutional theory (Section 4.4) to provide insight into the relationship between market value and accounting information pre and post IFRS in light of the IASB and SOCPA Conceptual Frameworks (see Section 3.3.2). Valuation theory explains the relationship between accounting

information and market value. In contrast, institutional theory explains the impact of IFRS adoption as an institutional factor on the value relevance of accounting information. It also explains how firms may differ in their response to IFRS adoption according to their characteristics in a way that affects the value relevance of their accounting information. The IASB and SOCPA Conceptual Frameworks explain the fundamental qualitative characteristics of accounting information, namely, that it should be relevant and faithfully presented to support investors (main users) in making informed investment decisions. In addition, prior value relevance studies, which provide empirical evidence, will be used to predict the effect of firm-level and country-level institutional factors. Together, valuation theory, institutional theory, the IASB and SOCPA Conceptual Frameworks and prior relevant literature are used to formulate the hypotheses of this study, which will be expressed in a **null form** and cover the following areas:

- the combined and the relative value relevance of accounting information during the study period (2015–2018);
- the relative and incremental value relevance between EPS and BVPS during the study period (2015–2018);
- the impact of IFRS on the relative (combined and individual) and incremental value relevance of accounting information; and
- the influence of firm-specific characteristics on the relative and combined value relevance of accounting information pre and post IFRS adoption.

4.5.1 Combined and Relative Value Relevance of Accounting Information During Study Period (2015–2018)

Theoretically, valuation theory predicts that earnings and book values of equity are both relevant to equity investors, which has been supported by empirical findings (see Ohlson, 1995). Empirically, prior studies have shown that earnings and book values of equity are both value relevant when US GAAP (e.g. Barth et al., 2012; Cussatt et al., 2018; T. S. Harris et al., 1994), IFRS/IAS (e.g. Barth et al., 2008; Chalmers et al., 2011; Kouki, 2018) and Saudi GAAP (e.g. Albarrak, 2011) are applied. In addition, Barth et al. (2012), who compared the value relevance of firms from different countries that apply IFRS with the value relevance of those that apply US GAAP, found that IFRS is comparable to US GAAP in providing value relevant information on earnings and book values of equity. Thus, since this study assesses the value relevance of

accounting information that was prepared under Saudi GAAP (2015–2016), which was derived from US GAAP, and under IFRS (2017–2018), accounting information should be value relevant throughout the study period. This is also supported by the qualitative characteristics of accounting information under both the IASB and SOCPA Conceptual Frameworks (see Section 3.3.2).

Apart from the quality of the accounting standards and the qualitative characteristics specified by accounting standards setters (i.e. IASB and SOCPA) for providing value relevant accounting information, several institutional factors should be considered when assessing the relevance of accounting information (see Section 3.10). Prior literature has identified factors that influence value relevance, which are analysed next in the Saudi context (see Chapter 2).

- **Market Efficiency**

Although market efficiency should be maintained at least in semi-strong form to link accounting information to market value (see Section 0), the valuation model can be applied even in the absence of an efficient market (see Section 3.10.6). Tadawul is considered an inefficient market (Lamouchi, 2020). Nevertheless, this should not pose any concern owing to the following reasons. First, this study employs both return and price models where the latter is less susceptible to the effect of market inefficiency. Second, it adopts the long-association approach, which is an effective way to control for the concern of market inefficiency. Third, the main metric used in this study is R^2, which should not be affected by the market inefficiency concern. Last, the study assesses value relevance under different accounting standards, whereby the market efficiency assumption is not necessary on the basis of Barth et al.'s (2001) argument (see Chapter 3). This view is consistent with that of prior value relevance studies on inefficient markets in general (Aboody et al., 2002; Filip & Raffournier, 2010) and Saudi studies in particular (Albarrak, 2011; Alnodel, 2018; Oraby, 2017). Therefore, market inefficiency should have no impact on the level of value relevance in Saudi Arabia.

- **Enforcement**

Effective enforcement is an important factor when examining the value relevance of accounting information, given that the mere implementation of high-quality accounting standards does not guarantee better value relevance unless these standards are enforced properly (see Section 3.10.9). This is of particular importance in the case of IFRS application since it is a principle-based set of accounting standards that requires exercising professional judgement (see Section 3.3.2). In

Saudi Arabia, the quality of legal enforcement is deemed adequate; in this regard, Al-Shammari, Brown and Tarca (2008) showed that the compliance in Saudi Arabia with accounting standards is, on average, the second highest, at 78%, after UAE, among GCC countries during the study period (1996–2002). Similarly, Naser and Nuseibeh (2003) empirically showed that Saudi listed firms exhibited a high level of compliance with mandatory disclosure requirements. Recently, Hashed and Almaqtari (2021) showed that, on average, Saudi listed firms complied with 78% of IFRS during 2016–2019. This level is consistent with the level of compliance exhibited by the US and non-US listing and filing firms, which were found to comply, on average, with 84.3% and 77.4% of IAS (Street & Bryant, 2000). The Saudi CMA has made timely detections of violations to market regulations in 2015–2018 (see Section 2.7.3). These violations have been finalised during the same year—completion rates have ranged from 84.4% to 92.1% (see Section 2.7.3). This could indicate that the legal enforcement within the Saudi market is reasonably sufficient. Therefore, the value relevance of accounting information is not expected to be affected negatively because of the quality of legal enforcement in Saudi Arabia.

- **Market Financing System**

As discussed in Chapter 3 (Section 3.10.1), equity-oriented markets usually provide more value relevant information. Tadawul is considered a shareholder-oriented market since the main providers of the capital needs of the listed firms are equity investors rather than commercial banks (see Section 2.7.5). In line with Ali and Hwang (2000), this is also confirmed by the debt-to-assets ratios of the study sample (see Chapter 5), which was an average of 23.52%, 23.01%, 22.22% and 22.79% during 2015, 2016, 2017 and 2018, respectively (see Section 2.7.5). Therefore, the accounting information of firms listed on Tadawul should be value relevant to equity investors who are the primary providers of capital to meet firms' financial needs.

- **Audit Quality**

The quality of auditing, which is linked to the presence of Big4 firms in a country, is a major driver of the value relevance of accounting information (see Section 3.11.3). In Saudi Arabia, auditing quality is assumed to be reasonably high because the auditing services in the country are dominated by the Big4 firms (Deloitte, PwC, KPMG and Ernst & Young), which account for more than 80% of the auditing services provided to the market (Nurunnabi, 2018). Further, SOCPA, which is responsible for the accounting profession in Saudi Arabia, requires

those who want to become certified accountants to pass a rigorous examination, which has become internationally recognised (see Section 2.7.4). Becoming a SOCPA fellow, through passing its examination, is a requirement that must be met by those who wish to start their own auditing firms. In general, auditing quality in Saudi Arabia is at an adequate level. Therefore, investors in Saudi Arabia should place great weight on accounting information when valuing listed firms.

- **Ownership Structure**

The literature review has shown that concentrated (dispersed) ownership has negative (positive) effects on the value relevance of accounting information (see Section 3.10.7). The ownership structure of the Tadawul (see Section 2.7.5) is highly dispersed and comparable to that of developed countries (see Dennis & Weston, 2001; Franks & Mayer, 2001; Gugler et al., 2008) where firms exhibit accounting information that is of high value relevance. Therefore, the ownership structure in Saudi Arabia should not raise any concern whether the value relevance of accounting information of firms listed on Tadawul is distorted.

- **Investor Protection and Corporate Governance Mechanism**

Accounting quality is higher in countries with high levels of investor protection and an effective corporate governance mechanism (see Sections 3.10.5 and 3.10.8). In Saudi Arabia, investor protection has been under refinement since the creation of the Saudi CMA in 2003 which strives to protect investors by ensuring an ideal environment (see Section 2.7.3). Further, the *SCGC* has been evolving since its enactment in 2006, to promote a high level of investor protection and disclosure (see Section 2.6.5). The corporate governance model in Saudi Arabia is highly influenced by accounting practices in the US and UK, which both use the Anglo-Saxon model that prioritises shareholder protection over that of stakeholders (Al-Faryan, 2020). This view has been supported by the empirical study of AL-Hazzani and Al-Adeem (2020), who find that the board of directors and the top management of Saudi listed firms both treat shareholders as proprietors. The CMA's efforts and Saudi Arabia's corporate governance model have resulted in investor protection in Saudi Arabia being among the best practices and it is assumed to be adequate. Therefore, the accounting information of firms listed in Saudi Arabia should be value relevant to equity investors, who are accorded a higher priority under the Saudi corporate governance model.

- **Legal System**

The literature has discussed the effect of the two types of legal systems (common law and code law) on the value relevance of accounting information, which is found to be higher in firms operating in common law countries (see Section 3.10.4). The legal system in Saudi Arabia, which is neither a common nor a code law system, is mainly derived from Islamic law, whereby all legislations must be in harmony with Islamic law (see Section 2.4). In practice, this is not the case since many banks and insurance firms operating in Saudi Arabia provide services and products that do not comply with *Shari'a* (Albarrak, 2011). Regarding the Saudi legal system's effect on the value relevance of accounting information, many Saudi-based studies have reported value relevance levels similar to that of developed countries (e.g. Albarrak, 2011; Alnodel, 2018; Oraby, 2017). Therefore, it is expected that the Saudi legal system does not have a negative impact on the value relevance of accounting information of firms listed on Tadawul.

- **Separation of Taxation From Accounting Regulation**

The literature shows that high book-tax conformity negatively affects the value relevance of accounting information because it creates incentives for management to manipulate the accounting information to reduce the taxable amount (see Section 3.10.3). In the Saudi context, SOCPA stipulates in its Conceptual Framework that the financial reports of listed firms shall not be used as the basis to calculate taxes or zakat (see Section 3.3.2). This is also the case for IFRS since IASB is a private, independent and non-profit organisation with a shareholder-oriented corporate governance model. The IASB's Conceptual Framework does not mention that financial statements are intended to serve tax purposes (see Section 3.3.2). Therefore, tax and accounting rules were not in alignment in Saudi Arabia during the study period (pre and post IFRS adoption). Thus, the value relevance of the accounting information in Saudi Arabia should not be influenced by the issue of book-tax conformity. Therefore, the first set of hypotheses is as follows:

$H_0 1$: The accounting information of non-financial firms listed on the Saudi Stock Exchange was *not* jointly value relevant during the study period (2015–2018).

$H_0 1_a$: Book values of equity were *not* value relevant during the study period (2015–2018).

$H_0 1_b$: Earnings were *not* value relevant during the study period (2015–2018).

4.5.2 Relative and Incremental Value Relevance Between EPS and BVPS

Despite the prediction of valuation theory (see Section 4.2) that both earnings and book values of equity are of value relevance to equity investors, the relative and incremental value

relevance of these measures vary on the basis of the institutional factors (see Sections 4.5.1.1–4.5.1.8). As discussed in Chapter 3, code law countries, which have credit markets, a Continental accounting system, aligned accounting and tax rules, and a governmental accounting body, are more conservative than common law countries (e.g. Bartov et al., 2005). Thus, book values of equity are relatively and incrementally more value relevant than earnings in these countries with these characteristics whereas earnings are more value relevant in common law countries. This is also because earnings are usually understated by firms applying tax-driven GAAP.

Prior literature (see Chapter 3) has also revealed that accounting standards developed by common law countries are believed to prioritise shareholders' needs rather than that of stakeholders because the former are the main users of accounting information. Thus, earnings (book values) usually have higher relative and incremental importance than book values (earnings) in common law countries (countries with a Continental accounting system). This is evident from the fact that the first financial statement in the annual reports is the balance sheet (income statement) under German GAAP (US GAAP; Jermakowicz et al., 2007).

Several comparative studies have empirically confirmed that earnings (equity book values) are more incrementally and relatively value relevant than equity book values (earnings) when prepared under shareholder-oriented (stakeholder-oriented) GAAP (Arce & Mora, 2002; Black & White, 2003; King & Langli, 1998). This has been also confirmed in the case of IFRS adoption by K. Ahmed et al. (2013) who, through their meta-analysis of 30 value relevance papers, concluded that the impact IFRS on the improvement of value relevance is limited to earnings. This because IFRS is heavily influenced by the Anglo-Saxon accounting model, which prioritises shareholders over stakeholders (Hung & Subramanyam, 2007).

Regarding the Saudi institutional factors, as illustrated above, they are unique, yet highly influenced by developed countries with an Anglo-Saxon model in terms of the corporate governance model, the market financing system and the separation between tax and accounting rules. Thus, accounting standards applied during the study period are shareholder-oriented standards since Saudi GAAP (2015–2016) was derived from US GAAP and IFRS (2017–2018), which are both influenced by the Anglo-Saxon accounting model (see Section 3.3.2). In fact, both US GAAP and IFRS were used as a backup set of accounting standards for any case that is not covered by Saudi GAAP (see Figure 3.1). The shareholder orientation of Saudi GAAP and IFRS

is evident in their Conceptual Frameworks (see Section 3.3.2). Therefore, the next hypothesis is as follows:

> $H_0$2: Earnings were *not* relatively and incrementally more value relevant than book values of equity during the study period (2015–2018).

4.5.3 Impact of IFRS on the Relative (Combined and Individual) and Incremental Value Relevance of Accounting Information.

The literature has provided mixed findings about the impact of IFRS adoption on the value relevance of accounting information, which can be attributable to institutional factors or the quality of local GAAP prior to the adoption (see Chapter 3). This is because accounting standards only play a partial role among other factors that affect accounting quality (Barth et al., 2008). Thus, an in-depth single-country study is assumed to provide reliable and valid findings. Therefore, the Saudi-specific context of the financial reporting environment is considered to predict the impact of IFRS adoption on accounting value relevance in Saudi Arabia.

The Saudi institutional factors during the study period (2015–2018) are in line with those specified in the literature to promote accounting value relevance. This has been confirmed by Saudi-based empirical studies, which revealed that the accounting information of non-financial firms is value relevant in the period when Saudi GAAP was applied (Albarrak, 2011; Alsalman, 2003) and when the IFRS was applied by listed insurance firms (Alnodel, 2018) and banks (Oraby, 2017; see Section 3.9.4). This provides evidence that both accounting standards are intended to satisfy investor's needs, which is evident because both standards setters' Conceptual Frameworks (i.e. SOCPA and IASB) assert that investors are the primary users of accounting information, which must be relevant and faithfully presented (fundamental qualitative characteristics; see Section 3.3.2). Therefore, when considering the qualitative characteristics under both Conceptual Frameworks, the value relevance of accounting information should not differ substantially.

Despite the similarities between IASB's and SOCPA's objectives and qualitative characteristics, IFRS is more comprehensive than Saudi GAAP (see Section 3.3.2). This led several Saudi-based studies (Alkhtani, 2012; Herath & Alsulmi, 2017; Nurunnabi, 2018) to conclude that IFRS adoption in Saudi Arabia should lead to more transparency and disclosure and less information asymmetry and, consequently, higher value relevance. However, minimal effects of IFRS adoption are expected during the study period because of the partial application of IFRS

(as backup standards) prior to the adoption (see Section 2.8 and Figure 3.1), the deferral of certain fair value models, a lack of IFRS education in Saudi universities, a lack of qualified accountants in Saudi Arabia, the language barrier and the possibility of IFRS misinterpretation due to the translation from English to Arabic (see Section 3.3.1). Thus, the principles of IFRS may not be interpreted and applied properly by Saudi firms, which may result in unintended outcomes of IFRS adoption.

In addition, institutional theory predicts that IFRS adoption could be a result of one or the three forms of isomorphism since Saudi Arabia is the last country among GCC and G20 countries to adopt IFRS, excluding the US (see Section 3.3.1). In this case, IFRS might be implemented as a type of 'symbolic window-dressing' just to be in line with other G20 and GCC countries to gain legitimacy. From an institutional theory perspective, IFRS is expected to be implemented differently in Saudi Arabia than in other countries due to the country's institution of high power distance culture (see Section 2.3), as IFRS allows the application of professional judgement, which is not applicable in the authoritarian Saudi context (see Section 3.3.2).This could further justify the expectation of no improvement in the value relevance of accounting information in Saudi Arabia after IFRS adoption. Therefore, the following hypotheses are proposed:

$H_0$3: The joint and relative value relevance of accounting information prepared under IFRS was *not* more than that of information prepared under Saudi GAAP.

$H_0$4: IFRS adjustments to the accounting information measures in the comparative year of 2016 were *not* incrementally value relevant.

Despite the deferral of using fair value models as specified in IAS 16, IAS 38 and IAS 40 during first 3 years of IFRS adoption in Saudi Arabia (see Section 3.3), the switch from income statement-focused standards (Saudi GAAP; see Albarrak, 2011; Alnodel, 2018) to balance sheet-focused GAAP (see Hung & Subramanyam, 2007; Tsalavoutas et al., 2012) should still enhance the role of book values of equity in explaining the share price. This effect would occur because of the partial introduction of fair value measurement under other IFRS, which has never been used under Saudi GAAP except for share-based payments. This is consistent with the findings of Hung and Subramanyam (2007) and Tsalavoutas et al. (2012), who used a sample from Germany (developed market) and Greece (developing market), respectively. Both studies showed that the

fair value measurement principle of IFRS improves the value relevance of the book values of equity after IFRS adoption. Therefore, the following hypotheses are postulated:

$H_0$5: Book values of equity prepared under IFRS were *not* more value relevant than book values of equity prepared under Saudi GAAP.

$H_0$6: Owing to IFRS adoption, the incremental value relevance of book values of equity did *not* exceed that of earnings during the IFRS adoption period (2017–2018).

$H_0$7: During the comparative year of 2016, IFRS adjustments to the book values of equity were *not* incrementally value relevant.

$H_0$8: The impact of IFRS adoption on the relative and the incremental value relevance of book values of equity was *not* greater than the impact on the relative and incremental value relevance of earnings.

4.5.4 Pre- and Post-IFRS Adoption Influence of Firm-Specific Characteristics of Relative and Combined Value Relevance of Accounting Information

The literature has revealed that the accounting information of firms with different characteristics (i.e. firm size, profitability, audit quality, potential growth, industry and leverage) have different levels of value relevance. The hypotheses concerning the impact of firm characteristics on the value relevance of accounting information pre and post IFRS will be formed in light of the prior empirical studies reviewed in Chapter 3.

- **Firm Size**

As discussed in Chapter 3 (Section 3.11.1), owing to the variety of information sources and nature of firms of different sizes, the literature has found that the levels of value relevance of firms of different sizes vary, regardless of the accounting standards applied. While some studies have revealed that large firms exhibit higher value relevance of accounting information than small firms do (e.g. Bae & Jeong, 2007; Collins et al., 1997; Habib & Azim, 2008), other studies have found contrary results (e.g. Brimble & Hodgson, 2007; C. J. Chen et al., 2001; Lam et al., 2013). Therefore, the next hypothesis is as follows:

$H_0$9$_a$: The combined value relevance of accounting information of large firms did *not* differ from that of small firms during the study period (2015–2018).

The theoretical literature has suggested that the impact of IFRS should vary according to firm size owing to the difference in the nature and operations of these firms (see Section 3.11.1). However, prior empirical studies have not found any such difference in effect (e.g. Chalmers et al., 2011; Goodwin et al., 2008; Van der Meulen et al., 2007). Therefore, the next hypothesis is as follows:

$H_0 9_b$: IFRS did *not* have significant effects on the difference in the value relevance of the accounting information of firms of different sizes.

- **Firm Profitability**

Prior empirical studies (see Section 3.11.2) have provided solid evidence that the accounting information of profit-making firms is more associated with market value than that of loss-making firms. Moreover, earnings (book values of equity) of profit-making firms (loss-making firms) play a higher role in explaining the variation in market value because they are utilised by investors as a proxy for expected future earnings (abandonment or adaptation value). Furthermore, literature on the impact of IFRS adoption has shown that no effects can be found on the value relevance of accounting information of loss-making firms. Therefore, the following hypotheses are proposed:

$H_0 10_a$: During the study period (2015–2018), the accounting information of profit-making firms was *not* jointly more value relevant than that of loss-making firms.

$H_0 10_b$: Earnings were *not* more value relevant than book values of equity in profit-making firms during the study period (2015–2018).

$H_0 10_c$: Book values of equity were *not* more value relevant than earnings in loss-making firms during the study period (2015–2018).

$H_0 10_d$: IFRS adoption did *not* affect the value relevance of accounting information in loss-making firms.

- **Audit Quality**

The literature has revealed that there is a positive relationship between audit quality and the value relevance of accounting information regardless of the accounting standards being implemented (see Section 3.11.3). Using the dominant indicator of audit firm size as a proxy for audit quality, the following hypothesis is proposed:

$H_0 11_a$: The combined and relative value relevance of the accounting information of firms audited by Big4 firms was not higher than that of firms audited by non-Big4 firms during the study period (2015–2018).

In line with the expertise in IFRS implementation and collaboration with IASB of the Big4 firms, their clients should experience greater impact of IFRS adoption than their counterparts audited by non-Big4 firms (see Section 3.11.3). Therefore, the following hypothesis is proposed:

$H_0 11_b$: The impact of IFRS adoption on the value relevance of accounting information was *not* higher among firms audited by Big4 firms.

- **Potential Growth**

Although a theoretical consensus has been established that the value relevance level of firms' accounting information differs according to their potential growth, prior empirical studies have provided inconclusive findings (see Section 3.11.4). Therefore, the following non-directional hypothesis is proposed:

$H_0 12_a$: The value relevance of the accounting information of firms with low potential growth did *not* differ from that of firms with high potential growth during the study period (2015–2018).

The literature has revealed that investors in firms with high potential growth pay more attention to non-financial information when making investment decision (see Section 3.11.4). Thus, IFRS adoption is expected to have minimal effect on the value relevance of accounting information of such firms. Therefore, the following hypothesis is proposed:

$H_0 12_b$: IFRS did *not* have a significant impact on the value relevance of accounting information of firms with high potential growth.

- **Industry**

The extant literature has shown that the value relevance of accounting information differs across industries. High-tech/service-based firms with intangible-intensive assets produce accounting information of lower value relevance because investors value these firms on the basis of their potential growth rather than their accounting information (see Section 3.11.5). To examine

this difference across industries, this study partitions its sample by manufacturing status[34] rather than into intangible-intensive and non-intensive firms. This is because there are only a few firms[35] with intangible assets intensity listed on Tadawul, which cannot be a suitable representation of firms with intensive intangible assets. Arguably, the manufacturing (non-manufacturing) sector consists of firms that produce (provide) goods (services) and have less (high) intangible assets intensity (Badu & Appiah, 2018). Saudi-based studies have used manufacturing status to partition samples (e.g. Alsaeed, 2006; Al-Shammari et al., 2008), as have prior value relevance studies (e.g. Badu & Appiah, 2018; Kerstein & Kim, 1995; Tsalavoutas & Dionysiou, 2014). Kerstein and Kim (1995) argued that investors value manufacturing firms' accounting information differently because of these firms' heavy investments in property, plant and equipment, which are considered capital expenditures with future value for the firm. This is consistent with Biddle and Seow's (1991) finding that the value relevance of manufacturing firms, in terms of ERC, is higher than that of firms in other industries. Thus, the following hypothesis is proposed:

> $H_0 13_a$: The relative and combined value relevance of the accounting information of manufacturing firms did *not* differ from that of non-manufacturing firms during the study period (2015–2018).

Concerning the impact of IFRS adoption, the literature has offered contradictory results (see Section 3.11.5), indicating that firms that benefited from the adoption have done so by applying IAS 38 (intangible assets), which allows R&D capitalisation. In Saudi Arabia, certain options within IAS 38 have been postponed for 3 years (see Section 3.3), and hence, IFRS is expected to have minimal impact on the value relevance of accounting information of firms with high levels of intangible assets intensity. Therefore, the following hypothesis is proposed:

> $H_0 13_b$: IFRS adoption did *not* have a significant impact on the difference in the value relevance of accounting information between manufacturing and non-manufacturing firms.

- **Leverage**

Prior studies have given empirical evidence that high leveraged firms, which usually includes small firms with high expenditure on R&D and expansion, have lower value relevant

[34] Manufacturing v. non-manufacturing firms.
[35] Four telecommunications firms, two software and services firms and one pharmaceutical firm.

accounting information since they have incentives to manipulate their accounting information (see Section 3.11.6). Therefore, the following hypothesis is proposed:

> $H_0 14_a$: The accounting information of low leveraged firms was *not* jointly and individually more value relevant than that of high leveraged firms during the study period (2015–2018).

As for the impact of IFRS, prior studies have suggested that investors view the accounting information of high leveraged firms to be of lower relevance regardless of the accounting standards being applied (see Section 3.11.6). Therefore, the following hypothesis is formed:

> $H_0 14_b$: IFRS adoption did *not* improve the value relevance of the accounting information of high leveraged firms.

- **Gender of The Board Members**

Recent empirical studies have consistently found that firms with diverse board members tend to provide accounting information that is more relevant and valuable to investors and other stakeholders (see Section 3.11.7). One possible explanation for this relationship is that firms with mixed-gender boards tend to perform better than those without. This is supported by research conducted by Carter et al. (2003) and Erhardt et al. (2003). The authors suggest that this could be because diverse boards tend to be more progressive and and take a more considered approach to decision-making and risk management. Taken together, these findings provide strong evidence that firms should strive to build diverse boards if they want to enhance the quality of their accounting information and improve their overall performance.

From an institutional theory perspective, firms respond to institutional pressures to gain legitimacy and support from stakeholders. In the Saudi Arabian context, where there is increasing pressure to increase gender diversity (see Section 2.3.1), firms may be more likely to adopt accounting practices that signal their commitment to diversity and inclusivity, such as appointing female members to the board of directors. This is supported by Al-Matari and Alosaimi, (2022), who found that firms that appoint female members to the board of directors are seen as more socially responsible and gain more legitimacy in the eyes of stakeholders. Therefore, the following hypothesis is proposed:

$H_0 15_a$: The accounting information of firms with only male members on the board was not jointly and individually more value relevant than that of Firms with mixed-gender members during the study period (2015–2018).

Regarding the impact of IFRS, previous research indicates that the involvement of female board members in leadership positions is anticipated to improve overall accounting quality through the effective implementation of IFRS (see Section 3.11.7). This can be attributed to the enhanced decision-making, corporate performance, and professional judgment arising from gender diversity on boards (Adams & Ferreira, 2009). Additionally, women's risk aversion may result in a more conservative financial reporting approach, improving the quality of accounting information (Byrnes, Miller, & Schafer, 1999). In the male-dominated Saudi context, female leaders may be more committed to IFRS compliance to affirm their competence and legitimacy. A gender-diverse board also signals a commitment to good corporate governance and high-quality financial reporting, increasing stakeholder trust (Bear, Rahman, & Post, 2010). Consequently, it is expected that Saudi firms with gender-diverse boards will provide more value-relevant accounting information when adopting IFRS compared to their counterparts. Therefore, the following hypothesis is formed:

$H_0 15_b$: IFRS adoption did *not* have a significant impact on the difference in the value relevance of accounting information between firms with only male members and firms with mixed gender members on the board.

- **The sentiment of Firm' News**

Accounting information has been found to be more valuable for firms with positive news than for firms with negative news, as evidenced by studies such as Ball and Brown's (1968) seminal study on earnings announcements and Francis and Schipper's (1999) study on earnings trends, as well as Koonce and Lipe's (2010) finding that the market reacts more strongly to earnings announcements for firms with high forecast accuracy, particularly for those with positive earnings surprises (see Section 3.11.8). Therefore, the following hypothesis is formed:

$H_0 16_a$: The accounting information of good news firms was not jointly and individually more value relevant than that of bad news firms during the study period (2015–2018).

Previous studies have not provided a clear consensus on the impact of IFRS adoption on firms with varying levels of financial news sentiment (i.e. good news and bad news), with some

studies indicating no significant difference between good news and bad news firms. However, other studies have suggested that IFRS adoption may have a greater impact on the value relevance of accounting information for bad news firms as they stand to benefit more from improved transparency and comparability in financial reporting.

From an in an institutional theory, the response of firms to IFRS adoption may depend on their perception of the legitimacy of this practice in their institutional environment. Good news firms may be more likely to adopt IFRS in order to signal their commitment to transparency and comparability, while bad news firms may be more likely to resist IFRS adoption in order to avoid revealing negative information. This may lead to higher value relevance of accounting information for good news firms. Therefore, the following hypothesis is formed:

> $H_0 16_b$: IFRS adoption did *not* have a significant impact on the difference in the value relevance of accounting information between good news firms and bad news firms.

4.6 Chapter Summary

This chapter formulated research hypotheses based on prior studies in light of a multi-theoretical analytic framework that combines valuation theory, the IASB and SOCPA Conceptual Frameworks for Financial Reporting, market efficiency theory and institutional theory. Valuation theory, developed from the work of Ohlson (1995) and Feltham and Ohlson (1995), explains the link between accounting information and market value. Various forms of the valuation models[36] were explained mathematically in this chapter. Further, the two most popular valuation models (i.e. price and return models) were also explained, compared and linked to prior studies. Market efficiency theory was explained in order to assess whether the valuation models would provide valid results since it is implicitly assumed that the market should at least satisfy the semi-strong form. Then, institutional theory and its three forms of isomorphism were explained in the context of IFRS adoption at the country level and firm level since the transition from Saudi GAAP to IFRS is considered an institutional factor. Institutional theory predicts that IFRS adoption itself does not ensure improvement in value relevance because firms may have engaged in decoupling to show that they have complied with IFRS, which might not be true, in order to gain legitimacy. Last, the chapter formulated the study's hypotheses in light of these theories and prior empirical research.

[36] The earnings capitalisation approach, the balance sheet approach, the combination of both these approaches and the RIV approach.

Chapter 5 will present and discuss the research methodology to test the hypotheses developed in this chapter.

Chapter 5: Research Design

5.1 Introduction

This chapter describes the data and explains the research methods used for hypothesis testing. Section 5.2 defines the data used to conduct the analysis and explains the strategy used to select the sample and study period. The major differences between the pre- and post-IFRS approach and the comparative year (2016) approach are explained in Section 5.3. Sections 5.4 and 5.5 demonstrate the methodology used to assess the relative and incremental value relevance of accounting information, respectively. Then, Section 0 explains the methodology used to test differences in value relevance of firms that differ by firm characteristic. The methodology to compare the explanatory power of different models is explained in Section 5.7. The econometric issues associated with the valuation models are discussed in Section 5.8. Section 5.9 summarises the chapter.

5.2 Variable Selection and Data Collection

This study includes all non-financial firms listed on Tadawul in 2015–2018 to cover the mandatory IFRS adoption year of 2017 by focusing on 2 years before (2015–2016) and 2 years after (2017–2018) the adoption. Firms had to meet the following criteria to be included in the sample:

- be listed from 1 Jan 2015 to 30 Apr 2019;[37]
- be non-financial firms since financial firms use different accounting practices and regulations (Hellström, 2006; Kouki, 2018);
- not have negative book value of equity (Tsalavoutas et al., 2012);
- have a December 31 year end;[38]
- have data available during the study period;
- have released their financial reports within 4 (6) months[39] from year end for pre-and post-IFRS (comparative year) approach (Barth et al., 2008; Goodwin et al., 2008); and

[37] This criterion was imposed for identical sample size (same firms) in the pre- and post-IFRS periods.
[38] This criterion was imposed to have a common period for the samples.
[39] This criterion was imposed to ensure that investors have accessed and absorbed the accounting information by the share price measurement date (see Section 5.2.1).

- have mandatorily adopted IFRS no earlier or later than 1 Jan 2017.[40]

Setting these criteria resulted in an identical sample size (i.e. balanced panel data) of 110 (107) firms representing 63% (61%) of 175 listed firms during the study period with a total of 440 (428) firm-year observations for the price (return) model (see Table 5.1). This resulted in 220 (214) firm-year observations for each pre- and post-IFRS period for the price (return) model. For the comparative year approach, the final sample is 110 observations for both models.

Table 5.1

Sample Selection

Selection Process	Number of Firms
Total listed firms during the study period 2015–2018	175
Exclude firms that	
have no data available	(7)
released annual reports late	(1)
are financial firms	(51)
have a fiscal year end other than 31 December	(6)
Final sample for price model	**110**
Exclude firms that lack data to calculate stock returns	(3)
Final sample for return model	**107**

As discussed in Chapter 4, the multivariate per share form of the price (4.29) and return (4.32) models as well as their univariate per share form (4.33), (4.34), (4.35) and (4.36) models will be employed in this study to test the research hypotheses (see Section 4.2.5). The application of these models to the current study is discussed in Sections 5.4–0. The measurements of model variables, which were obtained from Eikon DataStream, Orbis database and the official website of Tadawul, are described next.

[40] This criterion was imposed to measure the mandatory IFRS adoption accurately and to avoid sample selection bias.

5.2.1 Price Model Variables

The required data include the reported book values of equity per share ($BVPS$), earnings per share (EPS) and share price (P) 4 months after the financial year end, as in the studies by Tsalavoutas et al. (2012) and Barth et al. (2014). Barth et al. (2008) have justified the use of share prices 4 months after the financial year end in the before and after approach because market participants must have absorbed what is in the annual reports. However, as noted by Goodwin et al. (2008), when using the comparative year approach this can lead to a bias towards the GAAP model if the comparative IFRS data has not been released by that date. They delayed the collection of the share price data to 6 months after the financial year end because in their analysis, the comparative IFRS data were released within 5 months. Similarly, in this study, the comparative IFRS data were released by the end of the first quarter (Q1) of 2017, which is equivalent to that of Goodwin et al. (2008). Therefore, following Goodwin et al. (2008), the share price (P^{2016}) for the comparative year approach was collected 6 months after the financial year end (i.e. 30 June 2017) to avoid the bias in favour of the Saudi GAAP model.

5.2.2 Return Model Variables

The required data include the annual return (Ret), the reported earnings per share (EPS) and the annual change in earnings per share (ΔEPS). To calculate the annual stock return, the required data are share price (P) 4 (8) months after the fiscal year end (before the fiscal year end) and the dividend per share (DPS) paid during the return period for the pre- and post-IFRS approach. The prices of shares, which were obtained from Eikon DataStream and used to determine the stock return, have been adjusted for all subsequent capital contributions. However, the collection date of share price (P^{2016}) to calculate the annual return in the comparative year (Ret^{2016}) approach is 6 months before and after the financial year end of 2016. This is consistent with most value relevance studies (e.g. Filip & Raffournier, 2010; Gul et al., 2006; Key & Kim, 2017).

5.2.3 Measurement of Firm Characteristics

The study also examines the value relevance of accounting information across firms with different characteristics, which include firm size, profitability, audit quality, potential growth, industry and leverage. The measurements of these characteristics, in light of prior literature, are described next.

5.2.3.1 Firm Size

While both total assets (Badu & Appiah, 2018) and total sales (Abdollahi, Pitenoei, & Gerayli, 2020) are common measures of a firm's size, total assets are the most common measure in the area of value relevance (e.g. Bae & Jeong, 2007; Barth et al., 1998; Gastón et al., 2010; Lam et al., 2013; Van der Meulen et al., 2007). Therefore, total assets will be used as the main measure of firm size, while total sales will be used as a sensitivity test.

5.2.3.2 Profitability

Profitability refers to the sign of the reported earnings of a firm. Profit-making firms are those with positive earnings, whereas loss-making generate negative earnings. The earnings sign will be used as measure to partition the sample into profit-making and loss-making firms, in line with prior value relevance studies (e.g. Bartov et al., 2005; Collins et al., 1997, 1999; Hayn, 1995).

5.2.3.3 Audit Quality

Audit quality is measured through the size of the external auditor. Firms audited by Big4 firms are deemed to have high audit quality, while those audited by non-Big4 firms are deemed to have lower audit quality. This measure has been the most common one applied in prior value relevance studies (e.g. Alali & Foote, 2012; C. J. Chen et al., 2001; Iatridis & Dimitras, 2013; C. Lee & Park, 2013).

5.2.3.4 Potential Growth

The market-to-book ratio (MTB) is the common measure of firm growth since it shows the extent to which the net assets of a firm are valued by market participants. If a firm's MTB ratio exceeds 1, it is overvalued, indicating that investors expect future growth. Hence, the higher the MTB value, the higher the future growth expectations of equity investors. Following prior value relevance studies, the MTB ratio will be used to measure firms' potential growth (e.g. Dontoh et al., 2007; Frank, 2002; Gaio, 2010; Habib & Azim, 2008; Lam et al., 2013).

5.2.3.5 Industry Category

The study will categorise firms into manufacturing[41] and non-manufacturing[42] firms because of the substantial differences between the two types of firms in the level of accounting disclosure (Alsaeed, 2006), the investment in property, plant and equipment (Kerstein & Kim, 1995), the presence of intangible assets (Badu & Appiah, 2018) and the use of inventory (Ballas & Hevas, 2005). This classification is consistent with prior studies (e.g. Alsaeed, 2006; Badu & Appiah, 2018; Biddle & Seow, 1991; Collins et al., 1997; El Shamy & Kayed, 2005; Kerstein & Kim, 1995; Tsalavoutas & Dionysiou, 2014).

5.2.3.6 Leverage

The common leverage measures include the debt-to-assets ratio (Habib & Azim, 2008; Habib & Weil, 2008) and the debt-to-equity ratio (Brimble & Hodgson, 2007; Van der Meulen et al., 2007). The former will be used as the main measure of leverage, while the latter will be used in a robustness test of the results, in line with most value relevance studies (e.g. Gaio, 2010; Ji & Lu, 2014; Kwak & Armitage, 2009).

5.2.3.7 Gender of the board members

The gender composition of the board of directors is measured by counting the number of female members versus the number of male members. This binary approach considers only the presence or absence of women on the board and does not account for other factors that may influence board diversity. This is the only feasible method for evaluating the influence of gender diversity on accounting practices, given the scarce data on women's roles in the reports of Saudi listed firms (see Section 2.3.1). Therefore, the study will categorise firms into mixed-gender firms and only male firms based upon board membership.

5.2.3.8 The sentiment of firm's financial news

Following the seminal articles of Ball and Brown (1968) and Francis and Schipper (1999), the study utilized the returns sign as a reliable measure for distinguishing between good news and bad news. Specifically, negative returns signified bad news, whereas positive returns signified good news. This approach is widely accepted and has been applied in numerous studies as a means

[41] Manufacturing firms are involved in the process of converting raw materials into final products.
[42] These are service-based firms with low inventory and PPE assets.

of evaluating the impact of news on financial returns. Therefore, the study will categorise firms into good news firms and bad news firms.

See Table 5.4 for the measurement of firm characteristics.

5.3 Differences Between Pre- and Post-IFRS Approach Versus Comparative Year Approach

To test the impact of IFRS implementation on the value relevance of accounting information, GAAP-based information must be compared with IFRS-based accounting information. According to prior literature, two approaches can be applied: the pre- and post-IFRS approach and the comparative year approach. Under the former approach, a comparison can be applied between accounting information prepared before the introduction of IFRS with that prepared after its introduction. In this study, the pre- and post-IFRS approach will be applied to measure the relative value relevance (see Section 5.4) by applying the valuation models on accounting information prepared under Saudi GAAP (2015–2016) and IFRS (2017–2018). The valuation models will be employed using the generalised linear model technique for the pre- and post-IFRS approach because it is the appropriate technique to deal with panel data and is assumed to provide more accurate results. However, the ordinary least squares method will be used to obtain the explanatory power (R^2) of each sample model since the generalised linear model does not measure it. The pre- and post-IFRS approach is more common in the value relevance literature about the impact of IFRS (e.g. Filip, 2010; Kouki, 2018; Sami & Zhou, 2004; Tsalavoutas et al., 2012).

Under the comparative year approach, where all first-time adopting firms are required to restate their financial statements for the year prior to the compulsory year in accordance with IFRS (as per IFRS 1), a comparison can be made between GAAP-based and IFRS-based accounting information prepared for the same year by the same set of firms. The comparative year in this study is 2016 because IFRS became compulsory by 2017 in Saudi Arabia (see Section 3.3). Thus, for the comparative year (2016), each listed firm[43] on Tadawul has two set of data for the same period (2016) prepared under IFRS and Saudi GAAP. By employing the comparative year approach, this study will test the impact of IFRS implementation on both the relative (see Section 5.4) and

[43] The total of 110 firms selected for this study.

incremental (see Section 5.5) value relevance of accounting information in Saudi Arabia to report robust findings. The ordinary least squares technique will be used when estimating the valuation models for the comparative year approach. This approach has been applied in the prior literature (e.g. Goodwin et al., 2008; Hung & Subramanyam, 2007).

The pre- and post-IFRS approach is a weaker methodology than the comparative year approach for it fails to control for other possibly relevant factors across the years and for time-series and cross-sectional issues, such as non-stationarity and spurious ratio problems (see Section 5.8). In contrast, the comparative year approach controls for cross-sectional and time-series differences (Hung & Subramanyam, 2007). Unlike the pre- and post-IFRS approach, that measures only relative value relevance, the comparative year approach measures both relative and incremental value relevance. This difference is because incremental value relevance can only be measured when accounting information is prepared under different standards for the same period. While most prior studies have applied one of these approaches, this innovative study will apply both approaches to address its research objectives.

5.4 Methodology to Measure Relative Value Relevance

In general terms, relative value relevance refers to the ability of accounting information to be reflected in market value. Hence, the Adj R^2 of the valuation models (i.e. price and return) is the main metric used to measure the relative value relevance of accounting information (e.g. Barth et al., 2008; Collins et al., 1997; Sami & Zhou, 2004). The reason is that it shows the extent of the variation in the dependent variable that can be explained by the independent variables. Hence, if the Adj R^2 is found to be statistically significant as indicated by the *p*-value of the *F*-test, then the accounting information is jointly value relevant. As discussed in Chapter 4, this study will apply the following per share form of the price and return models:

$$P_{it} = a_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it} \tag{5.1}$$

$$Ret_{it} = b_0 + b_1 \frac{EPS_{it}}{P_{it-1}} + b_2 \frac{\Delta EPS_{it}}{P_{it-1}} + e_{it} \tag{5.2}$$

See Tables 5.2 and 5.3 for the definitions and measurement of the dependent and independent variables, respectively.

The Adj R^2 of Models (5.1) and (5.2) will be used to measure the combined relative value relevance of accounting information during the study period (2015–2018). However, to measure the individual relative value relevance of each type of accounting information (i.e. book values of equity and earnings), two metrics have been used in prior literature. First, the regression coefficients (i.e. $b_1$and b_2) of Models (5.1) and (5.2) measure individual relative value relevance of each type of accounting information since they show the strength of the association between each component of the accounting information and market value (i.e. price and return). The *p*-value of the Wald chi-square value associated with each regression coefficient indicates the significance of this relationship. The second metric is the Adj R^2 value of the univariate models of (5.3), (5.4), (5.5) and (5.6), which can be compared using the Vuong (1989) test (see Section 5.7) to indicate which of the accounting measures is more value relevant to equity investors. As explained in Chapter 4, valuation models can by decomposed by applying the technique Theil (1971) developed. For the price model, this study will apply the following two univariate models:

$$P_{it} = a_0 + b_1 BVPS_{it} + + e_{it} \tag{5.3}$$

$$P_{it} = a_0 + b_1 EPS_{it} + e_{it} \tag{56.4}$$

For the return model, this study will apply the following two univariate models:

$$Ret_{it} = b_0 + b_1 \frac{EPS_{it}}{P_{it-1}} + + e_{it} \tag{5.5}$$

$$Ret_{it} = b_0 + b_1 \frac{\Delta EPS_{it}}{P_{it-1}} + e_{it} \tag{5.6}$$

See Tables 5.2 and 5.3 for the definitions and measurement of the dependent and independent variables, respectively.

Furthermore, in the context of the impact of IFRS adoption, relative value relevance, as a research design, is concerned about the superiority of one set of accounting standards over another in providing more value relevant accounting information to equity investors (see Section 3.7.1). In this study, to measure the superiority of IFRS-based accounting information over that of Saudi GAAP-based information, price (5.1) and return (5.2) models will be estimated twice using both sets of accounting information. To illustrate, for the pre- and post-IFRS approach, the following models will be employed.

- For the price model:

Saudi GAAP model: $$P_{it}^{Saudi\ GAAP} = b_0 + b_1 EPS_{it}^{Saudi\ GAAP} + b_2 BVPS_{it}^{Saudi\ GAAP} + e_{it} \quad (5.7)$$

IFRS model: $$P_{it}^{IFRS} = b_0 + b_1 EPS_{it}^{IFRS} + b_2 BVPS_{it}^{IFRS} + e_{it} \quad (5.8)$$

- For the return model:

Saudi GAAP model: $$Ret_{it}^{Saudi\ GAAP} = b_0 + b_1 \frac{EPS_{it}}{P_{it-1}}^{Saudi\ GAAP} + b_2 \frac{\Delta EPS_{it}}{P_{it-1}}^{Saudi\ GAAP} + e_{it} \quad (5.9)$$

IFRS model: $$Ret_{it}^{IFRS} = b_0 + b_1 \frac{EPS_{it}}{P_{it-1}}^{IFRS} + b_2 \frac{\Delta EPS_{it}}{P_{it-1}}^{IFRS} + e_{it} \quad (5.10)$$

For the comparative year (2016) approach, the following models will be employed:

- For the price model:

$$P_i^{2016} = b_0 + b_1 EPS_i^{Saudi\ GAAP(2016)} + b_2 BVPS_i^{Saudi\ GAAP(2016)} + e_{it} \quad (5.11)$$

$$P_i^{2016} = b_0 + b_1 EPS_i^{IFRS(2016)} + b_2 BVPS_i^{IFRS(2016)} + e_{it} \quad (5.12)$$

- For the return model:

$$Ret_i^{2016} = b_0 + b_1 \frac{EPS_i}{P_i^{2015}}^{Saudi\ GAAP(2016)} + e_{it} \quad (5.13)$$

$$Ret_i^{2016} = b_0 + b_1 \frac{EPS_i}{P_i^{2015}}^{IFRS(2016)} + e_{it} \quad (5.14)$$

See Tables 5.2 and 5.3 for the definitions and measurement of the dependent and independent variables, respectively.

Under the comparative year (2016) approach, only $\frac{EPS_{it}}{P_{it-1}}$ is included in the return model for $\frac{\Delta EPS_{it}}{P_{it-1}}$ cannot be determined under IFRS. This is because the EPS for the prior year (2015), which is required to calculate the annual earning change (ΔEPS_{it}) for 2016, was only prepared under Saudi GAAP. After estimating these equations, a comparison of the Adj R^2 values obtained from Saudi GAAP and IFRS models will be conducted using the Cramer (1987) test (see Section 5.7.1) for the pre- and post-IFRS approach and the Vuong (1989) test for the comparative year approach (see Section 5.7.2). The model with a higher Adj R^2 value is assumed to be of higher value relevance.

To test the impact of IFRS on the relative value relevance of each type of accounting information, the valuation models are extended by the inclusion of an IFRS dummy variable to measure this impact on the regression coefficient using the pooled sample. Following prior studies, this study extends the price and return models as follows (e.g. Bartov et al., 2005; Cussatt et al., 2018; Tsalavoutas et al., 2012):

Extended price model:

$$P_{it} = b_0 + b_1 DV_{IFRS} + b_2 EPS_{it} + b_3 BVPS_{it} + b_4 EPS_{it} * DV_{IFRS} + b_5 BVPS_{it} * DV_{IFRS} + e_{it} \quad (5.15)$$

Extended return model:

$$Ret_{it} = b_0 + b_1 DV_{IFRS} + b_2 \frac{EPS_{it}}{P_{it-1}} + b_3 \frac{\Delta EPS_{it}}{P_{it-1}} + b_4 \frac{EPS_{it}}{P_{it-1}} * DV_{IFRS} + b_5 \frac{\Delta EPS_{it}}{P_{it-1}} * DV_{IFRS} + e_{it} \quad (5.16)$$

See Tables 5.2 and 5.3 for the definitions and measurement of the dependent and independent variables, respectively.

The coefficients of interest are b_4 and b_5 since they show the direct impact of the IFRS regime on the relationship between the explanatory variables (i.e. $BVPS_{it}$, EPS_{it}, $\frac{EPS_{it}}{P_{it-1}}$ and $\frac{\Delta EPS_{it}}{P_{it-1}}$) and the market value (i.e. price and return). If b_4 and b_5 are found to be positive and significant at least at the 5% level as indicated by the *p*-value of the Wald chi-square value, then IFRS has a significant impact on the relationship between the market value and that variable, indicating an increase in the individual value relevance of that accounting variable.

5.5 Methodology to Measure Incremental Value Relevance

As explained in Section 3.7.2, incremental value relevance tests whether accounting standards (or accounting measures) convey different relevant information to equity investors than other accounting standards (accounting measures) during the same period. In this study, the incremental value relevance of accounting information will be determined between accounting standards (i.e. IFRS and Saudi GAAP) and between accounting measures (book values of equity and earnings). The former will be applied during the comparative year (2016) and the latter during the study period (2015–2018).

The literature has revealed that the Adj R^2 value of the price model (5.1) can be decomposed into three components in order to measure the incremental value relevance of an accounting measure, (e.g. Arce & Mora, 2002; Collins et al., 1997; King & Langli, 1998). These components are the incremental value relevance of earnings (Inc. R^2_E), the incremental value relevance of book values of equity (Inc. R^2_{BV}) and the common value relevance of both earnings and book value (R^2_C), which are calculated as follows:

1. R^2_T is simply obtained from Model (5.1) with both predictors included.

2. Inc. $R^2_E = R^2_T$ (model 5.1) − R^2_{BV} (Model 5.3).
3. Inc. $R^2_{BV} = R^2_T$ (model 5.1) − R^2_E (model 5.4).
4. $R^2_C = R^2_T$ (model 5.1) − (Inc. R^2_E + Inc. R^2_{BV}).

Here, Inc. R^2_E and Inc. R^2_{BV} are the metrics for the incremental value relevance of the accounting measures (i.e. BV or E).

However, in the IFRS adoption context, the incremental value relevance of IFRS-based accounting information beyond that of Saudi GAAP-based information can be measured by including variables that represent the difference between IFRS-based and Saudi GAAP-based accounting information. Thus, the following models will be estimated for accounting information prepared under IFRS and Saudi GAAP during 2016, in line with the incremental value relevance literature (e.g. Amir et al., 1993; Barth et al., 2014; Tsalavoutas et al., 2012).

- For the price model:

$$P_i^{2016} = b_0 + b_1 EPS_i^{Saudi\ GAAP(2016)} + b_2 BVPS_{it}^{Saudi\ GAAP(2016)} + b_3 EPS_{it}^{\text{IFRS}-\ Saudi\ GAAP(2016)} + b_4 BVPS_{it}^{\text{IFRS}-\ Saudi\ GAAP(2016)} + e_{it} \quad (5.17)$$

- For the return model:

$$Ret_i^{2016} = b_0 + b_1 \frac{EPS_i}{P_i^{2015}}^{Saudi\ GAAP\ (2016)} + b_2 \frac{EPS_i}{P_i^{2015}}^{IFRS-Saudi\ GAAP(2016)} + e_{it} \quad (5.18)$$

See Tables 5.2 and 5.3 for the definitions and measurement of the dependent and independent variables, respectively.

Again, ΔEPS_{it} for 2016 is excluded from the return model because it cannot be determined, given that EPS_{it} for 2015 was only prepared under Saudi GAAP. The coefficients of interest are b_2 (b_3 and b_4) for the return model (price model). The additional information is considered value relevant to equity investors when its coefficient is significantly different from 0 (Holthausen &

Watts, 2001). Therefore, if these coefficients are positive and significant, it means that IFRS accounting information is incrementally value relevant because it adds relevant information beyond Saudi GAAP (Goodwin et al., 2008; Hung & Subramanyam, 2007).

In addition, prior studies have used the Vuong (1989) test to measure incremental value relevance by comparing the change in the Adj R^2 values before and after including the difference between accounting measures (IFRS − local standards) to a model with only local accounting information (e.g. Barth et al., 2014; Tsalavoutas et al., 2012). This study will use the Vuong (1989) test (see Section 5.7.2) to compare the Adj R^2 of Models (5.1) and (5.2) with only Saudi GAAP accounting data for 2016 and those of Models (5.17) and (5.18). The Adj R^2 and regression coefficients will both be used to interpret the impact of IFRS adoption on incremental value relevance.

Table 5.2

Measurement of Dependent Variables

Dependent Variable	Acronym	Measurement
Share price	P_{it}	Share price for firm *i* 4 months after the end of fiscal year *t*
	P_i^{2016}	Share price for firm *i* 6 months after the fiscal year end of 2016.
Stock return	Ret_{it}	Annual stock returns per share for firm *i* at time *t*, measured by the ratio $[(P_{it} + DPS_{it}) - P_{it-1}]/P_{it-1}$ where P_{it-1}. is the stock price 8 months before the fiscal year end *t*, and DPS_{it} is dividend per share for firm *i* during year *t*.
	$Ret_{it}{}^{2016}$	Annual stock returns per share for firm *i* for year 2016, measured by the ratio $[(P_i^{2016} + DPS_i^{2016}) - P_i^{2015}]/P_i^{2015}$. where P_i^{2015} is the stock price 6 months after the fiscal year end of 2015, and $DPS_i^{2016}$is the dividend per share for firm *i* from 30 June 2016 to 30 June 2017.

Table 5.3

Measurement of Independent Variables

Independent Variable	Acronym	Measurement
Book values of equity per share	$BVPS_{it}$	Reported book values of equity per share for firm *i* at time *t*

Independent Variable	Acronym	Measurement
Earnings per share	EPS_{it}	Reported earnings per share for firm *i* at time *t*
Annual earnings change per share	$\Delta\ EPS_{it}$	Reported earnings per share for firm *i* at time *t* − the reported earnings per share for firm *i* at time *t*-1 ($EPS_t - EPS_{it-1}$)
Earnings per share under Saudi GAAP	$EPS_{it}^{Saudi\ GAAP}$	Reported earnings per share under Saudi GAAP for firm *i* in 2015–2016
Book values of equity per share under Saudi GAAP	$BVPS_{it}^{Saudi\ GAAP}$	Reported book values of equity per share under Saudi GAAP for firm *i* in 2015–2016
Earnings per share under IFRS	EPS_{it}^{IFRS}	Reported earnings per share under IFRS for firm *i* in 2017–2018
Book values of equity per share under IFRS	$BVPS_{it}^{IFRS}$	Reported book values of equity per share under IFRS for firm *i* in 2017–2018
Earnings change per share under Saudi GAAP	$\Delta\ EPS_{it}^{Saudi\ GAAP}$	$EPS_{it}^{\text{Saudi GAAP}} - EPS_{it-1}^{\text{Saudi GAAP}}$, the change in Saudi GAAP earnings for firm *i* in 2015–2016
Earnings change per share under IFRS	$\Delta\ EPS_{it}^{IFRS}$	$EPS_{it}^{\text{IFRS}} - EPS_{it-1}^{\text{IFRS}}$ for firm *i* at time *t*, the change in IFRS earnings for firm *i* in 2017–2018
IFRS dummy variable	DV_{IFRS}	Year dummy that takes 1 for IFRS period (2017–2018) and 0 for Saudi period (2015–2016)
Earnings per share under Saudi GAAP during 2016	$EPS_i^{Saudi\ GAAP(2016)}$	Reported earnings per share under Saudi GAAP for firm *i* for the comparative year 2016
Book values of equity per share under Saudi GAAP during 2016	$BVPS_i^{Saudi\ GAAP(2016)}$	Reported book values of equity per share under Saudi GAAP for firm *i* for the comparative year 2016
Earnings per share under IFRS during 2016	$EPS_i^{IFRS(2016)}$	Restated earnings per share under IFRS for firm *i* for the comparative year 2016
Book values of equity per share under IFRS during 2016	$BVPS_i^{IFRS(2016)}$	Restated book values of equity per share under IFRS for firm *i* for the comparative year 2016

Independent Variable	Acronym	Measurement
Per share difference between IFRS earning and Saudi GAAP earnings during 2016	$EPS_i^{\text{IFRS}-\ Saudi\ GAAP(20}$	Difference between $EPS_i^{Saudi\ GAAP(2016)}$ and $EPS_i^{Saudi\ GAAP(2016)}$
Per share difference between IFRS book value and Saudi GAAP book value during 2016	$BVPS_i^{\text{IFRS}-\ Saudi\ GAAP(}$	Difference between $BVPS_i^{Saudi\ GAAP(2016)}$ and $BVPS_i^{Saudi\ GAAP(2016)}$

5.6 Methodology to Test Differences in Value Relevance of Firms That Differ on Firm Characteristics

The firm characteristics examined in this study include firm size, audit quality, leverage, industry, growth and profitability. The sample will be partitioned by firm characteristics into two subsamples, as in much of the existing literature (e.g. Badu & Appiah, 2018; Brimble & Hodgson, 2007; C. J. Chen et al., 2001; Collins et al., 1997). This partitioning will be performed by using the median for continuous variables (firm size, leverage and growth) by dropping the middle observations to obtain the extreme observations for each group (see Table 5.4). Thus, in this study, 110 firms are divided into two 40-observation subsamples by dropping the middle 30 observations. This ensures sufficient representation for each group. The categorical variables (audit quality, industry, the sentiment of firm's news, board member's gender, and profitability) are divided by group affiliation (see Table 5.4). Thus, the sample is divided by whether the firm is audited by Big4 firms (for audit quality), falls into the manufacturing sector (for industry) and generates net loss (for profitability). After dividing the sample, the price model will be applied to each pre- and post-IFRS adoption subsample to determine whether there is a significant difference between the two subsamples and whether IFRS has altered this difference. The Adj R^2 of subsamples will be compared to measure pre- and post-IFRS value relevance. The Cramer (1987) test is used to perform this comparison (see Section 5.7.1) because each subsample is regarded as an independent sample.

This additional analysis concerning firm characteristics is limited to the price model (5.1) because of the inclusion of both the book value of equity and earnings, which are expected to vary among firms with different characteristics. Hence, the return model does not test all hypotheses

developed in Chapter 4 regarding the different roles of book values of equity and earnings for firms that differ on firm characteristics. In addition, analysis of firm characteristics is not the main focus of this study. Hence, limiting the analysis to only the price model is sufficient to serve the study purpose. The price model for this additional analysis is not affected by econometric problems (see Section 5.8) that may require the use of the return model as a robustness test. Therefore, the return model is omitted for this additional analysis.

Table 5.4

Measurement of Firm Characteristics

Firm Characteristic	Measurement	Partitioning Criterion
Firm size	Total assets as the main and alternative measures	Large v. small firms are partitioned based on the median of firm size measure
Profitability	Earnings sign	Loss-making v. profit-making firms are partitioned based on the earnings sign
Audit quality	Size of the external auditor	High-quality audit v. low-quality audit firms are partitioned based on the size of external auditor (i.e. Big4 v. non-Big4)
Potential growth	Market-to-Book ratio (MTB)	High potential growth v. low potential growth firms are partitioned based on the median of the MTB ratio
Industry	Manufacturing status	Manufacturing v. non-manufacturing firms are partitioned based manufacturing status
Leverage	Debt-to-assets ratio as main measure Debt-to-equity ratio as alternative measure	High leveraged v. low leveraged firms based on the median of leverage ratio

Firm Characteristic	Measurement	Partitioning Criterion
Gender of the board members	The existence of female members on the board of directors.	Mixed-gender v. only male members firms based on the existence of female members on the board of directors.
The sentiment of firm's financial news	Returns sign.	Good new v. bad news firms based on the sign of the returns generated by the firm.

5.7 Methodology to Compare Explanatory Power of Models

Several tests have been applied in the value relevance literature in comparing the coefficient of determination (R^2) between two models where each represents a different period or sample. These tests include the Davidson and MacKinnon (1981) '*J* test',[44] the Cramer (1987) test,[45] the Vuong (1989) test[46] and the Siegel and Biddle (1994) test.[47] Moreover, one method that is often applied in longitudinal studies is to regress the R^2 on a time trend variable to measure whether the change in R^2 value is significant over time or not (e.g. Almujamed & Alfraih, 2019; Badu & Appiah, 2018; Collins et al., 1997; King & Langli, 1998). Following the vast majority of value relevance literature, this study applies the Cramer (1987) and the Vuong (1989) tests for the pre- and post-IFRS approach and the comparative year approach, respectively. The Cramer (1987) test is appropriate for a pre- and post-IFRS research design because the assumption of independent samples required for this test is met, given that each period represents an independent sample (J. Liu & Liu, 2007; Sami & Zhou, 2004; Tsalavoutas et al., 2012). The Vuong (1989) test, in contrast, requires the two models in the comparison to be non-nested and have identical dependent variables, which is the case in the comparative year research design (Clarkson et al., 2011; Gjerde et al., 2008; Goodwin et al., 2008; Hung & Subramanyam, 2007).

[44] Applied by K. C. Chan and Seow (1996) and Bao and Chow (1999).
[45] Applied by T. S. Harris et al. (1994), Arce and Mora (2002), Sami and Zhou (2004), Van der Meulen et al. (2007) and Tsalavoutas et al. (2012).
[46] Applied by Barth et al. (1998), Hung and Subramanyam (2007), Goodwin et al. (2008), Clarkson et al. (2011) and Lam et al. (2013).
[47] Applied by M. S. Harris and Muller (1999).

5.7.1 Cramer (1987) Test

The Cramer (1987) test is based on a simple normal test (Z-statistic) formula that is commonly used to determine whether two sample means are from distributions with the same population mean. However, the two sample means in the comparison are substituted with sample R^2 values to test the null hypothesis that the two sample R^2 values are from distributions with the same true R^2 value. The Z-statistic formula basically calculates the difference between the two R^2 values where this difference follows the standard normal distribution when the sample is reasonably large. The formula for calculating the Z-statistic as follows:

$$Z = \frac{\mathrm{R}_1^2 - R_2^2}{\sqrt{\sigma_1^2 + \sigma_2^2}} \tag{5.19}$$

Here, $R^2{}_1$ and $R^2{}_2$ are the sample R^2 values that are derived from the two regression models being compared, whereas $\sigma_i{}^2$, which represents the variances of each of these two sample R^2, is the contribution of Cramer (1987), who provides a method to calculate the standard deviation, which is a function of the assumed true R^2, the number of parameters and the number of observations (sample size). Once the Z-statistic is obtained, the null hypothesis can be rejected using the p-value at the 5% level from the one-tailed and two-tailed tests of the directed and non-directed hypotheses, respectively.

5.7.2 Vuong (1989) Test

The Vuong (1989) test examines two competing non-nested models to indicate the set of independent variables that better explains the identical dependent variable (Dechow, 1994). This test compares the explanatory power (R^2) using the log-likelihood ratio statistic by assuming the errors of the two models in the comparison are independent and normally distributed (Arce & Mora, 2002). According to Dechow (1994), the log-likelihood ratio statistic does not indicate which model is true, but rather, it indicates which one is closer to the true data. Dechow (1994), who simplified the application of the Vuong (1989) test creatively, showed that the log-likelihood ratio statistic of each observation can obtained by applying the following equation:

$$m_i = \frac{1}{2}\, log\left[\frac{RSS_1}{RSS_2}\right] + \frac{2}{n}\left[\frac{(e_{1i})^2}{RSS_1} - \frac{(e_{2i})^2}{RSS_2}\right] \quad (5.20)$$

where:

m_i= log-likelihood ratio statistic for each observation (firm) *i*.

RSS_1= residuals sum square for Model 1 in the comparison.

RSS_2 = residuals sum square for Model 2 in the comparison.

n= number of observations.

e_{1i}= residual of each observation (firm) i for Model 1 in the comparison.

e_{2i} = residual of each observation (firm) i for Model 2 in the comparison.

To obtain the Vuong *Z*-statistic, m_i is regressed on the constant or unity (i.e. a variable that equals 1 for every case). The regression coefficient indicates the difference in R^2 between the two models. The actual *Z*-statistic should equal the *t*-statistic associated with the regression coefficient multiplied by $\left(\frac{n-1}{n}\right)^2$. If the *Z*-statistic is found to be positive and significant at the 5% level, it can be concluded that the independent variables of Model 2 (in the comparison) better explain the variation in the dependent variable than do the independent variables of Model 1 (in the comparison). Otherwise, the independent variables of the two models in the comparison do not differ significantly in explaining the variation in the dependent variable.

5.8 Econometric Issues Considered

These two valuation models (price and return) have been evaluated by Kothari and Zimmerman (1995) and Ota (2003) who concluded that both models are not perfect for they suffer from some econometric issues. The main econometric problem in the market value model is termed 'heteroscedasticity' or the 'scale effect'. Heteroscedasticity and scale effect in the price model are caused on including firms of different sizes in the sample (Barth & Clinch, 2009; Barth & Kallapur, 1996). Several solutions have been suggested for this economic problem by many researchers, who

have argued that deflating the equation variables by a scale proxy would mitigate the effect of this problem. Among several deflators, using the number of outstanding shares is assumed to be the best to control for the firm size variation (Barth & Clinch, 2009) and provide best estimates. This is consistent with the recent study of Aledo Martínez, García Lara, González Pérez and Grambovas (2020), who have contended that the per share specification (i.e. price model) gives results that are less affected by the scale problem. Therefore, this study uses the per share price model rather than the market value model in its main and additional analyses.

The econometric problem in the return model is termed 'earnings recognition lag', which refers to the portion of earnings that do not affect share price because they have been anticipated by market participants (Kothari & Zimmerman, 1995; Ota, 2003). To illustrate, earnings recognition lag occurs because of certain accounting principles, such as conservatism, which cause value relevant economic events of the current period to be recorded in the next period owing to which the earnings announcement will not be value relevant for, by then, these would have been anticipated by market participants. This would result in a weak return–earning relation and biased ERC. Ota (2003) argued that the remedy for the earnings recognition lag is extending the window interval of both return and earnings, which would reduce measurement errors. Therefore, this study applies the return model covering a 12-month window.

In addition, the spurious ratio and non-stationarity problems can overstate model significance, including R^2, because of spurious correlation. The spurious ratio problem occurs when the independent and dependent variables in the valuation model are both ratio variables. However, the use of the ratio model is essential to mitigate the scale problems that could lead to heteroscedasticity in residuals (Barth & Clinch, 2009). The spurious ratio problem is not a concern in this study because it is only interested in changes in Adj R^2 between two models (i.e. each represents a set of accounting standards) rather than the Adj R^2 value of each model. Hence, spurious correlation is only a concern if it contributes differing effects between the models compared. In addition, the use of the comparative year approach eliminates spurious correlation because both models use an identical divisor. The non-stationarity problem, in contrast, only affects the price model when using time-series data, because share prices are non-stationary. This does not apply to the return model. In this study, the effect of the non-stationarity problem in the price model is minimal when using the pre- and post-IFRS approaches because the cross-sectional effect (110 listed firms) dominates the time-series effect (only 2 years in each model). Hence, the

application of the return model and the short study period should provide assurance about the validity of the results not being affected by the non-stationarity problem. In brief, neither problem affects this study's results.

5.9 Chapter Summary

This chapter described the measurements of the variables selected and identified the data source for the final sample of 110 (107) firms with a total of 440 (428) firm-year observations for the price (return) model during the study period 2015–2018. This chapter also explained the application of the price and return models, which were mathematically explained in Chapter 4, to serve the purpose of this study. The difference between the pre- and post-IFRS approach and the comparative year approach for examining the impact of IFRS adoption was highlighted. Both approaches will be applied in this study to provide robust findings. The relative and incremental value relevance methodologies were explained and applied to the competing accounting standards (i.e. IFRS and Saudi GAAP) and the competing accounting measures (i.e. book values of equity and earnings). The methodology and partitioning technique for firms that differ on firm characteristics were explained. Because the valuation models need to be compared to show the effect of IFRS adoption as well as the difference between firm characteristics pre and post IFRS adoption, the methodology to compare the explanatory power was explained. The Cramer (1987) and Vuong (1989) tests for the explanatory power comparison were both explained in this chapter; the former will be used for the pre- and post-IFRS approach and the latter for the comparative year approach. The econometric problems associated with the valuation models were discussed, and the solutions proposed to these problems, in the prior literature, were applied. It was shown that none of these econometric problem poses any threat to the validity of the study's findings.

Next, the descriptive and multivariate results, using the ordinary least squares (generalised linear model) technique for a cross-sectional data (panel data) analysis, will be reported in Chapter 6. In Chapter 7, these results will be discussed.

Chapter 6: Descriptive and Multivariate Results

6.1 Introduction

This chapter presents the results of the descriptive and regression analyses of the joint and individual value relevance of accounting information provided by 110 non-financial firms listed on Tadawul before (2015–2016) and after (2017–2018), and during the comparative year (2016), of mandatory IFRS adoption in Saudi Arabia. The analyses provided in this chapter is based on the price regression model of Ohlson (1995) and the return model of Easton and Harris (1991) to addresses the following research questions (RQs) empirically:

> ***RQ$_1$:*** *Was the accounting information of Saudi non-financial listed firms value relevant to equity investors during the study period (2015–2018)?*
>
> ***RQ$_2$:*** *Comparing the value relevance of accounting information (earnings v. book value of equity), which information was more value relevant during the study period (2015–2018)?*
>
> ***RQ$_3$:*** *Was there any change in the relative value relevance of accounting information after the adoption of IFRS in Saudi Arabia?*
>
> ***RQ$_4$:*** *Were the reconciliations of the accounting information of Saudi non-financial listed firms during the comparative year of 2016 incrementally value relevant to equity investors?*
>
> ***RQ$_5$:*** *Was there any change in the individual value relevance of accounting measures (earnings v. book value of equity) after the adoption of IFRS in Saudi Arabia?*
>
> ***RQ$_6$:*** *To what extent do the selected firm characteristics affect the value relevance of accounting information in Saudi Arabia?*
>
> ***RQ$_7$:*** *To what extent did IFRS adoption alter the value relevance of accounting information of firms with different characteristics?*

Following prior empirical studies, the joint value relevance is assessed according to the significance of the adjusted explanatory power value (Adj R^2), while the individual value relevance is assessed through the significance of the regression coefficient on each variable of the accounting information. The change in the Adj R^2 values is measured through the Cramer (1987) test for independent models and the Vuong (1989) test for non-nested models. The change in the regression coefficients is measured by incorporating a variable to represent the difference between

the Saudi GAAP period and the IFRS period in the valuation models. All results are reported as statistically significant if the level of statistical significance is 5% or less (i.e. $p \leq 0.05$).

The remainder of this chapter is organised as follows. Section 6.2 presents the key descriptive statistics for the main analysis, and Section 6.3 presents the descriptive statistics, correlation metrics among all variables and the pattern among firms with different characteristics (i.e. the additional analysis). Section 6.4 presents and assesses parametric assumptions to ensure the results and interpretations of this study are valid. Sections 6.5 and 6.7 present the results of the value relevance models for the main and additional analyses, respectively. Section 6.6 assesses the impact of the spurious ratio problem on the R^2 values of the price model to ensure that they are not inflated significantly owing to spurious correlation. The results of the robustness test are presented in Section 6.8. Last, this chapter concludes by providing a summary of the study findings in Section 6.9.

6.2 Descriptive Statistics

Descriptive statistics serve as a useful tool to inspect the consistency of the data used in the analysis by providing essential information about the data distribution (Sekaran & Bougie, 2016). Hence, they aid the researcher in gaining a better understanding of the data, identifying potential errors and interpreting the results. Descriptive statistics include minimum, maximum, mean and standard deviation for all winsorised variables used in both the price model and return model for the main and additional analyses. The descriptive statistics are presented in Sections 6.2.1 for the yearly main analysis, 6.2.2 for pre-and post-IFRS analysis and 6.2.3 for the comparative year analysis.

6.2.1 Yearly Descriptive Statistics

Table 6.1 presents the yearly descriptive statistics of share price (P_{it}) taken 4 months after year end, book values of equity per share ($BVPS_{it}$) at year end and earnings per share (EPS_{it}) at year end for 110 Saudi listed firms during the fiscal years 2015–2018. Table 6.2 presents the yearly descriptive statistics of annual stock return (Ret_{it}), earnings per share (EPS_{it}/P_{it-1}) at year end and change in earnings per share ($\Delta EPS_{it}/P_{it-1}$) at year end for 107 Saudi listed firms during the fiscal years 2015–2018. For the price model, the accounting information, on average, is decreasing over the study period. This is also the case for (EPS_{it}/P_{it-1}) of the return model. However, the

average market value of both models (i.e. P_{it} and Ret_{it}) fluctuated throughout the study period (2015–2018).

6.2.2 Pre- and Post-IFRS Descriptive Statistics and Correlation Metrics

Table 6.3 shows the descriptive statistics of price model variables for 220 observations for each of Saudi GAAP (2015–2016) and IFRS (2017–2018) periods. On average, the accounting numbers were higher during the Saudi GAAP period, while (P_{it}) was slightly higher during the IFRS period. The averages of both (P_{it}) and ($BVPS_{it}$) were similar during both periods, while the average of EPS_{it}decreased significantly by approximately 50% during the IFRS period.

Table 6.4 shows the descriptive statistics of return model variables for 214 observations for each of Saudi GAAP (2015–2016) and IFRS (2017–2018) periods. While average (Ret_{it}) increased from −0.167 SAR during the Saudi GAAP period to 0.012 SAR during the IFRS period, both (EPS_{it}/P_{it-1}) and ($\Delta EPS_{it}/P_{it-1}$), on average, decreased during the IFRS period.

6.2.3 Comparative Year (2016) Descriptive Statistics

Table 6.5 (6.6) presents the key descriptive statistics of all winsorised price (return) model variables used for 110 listed firms during the comparative year (2016) when listed firms were required to report a comparative financial statement under both Saudi GAAP and IFRS. For the price model, (EPS_{it}) and ($BVPS_{it}$), on average, decreased by 6% and 1% when they were prepared under IFRS, respectively (see Table 6.9). This is also the case for the return model—the average (EPS_{it}/P_{it-1}) decreased by 7% when prepared under IFRS (see Table 6.6).

Table 6.1

Yearly Key Descriptive Statistics of Variables Used for Price Model

Accounting Standards	Variables	Year	*N*	Minimum	Maximum	*M*	*SD*
Saudi GAAP	P_{it}	2015	110	6	102	32.655	20.611
	$BVPS_{it}$			6.233	53.975	16.584	7.020
	EPS_{it}			−2.82	9.21	1.962	2.386
	P_{it}	2016	110	6.66	108.04	29.545	20.960
	$BVPS_{it}$			2.353	54.349	16.561	7.337
	EPS_{it}			−6.51	8.2	1.369	2.205
IFRS	P_{it}	2017	110	8.12	129	32.336	23.562
	$BVPS_{it}$			6	54.641	16.337	7.335
	EPS_{it}			−10	10	1.141	2.380
	P_{it}	2018	110	8	124	30.489	23.998
	$BVPS_{it}$			5.076	57.695	15.565	7.114
	EPS_{it}			−4.712	8	0.619	2.067
Pooled	P_{it}	2015–2018	440	6	129	31.256	22.295
	$BVPS_{it}$			2.353	57.695	16.262	7.190
	EPS_{it}			−10	10	1.272	2.307

Note. Financial data in Saudi Riyal (SAR). Variables' definitions: P_{it}= share price for firm i 4 months after the year end t (i.e. 30 April); EPS_{it} = earnings per share for firm i at the end of fiscal year t ; $BVPS_{it}$= book value per equity share for firm i at the end of fiscal year t.

Table 6.2

Yearly Key Descriptive Statistics of Variables Used for Return Model

Accounting Standard	Variable	Year	*N*	Minimum	Maximum	*M*	*SD*
Saudi GAAP	Ret_{it}	2015	107	−0.650	−0.008	−0.327	0.151
	EPS_{it}/P_{it-1}			−0.138	0.137	0.034	0.045
	$\Delta EPS_{it}/P_{it-1}$			−0.151	0.103	−0.009	0.033
	Ret_{it}	2016	107	−0.482	0.575	−0.012	0.245
	EPS_{it}/P_{it-1}			−0.183	0.136	0.037	0.057
	$\Delta EPS_{it}/P_{it-1}$			−0.199	0.243	−0.016	0.056
IFRS	Ret_{it}	2017	107	−0.307	1.000	0.086	0.253
	EPS_{it}/P_{it-1}			−0.173	0.188	0.031	0.058
	$\Delta EPS_{it}/P_{it-1}$			−0.221	0.329	−0.006	0.063
	Ret_{it}	2018	107	−0.416	0.501	−0.057	0.194
	EPS_{it}/P_{it-1}			−0.284	0.109	0.004	0.068
	$\Delta EPS_{it}/P_{it-1}$			−0.262	0.138	−0.023	0.054
Pooled	Ret_{it}	2015–2018	428	−0.650	1.000	−0.077	0.263
	EPS_{it}/P_{it-1}			−0.284	0.188	0.026	0.059
	$\Delta EPS_{it}/P_{it-1}$			−0.262	0.329	−0.013	0.053

Note. Financial data in Saudi Riyal (SAR). Variables' definitions: Ret_{it}= annual stock returns per share for firm i at time t, measured by the ratio [(P_{it} +DPS_{it}) − P_{it-1})]/ P_{it-1} where $P_{it}$is the share price for firm i 4 months after year end t; P_{it-1} is the share price 8 months before the fiscal year end t, and DPS_{it} is dividend per share for firm i during year t ; EPS_{it}/P_{it-1}= earnings per share for firm i at the end of fiscal year t divided by P_{it-1}; $\Delta EPS_{it}/P_{it-1}$= annual change in earnings (net income) per share for firm i at year end of fiscal year t divided by P_{it-1}.

Table 6.3

Key Descriptive Statistics of Variables Used for Price Model for Pre- and Post-IFRS Approach

Accounting Standards	Variable	Pre- and Post-IFRS Approach ($N = 440$)				
		N	Minimum	Maximum	*M*	*SD*
Saudi GAAP	P_{it}	220	6	103	31.736	20.535
	$BVPS_{it}$		−6.51	9.21	1.684	2.298
	EPS_{it}		2.353	54.349	16.489	7.163
IFRS	P_{it}	220	8	177	31.808	25.392
	$BVPS_{it}$		−10	10	0.880	2.239
	EPS_{it}		5.076	57.695	15.951	7.219

Note. Financial data in Saudi Riyal (SAR). Variables' definitions: P_{it}= share price for firm i 4 months after the year end t (i.e. 30 April); EPS_{it} = earnings per share for firm i at the end of fiscal year t ; $BVPS_{it}$= book value per equity share for firm i at the end of fiscal year t .

Table 6.4

Key Descriptive Statistics of Variables Used for Return Model for Pre- and Post-IFRS Approach

Accounting Standards	Variable	Pre- And Post-IFRS Approach (N = 428)				
		N	Minimum	Maximum	*Mean*	*SD*
Saudi GAAP	Ret_{it}	214	−0.650	0.575	−0.167	0.261
	EPS_{it}/P_{it-1}		−0.183	0.137	0.035	0.051
	$\Delta EPS_{it}/P_{it-1}$		−0.199	0.243	−0.012	0.046
IFRS	Ret_{it}	214	−0.416	0.900	0.012	0.228
	EPS_{it}/P_{it-1}		−0.284	0.188	0.018	0.064
	$\Delta EPS_{it}/P_{it-1}$		−0.262	0.329	−0.014	0.059

Note. Financial data in Saudi Riyal (SAR). Variables' definitions: Ret_{it}= annual stock returns per share for firm i at time *t,* measured by the ratio [(P_{it} +DPS_{it}) −P_{it-1})]/ P_{it-1} where P_{it} is share price for firm i 4 months after year end *t*; P_{it-1} is the share price 8 months before the fiscal year end *t*; DPS_{it} is dividend per share for firm i during year *t* ; EPS_{it}/P_{it-1}= earnings per share for firm i at the end of fiscal year *t* divided by P_{it-1}; $\Delta EPS_{it}/P_{it-1}$= annual change in earnings (net income) per share for firm i at year end of fiscal year *t* divided by P_{it-1}.

Table 6.5

Key Descriptive Statistics of Variables Used for Price Model for the Comparative Year Approach

Accounting Standards	Variable	Comparative Year Approach ($N = 110$)				
		N	Minimum	Maximum	*Mean*	*SD*
Saudi GAAP	P_i^{2016}	110	6.66	108.04	29.544	21.96
	$EPS_i^{Saudi\ GAAP(2016)}$		−6.51	8.2	1.375	2.21
	$BVPS_i^{Saudi\ GAAP(2016)}$		2.353	54.349	16.561	7.337
IFRS	P_i^{2016}	110	6.66	108.04	29.544	21.96
	$EPS_i^{IFRS(2016)}$		−6.314	8.16	1.287	2.184
	$BVPS_i^{IFRS(2016)}$		2.164	52.511	16.341	7.26
Difference	$EPS_i^{\text{IFRS}-\ Saudi\ GAAP(2016)}$	110	−1.739	0.736	−0.082	0.312
	$BVPS_i^{\text{IFRS}-\ Saudi\ GAAP(2016)}$		−4.362	24.259	−0.220	2.554
% Change	$EPS_i{}^{2016}$	110	-	-	−6%	-
	$BVPS_i{}^{2016}$		-	-	−1%	-

Note. Financial data in Saudi Riyal (SAR). Variables' definitions: P_i^{2016} = share price for firm i 6 months after the end of fiscal year 2016; EPS_i^{2016} =earnings per share for firm i at the end of fiscal year 2016; $BVPS_i^{2016}$ = book values of equity per share for firm i at the end of fiscal year 2016; $EPS_i^{Saudi\ GAAP(2016)}$ = earnings per share of 2016 prepared under Saudi GAAP for firm i; $BVPS_i^{Saudi\ GAAP(2016)}$ = book values of equity per share of 2016 prepared under Saudi GAAP for firm i; $EPS_i^{\text{IFRS}-\ Saudi\ GAAP(2016)}$ = the difference between EPS_i^{2016} prepared under Saudi GAAP and EPS_i^{2016}prepared under IFRS; and $BVPS_i^{\text{IFRS}-\ Saudi\ GAAP(2016)}$ = the difference between $BVPS_i^{2016}$prepared under Saudi GAAP and $BVPS_i^{2016}$prepared under IFRS.

Table 6.6

Key Descriptive Statistics of Variables Used for Return Model for Comparative Year Approach

Standards	Variable	Comparative Year Approach (N = 110)				
		N	Minimum	Maximum	*Mean*	*SD*
Saudi GAAP	Ret_i^{2016}	110	−0.598	0.716	−0.020	0.247
	$EPS_i^{\text{Saudi GAA(2016)}}/P_i^{2015}$		−0.209	0.155	0.039	0.060
IFRS	Ret_i^{2016}	110	−0.598	0.716	−0.020	0.247
	$EPS_i^{\text{IFRS(2016)}}/P_i^{2015}$		−0.210	0.151	0.036	0.059
Difference	$EPS_i^{\text{IFRS−Saudi GAA(2016)}}/P_i^{2015}$	110	−0.106	0.051	−0.003	0.015
% Change	EPS_i^{2016}/P_i^{2015}	110	-	-	−7%	-

Note. Financial data in Saudi Riyal (SAR). Variables' definitions: Ret_i^{2016}= annual stock returns per share for firm i of year 2016, measured by the ratio [(P_i^{2016} +DPS_i^{2016}) −P_i^{2015})]/ P_i^{2015} where P_i^{2016}(P_i^{2015}) is the stock price for firm i 6 months after (before) the fiscal year end of 2016; $DPS_i^{2016}$is dividend per share for firm i from 30 June 2016 to 30 June 2017. EPS_i^{2016}/P_i^{2015}= earnings per share for firm i at the end of fiscal year 2016 divided by P_i^{2015}; $EPS_i^{\text{Saudi GAA(2016)}}/P_i^{2015}$ = EPS_i^{2016}/P_i^{2015} prepared under Saudi GAAP; and $EPS_i^{\text{IFRS−Saudi GAA(2016)}}/P_i^{2015}$ = the difference between EPS_i^{2016}/P_i^{2015} prepared under GAAP and EPS_i^{2016}/P_i^{2015}prepared under IFRS.

6.3 Descriptive Statistics and Correlation Metrics for Additional Analysis

Table 6.7 shows the pattern among firms with different characteristics based on 220 observations for each of the Saudi GAAP and IFRS periods as well as the average pattern between the two periods. On average, most of the observations are profitable firms (77.5%) and most firms (68%) are medium or large ones. In contrast, more than half of loss-making observations (51.5%) fall under the small-size category. This result is consistent with that of Collins et al. (1997) who argued that, unlike large firms, small firms usually include loss-making firms and startups that are yet to generate profits. It is also evident within this sample that most of the loss-making firms (68.7%) selected non-Big4 auditors. Further, more than half of the medium and large size observations (57.5%) selected Big4 auditors. This is in line with the notion that larger firms are more likely to be financially stable, to be followed by the media and financial analysts, and to engage in various activities, unlike smaller firms; thus, they select Big4 auditors to maintain quality and reliability of their financial statements for providing users of accounting information with further assurance and confidence. Referring to the industrial type, most of the study sample (132 observations out of 220 observations; 60%) are manufacturing firms and most of them are profitable (76%), large/medium size (65%), high leveraged (65.5%) firms with high potential growth (60.5%). On average, most firms in the study sample are ones with medium or high potential growth (63.6%) and most of them are profitable (80%). As for leverage, the study sample, on average, consists of an almost equal number of firms fall under of all leverage categories. Most of low leveraged firms are profitable (78.7%), manufacturing (56.8%) firms with non-big4 auditors (55.6%).

Table 6.8 presents the key descriptive statistics of all winsorised variables used for the additional analysis concerning firms' characteristics pre-and post-IFRS. Panels A, B, C, D, E, F, G and H are used for the comparison of firm size, profitability, audit quality, industry, potential growth, leverage, gender of the board members and the sentiment of firm's financial news respectively. On average, during both periods the accounting numbers (i.e. $BVPS_{it}$ and EPS_{it}) were always higher among large firms (Panel A), profit-making firms (Panel B), firms audited by Big4 firms (Panel C), firms with high potential growth (Panel E), low leveraged firms (Panel F), firms with mixed-gender members (Panel G) and good news firms (Panel H) compared with their counterparts. As for manufacturing status (Panel D), EPS_{it}, on average, was always higher for

non-manufacturing firms, while the average $BVPS_{it}$ was higher among manufacturing firms, regardless of the accounting standards being applied.

Table 6.9 provides the Pearson bivariate correlation coefficients among all variables used in the analysis of firms' characteristics in the pre-and post-IFRS periods. During both periods, both ($BVPS_{it}$) and (EPS_{it}) were positively and significantly associated with (P_{it}) for all firms with different characteristics (see Panels A–F) except those of loss-making firms (Panel B). The correlation coefficients are higher in magnitude for large firms (Panel A), profit-making firms (Panel B), firms audited by Big4 firms (Panel C), firms with low potential growth (Panel E), low leveraged firms (Panel F) and good news firms (Panel H) compared with their counterparts, during both periods. ($BVPS_{it}$) was more associated with (P_{it}) for manufacturing firms (Panel D) and firms with only male members (Panel G), while (EPS_{it}) was more correlated with (P_{it}) for non-manufacturing firms (Panel D) and firms with mixed-gender members (Panel G) in both the Saudi GAAP and IFRS periods. The introduction of IFRS has increased the correlation coefficient between ($BVPS_{it}$) and (P_{it}) for small firms (Panel A), profit-making firms (Panel, B), firms with different auditor size (Panel C), firms with different manufacturing status (Panel D), firms with different levels of potential growth (Panel E) and low leveraged firms (Panel F). Further, the correlation coefficient between (EPS_{it}) and (P_{it}) for large firms (Panel A), profit-making firms (Panel B), firms with different auditor size (Panel C), non-manufacturing firms (Panel D) and firms with high potential growth (Panel E) has also increased after the switch to IFRS. The correlation coefficients between the explanatory variables, in all groups, are also positive and statistically significant during both Saudi GAAP and IFRS periods, but none of them exceed 0.80, the threshold for the presence of the multicollinearity problem. In summary, while the introduction of IFRS has had a positive effect on the correlation coefficients between ($BVPS_{it}$) and (P_{it}) for eleven groups, the correlation coefficients between (EPS_{it}) and (P_{it}) have increased following IFRS adoption for eight groups out of these 16 distinct groups.

Table 6.7

Pattern Among Firms With Different Characteristics

Saudi GAAP Period													
Selected Firms' Characteristics		Profitability		Audit Quality		Size			Industry		Growth		
		Profit	Loss	Big4	Non-Big4	Small	Medium	Large	Manufacturing	Non-Manufacturing	Low	Medium	High
Audit quality	Big4	96	16										
	Non-Big4	84	24										
Size	Small	60	20	24	56								
	Medium	50	10	34	26								
	Large	70	10	54	26								
Industry	Manufacturing	104	28	66	66	43	32	57					
	Non-Manufacturing	76	12	46	42	37	28	23					
Growth	Low growth	67	13	35	45	22	27	31	56	24			
	Medium growth	52	8	32	28	18	14	28	36	24			
	High growth	61	19	45	35	40	19	21	40	40			
Leverage	Low leverage	69	11	35	45	44	14	22	41	39	24	22	34
	Medium leverage	55	3	28	30	21	21	16	33	25	19	15	24
	High leverage	56	26	49	33	15	25	42	58	24	37	23	22
IFRS Period													
Selected Firms' Characteristics		Profitability		Audit Quality		Size			Industry		Growth		
		Profit	Loss	Big4	Non-Big4	Small	Medium	Large	Manufacturing	Non-Manufacturing	Low	Medium	High
Audit quality	Big4	71	15										
	Non-Big4	90	44										
Size	Small	49	31	13	67								
	Medium	43	17	21	39								
	Large	69	11	52	28								
Industry	Manufacturing	97	35	47	85	49	29	54					

	Non-Manufacturing	64	24	39	49	31	31	26					
Growth	Low growth	51	29	27	53	24	28	28	48	32			
	Medium growth	48	11	25	34	23	14	22	42	17			
	High growth	62	19	34	47	33	18	30	42	39			
Leverage	Low leverage	57	23	36	44	27	19	34	50	30	27	21	32
	Medium leverage	40	18	22	36	23	17	18	30	28	22	15	21
	High leverage	64	18	28	54	30	24	28	52	30	31	23	28

Average of Saudi GAAP and IFRS Periods

Selected Firms' Characteristics		Profitability		Audit Quality		Size			Industry		Growth		
		Profit	Loss	Big4	Non-Big4	Small	Medium	Large	Manufacturing	Non-Manufacturing	Low	Medium	High
Audit quality	Big4	83.5	15.5										
	Non-Big4	87	34										
Size	Small	54.5	25.5	18.5	61.5								
	Medium	46.5	13.5	27.5	32.5								
	Large	69.5	10.5	53	27								
Industry	Manufacturing	100.5	31.5	56.5	75.5	46	30.5	55.5					
	Non-Manufacturing	70	18	42.5	45.5	34	29.5	24.5					
Growth	Low growth	59	21	31	49	23	27.5	29.5	52	28			
	Medium growth	50	9.5	28.5	31	20.5	14	25	39	20.5			
	High growth	61.5	19	39.5	41	36.5	18.5	25.5	41	39.5			
Leverage	Low leverage	63	17	35.5	44.5	35.5	16.5	28	45.5	34.5	25.5	21.5	33
	Medium leverage	47.5	10.5	25	33	22	19	17	31.5	26.5	20.5	15	22.5
	High leverage	60	22	38.5	43.5	22.5	24.5	35	55	27	34	23	25

Table 6.8

Key Descriptive Statistics of Variables Used for Price Model for Firms With Different Characteristics

Panel A: Large v. Small Firms Pre and Post IFRS											
Accounting Standards	Variable	Large Firms (N = 160)					Small Firms (N = 160)				
		N	Minimum	Maximum	*M*	*SD*	*N*	Minimum	Maximum	*M*	*SD*
Saudi GAAP	P_{it}	80	6	99	31.948	20.039	80	10.65	90.69	31.287	17.816
	EPS_{it}		−2.21	7.419	2.193	2.359		−2.53	6.882	1.038	1.765
	$BVPS_{it}$		6.124	54.349	19.733	8.915		6.008	27.973	13.837	4.736
IFRS	P_{it}	80	8.12	124	36.341	26.798	80	8.51	87.34	27.863	17.753
	EPS_{it}		−2.331	9.99	1.649	2.015		−10	5.62	0.01	2.007
	$BVPS_{it}$		6.105	57.695	18.757	8.724		5.076	29.257	13.69	5.497
Panel B: Profit-Making v. Loss-Making Firms Pre and Post IFRS											
Accounting Standards	Variable	Profit-Making Firms (N = 341)					Loss-Making Firms (N = 99)				
		N	Minimum	Maximum	*M*	*SD*	*N*	Minimum	Maximum	*M*	*SD*
Saudi GAAP	P_{it}	180	6	103	33.138	20.932	40	6.94	63	24.229	14.747
	EPS_{it}		0.02	9.21	2.304	2.012		−6.51	−0.034	−1.192	1.115

	$BVPS_{it}$		6.619	54.349	17.731	7.107		2.353	24.102	11.183	4.258
	P_{it}		8.12	129	35.141	25.271		8	57	20.746	13.303
IFRS	EPS_{it}	161	0.013	9.99	1.728	1.77	59	−10.28	−0.02	−1.446	1.632
	$BVPS_{it}$		6.105	57.695	17.308	7.077		5.076	32.608	12.26	6.257

Panel C: Big4 v. Non-Big4 Firms Pre and Post IFRS

Accounting Standards	Variable	Big4 Firms (N = 198)					Non-Big4 Firms (N = 242)				
		N	Minimum	Maximum	*M*	*SD*	*N*	Minimum	Maximum	*M*	*SD*
	P_{it}		6.94	103	36.507	23.068		6	78.36	26.669	16.041
Saudi GAAP	EPS_{it}	112	−2.82	9.21	2.314	2.512	108	−6.51	6.516	0.998	1.878
	$BVPS_{it}$		6.233	54.349	17.945	7.45		2.353	37.957	15.084	6.515
	P_{it}		8	129	37.904	29.415		8	81	27.232	18.145
IFRS	EPS_{it}	86	−3.12	9.64	1.672	2.302	134	−10.28	9.99	0.367	2.035
	$BVPS_{it}$		9.083	57.695	18.149	8.261		5.076	33.218	14.545	6.072

Panel D: Manufacturing v. Non-Manufacturing Firms Pre and Post IFRS

	Variable	Manufacturing (N = 132)	Non-Manufacturing (N = 88)

Accounting Standards		*N*	Minimum	Maximum	*M*	*SD*	*N*	Minimum	Maximum	*M*	*SD*
Saudi GAAP	P_{it}	132	6.940	99.000	29.448	18.328	88	6.000	103.000	35.055	23.060
	EPS_{it}		−6.510	7.419	1.560	2.310		−2.530	9.210	1.830	2.325
	$BVPS_{it}$		2.353	54.349	17.155	7.935		6.124	30.271	15.628	5.639
IFRS	P_{it}	132	8.000	124.000	28.876	19.994	88	8.000	129.000	35.014	27.928
	EPS_{it}		−4.712	7.174	0.722	1.811		−10.280	9.990	1.098	2.748
	$BVPS_{it}$		5.076	57.695	16.273	7.720		5.803	33.218	15.467	6.405

Panel E: High Potential Growth v. Low Potential Growth Firms Pre and Post IFRS

Accounting Standards	Variable	High Growth 'High MTB' (*N* = 80)					Low Growth 'Low MTB' (*N* = 80)				
		N	Minimum	Maximum	*M*	*SD*	*N*	Minimum	Maximum	*M*	*SD*
Saudi GAAP	P_{it}	80	12.580	103.000	49.600	20.580	80	6.000	36.000	16.560	6.872
	EPS_{it}		−6.510	9.210	2.252	2.997		−2.127	5.680	0.996	1.396
	$BVPS_{it}$		2.353	30.271	15.401	6.096		7.798	37.957	16.482	6.681
IFRS	P_{it}	80	10.000	129.000	53.262	26.160	80	8.000	31.860	15.979	6.444

	EPS_{it}		−10.000	10.000	1.752	3.147		−3.576	2.627	0.141	1.208
	$BVPS_{it}$		5.076	57.695	16.650	9.166		6.105	33.000	15.729	6.186

Panel F: High Leveraged v. Low Leveraged Firms Pre and Post IFRS

Accounting Standards	Variable	High Leverage (N = 80)					Low Leverage (N = 80)				
		N	Minimum	Maximum	*M*	*SD*	*N*	Minimum	Maximum	*M*	*SD*
Saudi GAAP	P_{it}	80	6.940	58.590	23.218	12.245	80	10.720	103.000	36.785	22.850
	EPS_{it}		−6.510	4.616	0.516	1.815		−1.880	9.210	2.181	2.438
	$BVPS_{it}$		2.353	32.000	14.672	5.610		6.619	32.511	16.747	6.510
IFRS	P_{it}	80	8.000	60.100	23.340	12.884	80	8.510	142.000	38.083	28.623
	EPS_{it}		−4.712	3.452	0.168	1.695		−10.000	10.000	1.324	2.614
	$BVPS_{it}$		5.430	33.000	14.208	5.492		5.803	33.218	16.778	6.702

Panel G: Firms with only male board members v. Firms with mixed-gender board members Pre and post IFRS

Accounting Standards	Variable	Firms with only male members (N=380)					Firms with mixed-gender members (N=60)				
		N	Minimum	Maximum	M	SD	N	Minimum	Maximum	M	SD
Saudi GAAP	P_{it}	190	6.00	102.96	29.566	19.962	30	11.99	108.04	40.811	23.582

	EPS_{it}		2.353	54.349	16.117	7.235		11.166	30.271	19.453	6.034
	$BVPS_{it}$		-6.510	8.5180	1.520	2.246		-1.948	9.210	2.586	2.535
IFRS	P_{it}	190	8.00	124.00	29.208	21.741	30	11.20	129.00	45.374	30.719
	EPS_{it}		5.076	57.695	15.529	7.330		11.440	32.757	18.621	5.901
	$BVPS_{it}$		-10.000	9.990	.696	2.179		-.072	10.000	2.040	2.299

Panel H: Good news firms v. Bad news firms Pre and post IFRS

Accounting Standards	Variable	Good news firms (N=146)					Bad news firms(N=282)				
		N	Minimum	Maximum	*M*	*SD*	*N*	Minimum	Maximum	*M*	*SD*
Saudi GAAP	P_{it}	48	6.66	108.04	33.006	25.536	166	6.00	102.00	30.123	19.150
	EPS_{it}		6.124	54.349	17.499	8.323		2.353	53.975	16.311	6.911
	$BVPS_{it}$		-1.948	8.2000	1.550	2.097		-6.510	9.210	1.637	2.373
IFRS	P_{it}	98	10.00	129.00	39.274	28.002	116	8.00	87.00	24.122	16.016
	EPS_{it}		6.000	57.695	17.469	8.498		5.076	28.702	14.655	5.814
	$BVPS_{it}$		-3.310	10.000	1.683	2.357		-10.000	5.720	.107	1.860

Note. Financial data in Saudi Riyal (SAR). Variables' definitions: P_{it}= share price for firm i 4 months after the year end t (i.e. 30 April); EPS_{it} = earnings per share for firm i at the end of fiscal year t ; $BVPS_{it}$= book value per equity share for firm i at the end of fiscal year t .

Table 6.9

Correlation Matrix of Variables Used for Price Model for Firms With Different Characteristics

Panel A: Large v. Small Firms Pre and Post IFRS									
Accounting Standards	Variable	Large Firms (N = 160)				Small Firms (N = 160)			
		N	P_{it}	$BVPS_{it}$	EPS_{it}	N	P_{it}	$BVPS_{it}$	EPS_{it}
Saudi GAAP	P_{it}	80	1			80	1		
	$BVPS_{it}$		.661**	1			.283*	1	
	EPS_{it}		.742**	.647**	1		.450**	.553**	1
IFRS	P_{it}	80	1			80	1		
	$BVPS_{it}$		.620**	1			.391**	1	
	EPS_{it}		.778**	.581**	1		.345**	.455**	1
Panel B: Profit-Making v. Loss-Making Firms Pre and Post IFRS									
Accounting Standards	Variable	Profit-Making Firms (N = 341)				Loss-Making Firms (N = 99)			
		N	P_{it}	$BVPS_{it}$	EPS_{it}	N	P_{it}	$BVPS_{it}$	EPS_{it}
Saudi GAAP	P_{it}	180	1			40	1		
	$BVPS_{it}$		.458**	1			0.002	1	
	EPS_{it}		.767**	.505**	1		−0.091	.395*	1
IFRS	P_{it}	161	1			59	1		
	$BVPS_{it}$		.564**	1			0.156	1	
	EPS_{it}		.841**	.538**	1		−0.073	0.026	1
Panel C: Big4 v. Non-Big4 Firms Pre and Post IFRS									
Accounting Standards	Variable	Big4 Firms (N = 198)				Non-Big4 Firms (N = 242)			
		N	P_{it}	$BVPS_{it}$	EPS_{it}	N	P_{it}	$BVPS_{it}$	EPS_{it}

Saudi GAAP	P_{it}	112	1			108	1		
	$BVPS_{it}$		.535**	1			.205*	1	
	EPS_{it}		.792**	.544**	1		.284**	.594**	1
IFRS	P_{it}	86	1			134	1		
	$BVPS_{it}$		.612**	1			.429**	1	
	EPS_{it}		.878**	.518**	1		.358**	.427**	1

Panel D: Manufacturing v. Non-Manufacturing Firms Pre and Post IFRS

Accounting Standards	Variable	Manufacturing (N = 132)				Non-Manufacturing (N = 88)			
		N	P_{it}	$BVPS_{it}$	EPS_{it}	N	P_{it}	$BVPS_{it}$	EPS_{it}
Saudi GAAP	P_{it}	132	1			88	1		
	$BVPS_{it}$		.560**	1			.337**	1	
	EPS_{it}		.644**	.659**	1		.653**	.487**	1
IFRS	P_{it}	132	1			88	1		
	$BVPS_{it}$		.612**	1			.506**	1	
	EPS_{it}		.595**	.571**	1		.745**	.495**	1

Panel E: High Potential Growth v. Low Potential Growth Firms Pre and Post IFRS

Accounting Standards	Variable	High Growth 'High MTB' (N = 80)				Low Growth 'Low MTB' (N = 80)			
		N	P_{it}	$BVPS_{it}$	EPS_{it}	N	P_{it}	$BVPS_{it}$	EPS_{it}
Saudi GAAP	P_{it}	80	1			80	1		
	$BVPS_{it}$		.530**	1			.813**	1	
	EPS_{it}		.643**	.698**	1		.778**	.670**	1
IFRS	P_{it}	80	1			80	1		
	$BVPS_{it}$		.662**	1			.888**	1	

	EPS_{it}		.763**	.645**	1		.506**	.286**	1

Panel F: High Leveraged v. Low Leveraged Firms Pre and Post IFRS

Accounting Standards	Variable	High Leverage (N = 80)				Low Leverage (N = 80)			
		N	P_{it}	$BVPS_{it}$	EPS_{it}	N	P_{it}	$BVPS_{it}$	EPS_{it}
Saudi GAAP	P_{it}		1				1		
	$BVPS_{it}$	80	.288**	1		80	.349**	1	
	EPS_{it}		.269*	.637**	1		.724**	.576**	1
IFRS	P_{it}		1				1		
	$BVPS_{it}$	80	.220*	1		80	.395**	1	
	EPS_{it}		.228*	.259*	1		.700**	.428**	1

Panel G: Firms with only male members v. Firms with mixed-gender members Pre and post IFRS

Accounting Standards	Variable	Firms with only male members (N=380)				Firms with mixed-gender members (N=60)			
		N	P_{it}	$BVPS_{it}$	EPS_{it}	N	P_{it}	$BVPS_{it}$	EPS_{it}
Saudi GAAP	P_{it}		1				1		
	$BVPS_{it}$	190	.456**	1		30	.312	1	
	EPS_{it}		.626**	.606**	1		.754**	.392*	1
IFRS	P_{it}		1				1		
	$BVPS_{it}$	190	.554**	1		30	.367	1	
	EPS_{it}		.642**	.522**	1		.807**	.265	1

Panel H: Good news firms v. Bad news firms Pre and post IFRS

Accounting Standards	Variable	Good news firms (N=146)				Bad news firms(N=282)			
		N	P_{it}	$BVPS_{it}$	EPS_{it}	N	P_{it}	$BVPS_{it}$	EPS_{it}
Saudi GAAP	P_{it}	80	1			166	1		

	$BVPS_{it}$		.609**	1			.376**	1		
	EPS_{it}		.759**	.638**	1		.628**	.586**	1	
	P_{it}		1				1			
IFRS	$BVPS_{it}$	80	.571**	1		116	.350**	1		
	EPS_{it}		.757**	.522**	1		.436**	.398**	1	

**and * indicate a significant correlation coefficient at the 0.01 and 0.05 levels respectively (2-tailed).

6.4 Checking Regression Assumptions

Based on the theoretical framework used to develop the valuation models, Ohlson (1995) assumed that the relationship between the market value of a firm and its accounting numbers is a linear relationship. Thus, this study uses linear regression, which is a parametric statistical test. All parametric tests have certain assumptions that are extremely critical; thus, they must be met in order to have valid results and interpretations of the regression model parameters (Field, 2013; Gujarati & Porter, 2009). These assumptions include the assumptions of reasonable sample size, normality, linearity, homoscedasticity/homogeneity, absence of multicollinearity, absence of autocorrelation and absence of outliers.

6.4.1 Reasonable Sample Size

The assumption of reasonable sample size is developed from the central limit theorem, which states that the larger the sample size, the more accurate the estimates and the more the data becomes normally distributed (Field, 2013). Field (2013) illustrated a rule of thumb for determining a reasonable sample size, which assumes that the number of observations (n) should equal the number of predictors multiplied by 10 or 15. If a model has only two predictors, the reasonable sample size should be between 20 to 30 observations. According to this rule, the study has a reasonable sample size since it includes 110 (220) firm-year observations for the comparative year (pre and post) model with two predictors.

6.4.2 Linearity

As explained in Chapter 4, the valuation models assume a linear relationship between the dependent variable and explanatory variables. This study applies two methods to assess the linearity assumption. First, simply by plotting the dependent variable on each continuous independent variable; if the scatter plot shows a straight line, it means there is a linear relationship between the dependent and independent variables. Alternatively, a scatterplot of the standardised residuals on the standardised predicted value can be used to detect any violation of the assumption of linearity, in which the residuals create a systematic (non-random) shape (Field, 2013). Although, it is relatively easy to check for this assumption, the violation of this assumption results in an invalid model (Field, 2013). Following these two methods, the assumption of linearity is not violated in this study (see Appendix 5).

6.4.3 Residuals Assumptions

Normality, homoscedasticity and autocorrelation are assumptions related to the residuals, which are assumed to be normally distributed, to have constant variance (homoscedastic) and to be independent from each other. First, to check whether the distribution of the residuals is normal, there are two popular tests: the Kolmogorov–Smirnoff and the Shapiro–Wilk tests. However, for a large sample size such as in this study, these tests need not be performed for the central limit theorem guarantees that data are usually normally distributed with a large sample size (Field, 2013). This is consistent with Frost (2014), the Minitab blog editor, who quotes evidence that the results are valid and there is no need to meet the assumption of normality of residuals when the sample size is reasonable with a minimum of 15 observations. Thus, this study assumes that the residuals are normally distributed.

Second, homoscedasticity assumes that there is no pattern in the residuals. Graphically, the problem of heteroscedasticity (non-homoscedasticity) can be spotted by plotting standardised residuals on the standardised predicted values. If the dots are spread randomly, the assumption of homoscedasticity is not violated. This method has been applied in this study, and there is no indication of heteroscedasticity (see Appendix 5).

Third, autocorrelation usually occurs in a time-series regression where the residuals are correlated. Autocorrelation poses a serious problem since its violation results in invalid significance tests (Field, 2013). The popular test used to detect the presence of autocorrelation is the Durbin–Watson test where if the result is close to 2, it indicates no serial correlation, and the assumption is not violated. However, it does not pose a problem in this study since it uses panel data (cross-section and time-series data) with 2 years in the period for each set of standards (2015–2016 ‘Saudi GAAP’ v. 2017–2018 ‘IFRS’).

6.4.4 Outliers

An outlier is an observation that differs significantly from other observations, and it usually has a large residual (Field, 2013; Gujarati & Porter, 2009). Regression is very sensitive to outliers and may result in misleading results and interpretation (Stock & Watson, 2015). Prior value relevance studies have used Cook’s distance (e.g. Lam et al., 2013; Tsalavoutas et al., 2012) and standardised/studentised residuals (e.g. Collins et al., 1997; J. Francis & Schipper, 1999) to detect outliers. Some studies have removed outliers (e.g. Goodwin et al., 2008; M. S. Harris & Muller,

1999; Hung & Subramanyam, 2007) while others have winsorised these (e.g. Barth et al., 2008, 2012; Bartov et al., 2005). Following Barth et al.'s (2008, 2012) studies, the current study winsorises any extreme observations to have a maximum value of three standardised residuals to meet with the assumption of the absence of outliers. In addition to these value relevance studies, the study followed Gelman and Hill (2006), Johnson and Wichern (2007), Provost and Fawcett (2013), and Whitlock and Schluter (2015) which are highly regarded in the field of statistical analysis and are recognized as valuable resources for researchers in various disciplines. By incorporating insights from these sources, the study was able to provide a thorough and comprehensive analysis that is well-supported by established statistical principles and methods. The winsorising technique is preferred over the removal technique in this study owing to the preference that the sample must have a matched pair in the pre-adoption and post-adoption periods. Therefore, the winsorising technique is applied in this study since removing a firm from one set of the sample but not from the other will lead to less reliable results.

6.4.5 Multicollinearity

The assumption about the absence of multicollinearity is that there is no strong correlation among explanatory variables. The presence of multicollinearity results in inaccurate regression estimates (Gujarati & Porter, 2009). The presence of severe multicollinearity can be determined by examining the variance inflation factor (VIF) values or the Pearson correlation coefficients among predictors. According to Gujarati and Porter (2009), the cut-off VIF (Pearson correlation coefficients) value is 10 (0.80), and a value greater than 10 (0.80) may cause concern and indicate that there is serious multicollinearity. The VIF values (see Tables 6.16–6.20) and the Pearson correlation coefficients (see Tables 6.10–6.15) indicate that multicollinearity is not a problem in the data.

Table 6.10

Yearly Correlation Matrix of Variables Used for Price Model

Accounting Standards	Year	*N*	Variable	P_{it}	$BVPS_{it}$	EPS_{it}
Saudi GAAP	2015	110	P_{it}	1		
			$BVPS_{it}$	.431**	1	
			EPS_{it}	.674**	.574**	1
	2016	110	P_{it}	1		
			$BVPS_{it}$	.471**	1	
			EPS_{it}	.637**	.612**	1
IFRS	2017	110	P_{it}	1		
			$BVPS_{it}$	.535**	1	
			EPS_{it}	.677**	.534**	1
	2018	110	P_{it}	1		
			$BVPS_{it}$	.523**	1	
			EPS_{it}	.697**	.469**	1
Pooled	2015–2018	440	P_{it}	1		
			$BVPS_{it}$	.491**	1	
			EPS_{it}	.658**	.545**	1

** and * indicate a significant correlation coefficient at the 0.01and 0.05 levels, respectively (2-tailed).

Table 6.11

Yearly Correlation Matrix of Variables Used for Return Model

Accounting Standards	Year	*N*	Variable	Ret_{it}	EPS_{it}/P_{it-1}	$\Delta EPS_{it}/P_{it-1}$
Saudi GAAP	2015	107	Ret_{it}	1		
			EPS_{it}/P_{it-1}	.260**	1	
			$\Delta EPS_{it}/P_{it-1}$	.312**	.382**	1
	2016	107	Ret_{it}	1		
			EPS_{it}/P_{it-1}	.262**	1	
			$\Delta EPS_{it}/P_{it-1}$	.239*	.202*	1
IFRS	2017	107	Ret_{it}	1		
			EPS_{it}/P_{it-1}	.372**	1	
			$\Delta EPS_{it}/P_{it-1}$	.407**	.371**	1
	2018	107	Ret_{it}	1		
			EPS_{it}/P_{it-1}	.457**	1	
			$\Delta EPS_{it}/P_{it-1}$	.317**	.576**	1
Pooled	2015–2018	428	Ret_{it}	1		
			EPS_{it}/P_{it-1}	.259**	1	
			$\Delta EPS_{it}/P_{it-1}$	.258**	.393**	1

** and * indicate a significant correlation coefficient at the 0.01and 0.05 levels, respectively (2-tailed).

Table 6.12

Correlation Matrix of Variables Used for Price Model for Pre- and Post-IFRS Approach

Accounting Standards	*N*	Pre- and Post-IFRS Approach (*N* = 440)			
		Variable	P_{it}	$BVPS_{it}$	EPS_{it}
Saudi GAAP	220	P_{it}	1		
		$BVPS_{it}$	.437**	1	
		EPS_{it}	.644**	.585**	1
IFRS	220	P_{it}	1		
		$BVPS_{it}$	.530**	1	
		EPS_{it}	.683**	.505**	1

**and *indicate a significant correlation coefficient at the 0.01and 0.05 levels respectively (2-tailed).

Table 6.13

Correlation Matrix of Variables Used for Return Model for Pre- and Post-IFRS Approach

Accounting Standards	*N*	Pre- and Post-IFRS Approach (*N* = 428)			
		Variable	Ret_{it}	EPS_{it}/P_{it-1}	$\Delta EPS_{it}/P_{it-1}$
Saudi GAAP	214	Ret_{it}	1		
		EPS_{it}/P_{it-1}	.199**	1	
		$\Delta EPS_{it}/P_{it-1}$	.145*	.253**	1
IFRS	214	Ret_{it}	1		
		EPS_{it}/P_{it-1}	.448**	1	
		$\Delta EPS_{it}/P_{it-1}$	.392**	.482**	1

**and *indicate a significant correlation coefficient at the 0.01and 0.05 levels respectively (2-tailed).

Table 6.14

Correlation Matrix of Variables Used for Price Model for Comparative Year (2016) Approach

Accounting Standards	*N*	Comparative Year Approach (*N* = 110)							
		Variable	P_i^{2016}	$BVPS_i^{Saudi\ GAAP}$	$EPS_i^{Saudi\ GAAP}$	$BVPS_i^{IFRS}$	EPS_i^{IFRS}	$BVPS_i^{\text{IFRS}-\ Saudi\ GAAP}$	$EPS_i^{\text{IFRS}-\ Saudi\ GAAP}$
		P_i^{2016}	1						
Saudi GAAP	110	$BVPS_i^{Saudi\ GAAP}$	.471**	1					
		$EPS_i^{Saudi\ GAAP}$	.637**	.612**	1				
IFRS	110	$BVPS_i^{IFRS}$	.492**	.939**	.575**	1			
		EPS_i^{IFRS}	.627**	.597**	.990**	.566**	1		
Difference	110	$BVPS_i^{\text{IFRS}-\ Saudi\ GAAP}$	0.044	−.204*	−0.125	0.146	−0.107	1	
		$EPS_i^{\text{IFRS}-\ Saudi\ GAAP}$	−0.111	-0.147	−0.138	−0.1	0.004	0.139	1

**and *indicate a significant correlation coefficient at the 0.01and 0.05 levels respectively (2-tailed).

Table 6.15

Correlation Matrix of Variables Used for Return Model for Comparative Year Approach

Accounting Standards	*N*	Comparative Year Approach (*N* = 110)				
		Variable	Ret_i^{2016}	$EPS_i^{\text{Saudi GAA(2016)}}/P_i^{2015}$	$EPS_i^{\text{IFRS(2016)}}/P_i^{2015}$	$EPS_i^{\text{IFRS}-\text{Saudi GAA(2016)}}/P_i^{2015}$
Market data	110	Ret_i^{2016}	1			
Saudi GAAP	110	$EPS_i^{\text{Saudi GAA(2016)}}/P_i^{2015}$	.225*	1		
IFRS	110	$EPS_i^{\text{IFRS(2016)}}/P_i^{2015}$	.206*	.968**	1	
Difference	110	$EPS_i^{\text{IFRS}-\text{Saudi GAA(2016)}}/P_i^{2015}$	−0.1	−0.153	0.099	1

**and *indicate a significant correlation coefficient at the 0.01and 0.05 levels respectively (2-tailed).

6.5 Regression Results for Main Analysis

Sections 6.5.1 and 6.5.2 provide the multivariate results of the regression estimates for the yearly analysis and the analysis of the impact of IFRS adoption, respectively. Both analyses are used to fulfil the main objective of this study, which is to investigate the value relevance of accounting information in Saudi Arabia, in general, and impact of IFRS, in particular. The price and return models are both used for these two analyses.

6.5.1 Yearly Results

The multivariate results of the yearly analysis are presented in Sections 6.5.1.1 and 6.5.1.2 for price and return models during 2015–2018 respectively.

6.5.1.1 Price Model

The results of the yearly and pooled joint value relevance analyses are presented in Table 6.16 using the price model of Ohlson (1995) deflated by the number of outstanding shares during 2015–2018. Starting with the value of the adjusted explanatory power (Adj R^2), the price model of the pooled sample of 440 observations exhibits a value of 45.60% with an F-test value of 184.745, which is significant at the 1% level. The yearly Adj R^2 values are 44.70%, 37.10%, 49.20% and 52.70% for the years 2015, 2016, 2017 and 2018, respectively, all of which are at the 1% significance level. In the study, the accounting information of the study sample, on average, can jointly explain 45.60% (or at least 37.10%) of the variation in the Saudi listed firms' share prices between 2015 and 2018 (in 2016); therefore, accounting information is jointly value relevant in Saudi Arabia.

Further, Figure 6.1 shows the incremental and combined contribution of ($BVPS_{it}$) and (EPS_{it}) to the overall Adj R^2 throughout the study period. The incremental contribution of (EPS_{it}) to the share price valuation beyond ($BVPS_{it}$) as reflected in the Adj R^2 values ranges from 18.10% in 2016 to 26.80% in 2015, while the incremental contribution of ($BVPS_{it}$) beyond (EPS_{it}) ranges from 0% in 2015 (no contribution at all) to 4.50% in 2018. These results indicate that while both ($BVPS_{it}$) and (EPS_{it}) were jointly value relevant, (EPS_{it}) was more incrementally value relevant than ($BVPS_{it}$) throughout the study period.

In addition, to investigate the individual value relevance of each of ($BVPS_{it}$) and (EPS_{it}), the results of the regression coefficients must be examined. In the pooled sample, the results of the

regression coefficients on ($BVPS_{it}$) and (EPS_{it}) are positive and significant at the 5% and 1% levels, respectively. This indicates that both ($BVPS_{it}$) and (EPS_{it}) are individually important to the share price valuation in Saudi Arabia. In the year-by-year results, the (EPS_{it}) regression coefficient is always positive and significant at the 1% level throughout the study period. This confirms the pooled sample results. The yearly ($BVPS_{it}$) regression coefficient, in contrast, is always positive throughout the study period but only significant at the 1% level during 2017 and 2018. This means that ($BVPS_{it}$) used to be ignored by investors in Saudi Arabia during 2015–2016 and then became important to price valuation during 2017–2018.

6.5.1.2 Return Model

The results of the yearly and pooled joint value relevance analyses for 2015–2018 are presented in Table 6.17 using the return model of Easton and Harris (1991). Based on the pooled (N = 428) cross-sectional results for 2015–2018, the value of Adj R^2 is 9.20% with an F-test value of 22.509, which is significant at the 1% level. This result indicates that earnings level (EPS_{it}/P_{it-1}) and change ($\Delta EPS_{it}/P_{it-1}$) can jointly explain 9.20% of the variation in returns. The yearly (N = 107) regression results show a value of Adj R^2 ranging between 8.80% in 2016 and 20.80% in 2017. All yearly Adj R^2 values are at the 1% significance level. This result further supports the pooled regression results that both earnings level and the change in earnings level jointly reflect the information being used by market participants in setting share price over the period of the return window. Hence, accounting information is jointly value relevant to equity investors.

Furthermore, Figure 6.2 illustrates the role of earnings level and change in earnings level in explaining the variation in stock return by showing the incremental and combined contribution of (EPS_{it}/P_{it-1}) and ($\Delta EPS_{it}/P_{it-1}$) to the overall Adj R^2 on a yearly as well as pooled basis. The incremental contributions of (EPS_{it}/P_{it-1}) beyond ($\Delta EPS_{it}/P_{it-1}$) are 1.50%, 4.00%, 5.00% and 10.60% in 2015, 2016, 2017 and 2018, respectively, while the incremental contributions of ($\Delta EPS_{it}/P_{it-1}$) beyond (EPS_{it}/P_{it-1}) are 4.5%, 2.80%, 7.70% and 0% in 2015, 2016, 2017 and 2018, respectively. The overall incremental contributions in the pooled analysis are 2.77% and 2.73% for (EPS_{it}/P_{it-1}) and ($\Delta EPS_{it}/P_{it-1}$), respectively, throughout the study period. This indicates that both (EPS_{it}/P_{it-1}) and ($\Delta EPS_{it}/P_{it-1}$) were jointly and incrementally value relevant throughout the study period.

In addition, the results of the regression coefficients determine whether each of (EPS_{it}) and (ΔEPS_{it}) are individually value relevant. On a year-by-year basis, the regression coefficients on (EPS_{it}/P_{it-1}) are always positive and only significant in years 2016, 2017 and 2018 at the 5%, 1% and 1% levels, respectively. Similarly, the yearly regression coefficients on ($\Delta EPS_{it}/P_{it-1}$) are always positive and only significant in years 2015, 2016 and 2017 at the 5%, 5% and 1% levels, respectively. In the pooled sample regression, both regression coefficients on (EPS_{it}/P_{it-1}) and ($\Delta EPS_{it}/P_{it-1}$) are positive and significant at the 1% level. This indicates that both (EPS_{it}/P_{it-1}) and ($\Delta EPS_{it}/P_{it-1}$) provide very important information to investors. Therefore, both (EPS_{it}/P_{it-1}) and ($\Delta EPS_{it}/P_{it-1}$) are individually value relevant in providing important information to equity investors.

Table 6.16

Yearly Price Regression Results

$$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$$

Accounting Standards	Year	*N*	*EPS*	*BVPS*	Adj R^2	Max. VIF
Saudi GAAP	2015	110	5.493	0.195	44.70%	1.491
			(7.310)**	(0.765)	{45.071}**	
	2016	110	5.139	0.272	37.10%	1.600
			(5.765)**	(1.015)	{33.116}**	
IFRS	2017	110	5.423	0.780	49.20%	1.399
			(6.782)**	(3.006)**	{53.713}**	
	2018	110	6.728	0.849	52.70%	1.281
			(7.771)**	(3.377)**	{61.748}**	
Pooled	2015–2018	440	5.367	.585	45.60%	1.424
			(7.223)**	(4.046)*	{184.745}**	

Note. The *t*-test/Wald chi-square test and *F*-test values are in (.) and {.} respectively. Variables' definitions: P_{it}= share price for firm i 4 months after the end of fiscal year t ; EPS_{it} =earnings per share for firm i at the end of fiscal year t ; $BVPS_{it}$ = book values per share for firm i at the end of fiscal year t .

*and ** indicate significance at the 0.05 and 0.01 levels, respectively.

Table 6.17

Yearly Return Regression Results

$$Ret_{it} = b_0 + b_1 EPS_{it}/P_{it-1} + b_2 \Delta EPS_{it}/P_{it-1} + e_{it}$$

Accounting Standards	Year	*N*	EPS_{it}/P_{it-1}	$\Delta EPS_{it}/P_{it-1}$	Adj R^2	Max. VIF
Saudi GAAP	2015	107	.551 (1.661)	1.155 (2.506)*	10.40% {7.151}**	1.170
	2016	107	.968 (2.354)*	.850 (2.049)*	8.80% {6.096}**	1.043
IFRS	2017	107	1.123 (2.756)**	1.251 (3.354)**	20.80% {14.905}**	1.160
	2018	107	1.174 (3.855)**	.293 (0.760)	19.80% {14.089}**	1.498
Pooled	2015–2018	428	.835 (16.300)**	.922 (10.959)**	9.20% {22.509}**	1.183

Note. The *t*-test/Wald chi-square test and *F*-test values are in (.) and {.}, respectively. Variables' definitions: Ret_{it}= annual stock returns per share for firm i at time *t*, measured by the ratio $[(P_{it} + DPS_{it}) - P_{it-1})]/P_{it-1}$ where $P_{it}$is the share price for firm i 4 months after the year end *t*; P_{it-1} is the share price 8 months before the fiscal year end *t* and DPS_{it} is dividend per share for firm i during year *t* ; EPS_{it}/P_{it-1}= earnings per share for firm i at the end of fiscal year *t* divided by P_{it-1}; $\Delta EPS_{it}/P_{it-1}$= annual change in earnings (net income) per share for firm i at year end of fiscal year *t* divided by P_{it-1}.

*and ** indicate significance at the 0.05 and 0.01 levels, respectively.

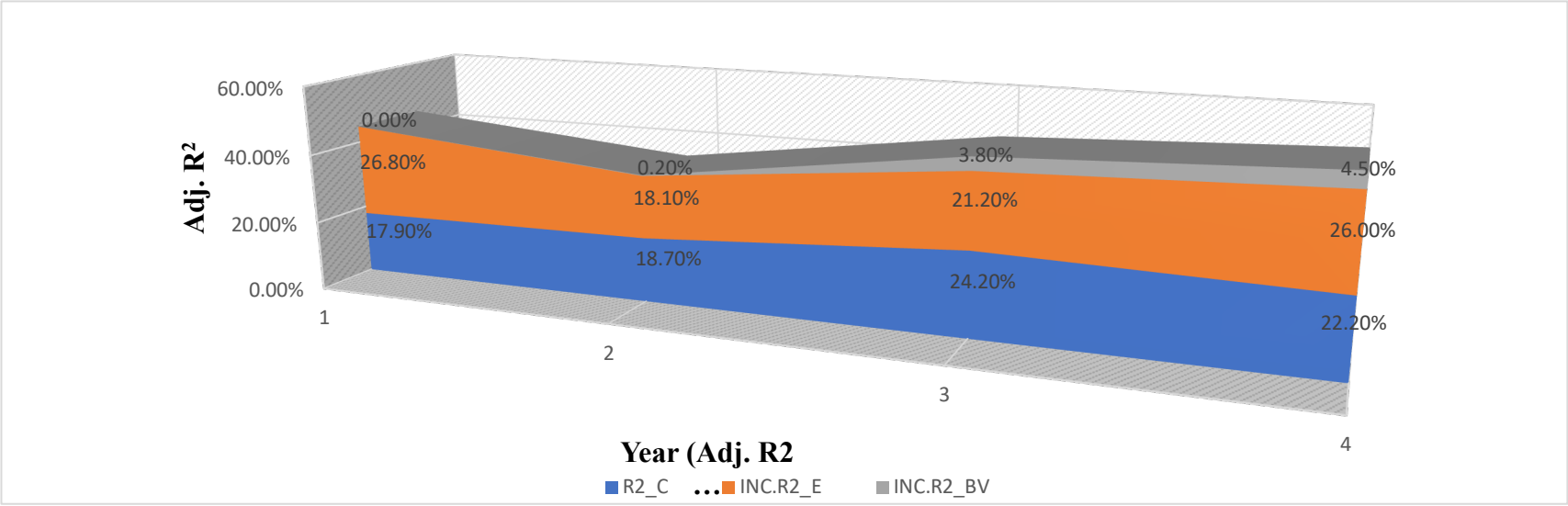

Figure 6.1. Yearly change in the overall Adj R^2 and incremental and common Adj R^2 to both EPS and BVPS using the price model during the study period. R^2_C: the common contribution of both BVPS and EPS to the overall Adj R^2 value. INC.R^2_E: the incremental contribution of EPS beyond the R^2_C to the overall Adj R^2 value. INC.R^2_BV: the incremental contribution of BVPS beyond the R^2_C to the overall Adj R^2 value.

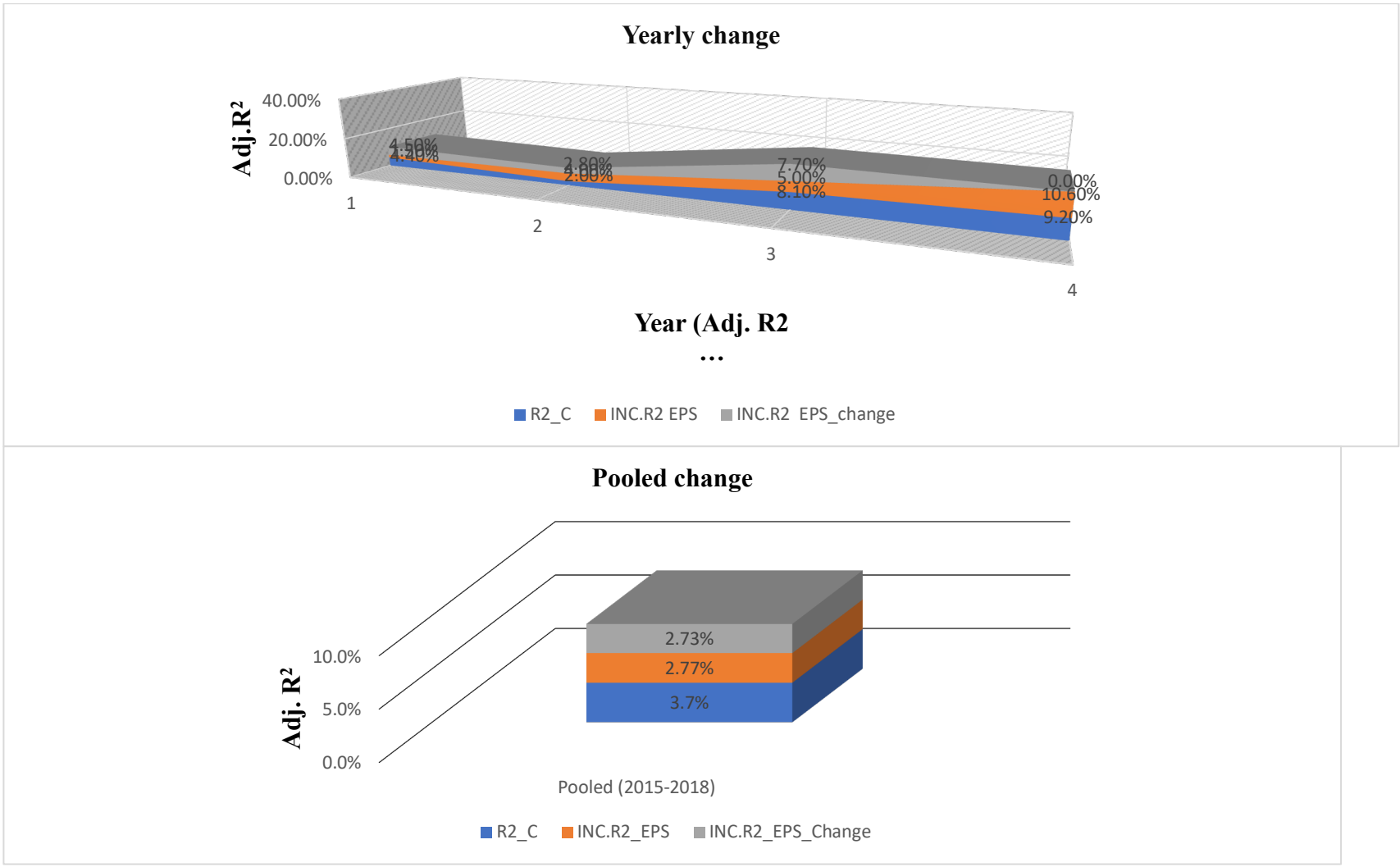

Figure 6.2. Yearly and pooled change in the overall Adj R^2 and incremental and common Adj R^2 to both EPS and ΔEPS using the return model during the study period. R^2_C: the common contribution of both EPS and ΔEPS to the overall Adj R^2 value. INC.R^2_EPS: the incremental contribution of EPS beyond the R^2_C to the overall Adj R^2 value. INC.R^2_ΔEPS: the incremental contribution of ΔEPS beyond the R^2_C to the overall Adj R^2 value.

6.5.2 Impact of IFRS Adoption

The results of the impact of IFRS adoption on the value relevance of accounting information in Saudi Arabia are presented in Section 6.5.2.1 for the pre-and post-IFRS approach and in Section 6.5.2.2 for the comparative year (2016) approach.

6.5.2.1 Pre- and Post-IFRS Approach

The multivariate and univariate results of the pre- and post-IFRS analyses are presented in Section 6.5.2.1.1 for the price model and in Section 6.5.2.1.2 for the return model.

6.5.2.1.1 Price Model

Table 6.18 presents the multivariate regression results of the price model pre and post IFRS adoption (Panel A), the univariate price regression results of (EPS_{it}) pre and post IFRS adoption (Panel B), the univariate price regression results of ($BVPS_{it}$) pre and post IFRS adoption (Panel C), a comparison of the value relevance of (EPS_{it}) and ($BVPS_{it}$) pre and post IFRS adoption (Panel D) and the results of the impact of IFRS adoption on the regression coefficients of the extended multivariate price model (Panel E).

Starting with the value of adjusted explanatory power, the Adj R^2 values in all panels are statistically significant at the 1% level as indicated by the values of the *F*-test. This confirms the results reported in Section 6.5.1.1 that the accounting information was value relevant throughout the study period. However, the results reported in Panel A show that the combined[48] Adj R^2 increased from 41.5%, in the Saudi GAAP period, to 50.8%, in the IFRS period; this increase of 9.3%[49] is not considered significant since the Cramer (1987) *Z*-statistic is 1.529, which is not significant at the 5% level. The increase of 5.30% for the univariate model of (EPS_{it}) from 41.2%for the Saudi GAAP period to 46.5% for the IFRS period is also not significant since the Cramer (1987) *Z*-statistic of 0.848 is not significant at the 5% level. This is also the case for the univariate model of ($BVPS_{it}$) because the Cramer (1987) *Z*-statistic of 1.389 is not significant at the 5% level, indicating that the increase of 9.10% from 18.7% for the Saudi GAAP period to

[48] It is known that the R^2 values are inflated by the impact of the spurious ratio problem; however it can be shown that the upper limits of this impact are 16.4% out of 41.5% for the 2015–2016 period and 13.1% out of 50.5% for the 2016–2017 period, which still leaves the results for both periods as significant in explaining the variation in stock prices after controlling for this issue.

[49] This difference is in part due to the change in the effect of the spurious ratio impact, but this can be shown to have a maximum impact of 0.4% resulting from changes in the number of shares.

27.8% for the IFRS period is not statistically significant. Therefore, there is no significant difference in the joint value relevance between the Saudi GAAP-based accounting information and the IFRS-based accounting information.

Referring to the regression coefficients, (EPS_{it}) is always positive and significant at the 1% level in the multivariate model (Panel A) and the univariate model (Panel B) for both periods, whereas ($BVPS_{it}$) is only significant at the 1% level in the multivariate model (Panel A) for the IFRS period, and in both periods for the univariate model (Panel C). Notably, the regression coefficients produced from the multivariate model (Panel A) measure the impact of the part of each explanatory variable ($EPS_{it}$and $BVPS_{it}$) that is not correlated with the other explanatory variable on the dependent variable (P_{it}). However, the regression coefficient produced from the the univariate model shows the full impact of the explanatory variable ($EPS_{it}$and $BVPS_{it}$) on the dependent variable (P_{it}). Therefore, ($BVPS_{it}$) was not significantly important for share price valuation if (EPS_{it}) were known during the Saudi GAAP period. However, ($BVPS_{it}$) under IFRS was significantly important for determining the share price even if the (EPS_{it}) was known to shareholders. This is not the case for (EPS_{it}) since its values were always significantly important for determining the market values whether or not ($BVPS_{it}$) values were known to shareholders during both the Saudi GAAP and IFRS periods.

Comparing the incremental value relevance of the two variables, Panel D shows that (EPS_{it}) provided incremental contribution beyond ($BVPS_{it}$) to market valuation by 22.80% of the overall Adj R^2 value of 41.5% during the Saudi GAAP period, while ($BVPS_{it}$) had an incremental contribution of 0.30% only. The common contribution of both (EPS_{it}) and ($BVPS_{it}$) to the overall Adj R^2 was 18.4% during the Saudi GAAP period (see Figure 6.3). During the IFRS period, the incremental contribution of (EPS_{it}) remained relatively the same by providing 23% to the overall Adj R^2 value of 50.8%, while the incremental contribution of ($BVPS_{it}$) was 4.30%, which is much higher than its contribution during the Saudi GAAP period. The common contribution of both (EPS_{it}) and ($BVPS_{it}$) to the overall Adj R^2 was 23.5% during the IFRS period (Figure 6.3). Therefore, while both variables were incrementally value relevant over each other in both periods, the incremental value relevance of (EPS_{it}) was more than that of ($BVPS_{it}$) during both periods.

Further, to compare the relative value relevance of accounting information (EPS_{it} v. $BVPS_{it}$) pre and post IFRS, the Vuong (1989) *Z*-statistic values are reported in Panel D, which

compares the Adj R^2 values of the univariate models of (EPS_{it}) presented in Panel B and ($BVPS_{it}$) presented in Panel C pre and post IFRS. Although the Adj R^2 values of the univariate model of (EPS_{it}) are significantly higher than those of the ($BVPS_{it}$) univariate model by 22.50% for the Saudi GAAP period and 18.70% for the IFRS period, neither is statistically significant since the Vuong (1989) *Z*-statistic values of 1.125 for the Saudi GAAP period and 0.905 for the IFRS period are not significant at the 5% level to accept the null hypothesis that the Adj R^2 values are statistically different. Therefore, (EPS_{it}) and ($BVPS_{it}$) are not more value relevant than each other.

Last, the inclusion of the IFRS dummy variable (Panel E) in the multivariate price model using the pooled sample ($N = 440$, and Year = 2015–2018) shows the impact of IFRS on the individual value relevance of (EPS_{it}) and ($BVPS_{it}$) separately. The results reveal that the difference in the ($BVPS_{it}$) regression coefficient of 0.0551 from 0.266 for the Saudi GAAP period to 0.817 for the IFRS period is statistically significant at the 5% level as indicated by the result of the regression coefficient of ($BVPS_{it} * DV_{IFRS}$) in Panel E. However, this is not the case for (EPS_{it}) as the difference of 0.692 is not statistically significant at the 5% level as indicated by result of the regression coefficient of ($EPS_{it} * DV_{IFRS}$) in Panel E. This further justifies the finding reported in Panel A that the coefficient on ($BVPS_{it}$) was not significant during the Saudi GAAP period, but then became statistically significant during the IFRS period, while the coefficient on (EPS_{it}) was always positive and significant during both periods. Therefore, the impact of IFRS adoption is confined to the individual value relevance of ($BVPS_{it}$), which does not qualify to be regarded as a significant impact on the overall value relevance of accounting information since (EPS_{it}) was not affected significantly by the adoption.

6.5.2.1.2 Return Model

Table 6.19 presents the multivariate regression results of the return model pre and post IFRS adoption (Panel A), the univariate return regression results of (EPS_{it}/P_{it-1}) pre and post IFRS adoption (Panel B), the univariate return regression results of ($\Delta EPS_{it}/P_{it-1}$; Panel C), a comparison of the relative and incremental value relevance of (EPS_{it}/P_{it-1}) and ($\Delta EPS_{it}/P_{it-1}$) pre and post IFRS adoption (Panel D) and the results of the extended return model to measure the potential impact of IFRS adoption on the regression coefficients of the multivariate return model (Panel E).

The value of adjusted explanatory power, the Adj R^2 values in all panels are statistically significant at the 1% level as indicated by the values of the *F*-tests, except for the univariate return regression results of $(\Delta EPS_{it}/P_{it-1})$ during the Saudi GAAP period, which is found to be significant at the 5% level. This confirms the results reported in Section 6.5.1.2 that the accounting information was value relevant throughout the study period. However, a comparison between the Saudi GAAP period and the IFRS period shows the Adj R^2 increased by 19.40% from 4.0% for the Saudi GAAP period to 23.4% for the IFRS period (Panel A). This increase is statistically significant since the Cramer (1987) *Z*-statistic of 3.472 is significant at the 1% level. Similarly, the increase of 16.20% for the univariate model of (EPS_{it}/P_{it-1}) from 3.5% for the Saudi GAAP period to 19.7% for the IFRS period is also significant because the Cramer (1987) *Z*-statistic of 3.085 is statistically significant at the 1% level. Furthermore, the increase of 13.30% for the univariate model of $(\Delta EPS_{it}/P_{it-1})$ from 1.7% for the Saudi GAAP period to 15.0% for the IFRS period is also significant since the Cramer (1987) *Z*-statistic of 2.830 is statistically significant at the 1% level. Therefore, the results of both the multivariate and the univariate models assert that there has been a significant increase in the joint and individual value relevance of accounting information due to the switch from Saudi GAAP to IFRS in Saudi Arabia.

Referring to the regression coefficients, during the Saudi GAAP period, (EPS_{it}/P_{it-1}) is positive and significant at the 5% level in the multivariate model (Panel A) and at the 1% level in the univariate model (Panel B). In contrast, $(\Delta EPS_{it}/P_{it-1})$ is not significant at the 5% level in either the multivariate model (Panel A) or the univariate model (Panel C) during the Saudi GAAP period. Hence, the earnings level (EPS_{it}/P_{it-1}) was significantly important to equity investors during the Saudi GAAP period. However, during the IFRS period, both earnings level (EPS_{it}/P_{it-1}) and change $(\Delta EPS_{it}/P_{it-1})$ coefficients are positive and statistically significant at the 1% level in both the multivariate model (Panel A) and the univariate models (Panel B & C). Hence, both (EPS_{it}/P_{it-1}) and $(\Delta EPS_{it}/P_{it-1})$ were value relevant and were very important measures for market participants in Saudi Arabia during the IFRS period.

Panel D compares the incremental value relevance of (EPS_{it}/P_{it-1}) and $(\Delta EPS_{it}/P_{it-1})$. Here, (EPS_{it}/P_{it-1}) provides an incremental contribution beyond $(\Delta EPS_{it}/P_{it-1})$ to the market valuation of 2.3% (8.4%) to the overall Adj R^2 value of 4.0% (23.4%) during the Saudi GAAP (IFRS) period. $(\Delta EPS_{it}/P_{it-1})$, in contrast, has an incremental contribution beyond (EPS_{it}/P_{it-1})

of 0.5% and 3.7% for the Saudi GAAP and IFRS periods, respectively. Both variables together contribute to the overall Adj R^2 of 4.0% by 1.20% during the Saudi GAAP period, while their common contribution during the IFRS period is 11.30% to the overall Adj R^2 value of 23.4% (see Figure 6.4). Therefore, while both variables were incrementally value relevant over each other in both periods, the incremental value relevance of (EPS_{it}/P_{it-1}) was more than the incremental value relevance of $(\Delta EPS_{it}/P_{it-1})$ during both periods.

Further, comparing the relative (individual) value relevance of accounting information (EPS_{it}/P_{it-1} v. $\Delta EPS_{it}/P_{it-1}$), the Vuong (1989) *Z*-statistic values (Panel D) of 0.238 and 0.381 are not significant at the 5% level to accept the null hypothesis that the Adj R^2 values of the (EPS_{it}/P_{it-1}) univariate model (Panel B) and the $(\Delta EPS_{it}/P_{it-1})$ univariate model (Panel C) are statistically different from each other during the Saudi GAAP and IFRS periods, respectively. This indicates that the difference in Adj R^2 values between the two univariate models for (EPS_{it}/P_{it-1}) and $(\Delta EPS_{it}/P_{it-1})$ of 1.80% (4.70%) in favour of (EPS_{it}/P_{it-1}) is not statistically significant during the Saudi GAAP (IFRS) period. Therefore, (EPS_{it}/P_{it-1}) and $(\Delta EPS_{it}/P_{it-1})$ are not more value relevant than each other.

Last, to measure the potential impact of IFRS on the individual value relevance of (EPS_{it}/P_{it-1}) and $(\Delta EPS_{it}/P_{it-1})$, the pooled sample ($N = 428$, and Year = 2015–2018) is estimated using the extended multivariate return model including an IFRS dummy variable (Panel E). The estimated coefficients of interest are (b_4) and (b_5) since they show the effect of IFRS adoption on the role of (EPS_{it}/P_{it-1}) and $(\Delta EPS_{it}/P_{it-1})$, respectively. The result of (b_4) shows that the difference in the (EPS_{it}/P_{it-1}) regression coefficients of 0.316 from 0.881 for the Saudi GAAP period to 1.197 for the IFRS period is not significantly significant at the 5% level. Similarly, the result of (b_5) is not significantly significant at the 5% level, indicating that the difference in the $(\Delta EPS_{it}/P_{it-1})$ regression coefficients of 0.31 from 0.578 for the Saudi GAAP period to 0.888 for the IFRS period is not a significant alteration. Therefore, by this measure, IFRS adoption has no impact on the individual value relevance of either (EPS_{it}/P_{it-1}) or $(\Delta EPS_{it}/P_{it-1})$.

Table 6.18

Pre- and Post-IFRS Price Regression Results

Panel A: Pre-and Post-IFRS of the Combined Value Relevance of Accounting Information (EPS and BVPS)							
$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$							
Accounting Standards	Year	*N*	*EPS*	*BVPS*	Adj R^2	Max. VIF	Cramer (1987) Test
Saudi GAAP	2015 & 2016	220	5.225 (24.701)**	0.266 (0.65)	41.5% {78.540}**	1.520	1.529
IFRS	2017 & 2018	220	5.917 (32.080)**	0.817 (9.093)**	50.8% {114.265}**	1.343	⟨0.064⟩
Panel B: Pre-and Post-IFRS of the Relative Value Relevance of Earnings (EPS)							
$P_{it} = b_0 + b_1 EPS_{it} + e_{it}$							
Accounting Standards	Year	*N*	*EPS*		Adj R^2	Cramer (1987) test	
Saudi GAAP	2015 & 2016	220	5.703 (49.075)**		41.2% {154.207}**	0.848	
IFRS	2017 & 2018	220	7.247 (47.891)**		46.5% {191.007}**	⟨0.1985⟩	
Panel C: Pre-and Post-IFRS of the Relative Value Relevance of Book Values of Equity (BVPS)							
$P_{it} = b_0 + b_1 BVPS_{it} + e_{it}$							
Accounting standards	Year	N	BVPS		Adj R^2	Cramer (1987) test	
Saudi GAAP	2015 & 2016	220	1.257 (30.961)**		18.7% {51.523}**	1.389	
IFRS	2017 & 2018	220	1.743		27.8%		

(42.112)**	{85.239}**	⟨0.083⟩	

Panel D: The Incremental and Relative Value Relevance of Accounting Information Pre- and Post-IFRS

Accounting standards	Year	N	INC.EPS	INC.BVPS	Vuong (1989) test
					EPS v. BVPS
Saudi GAAP	2015 & 2016	220	22.80%	0.30%	1.125 ⟨0.261⟩
IFRS	2017 & 2018	220	23.00%	4.30%	0.905 ⟨0.365⟩

Panel E: The Potential Change in the Regression Coefficients of EPS and BVPS Due to IFRS Adoption

$$P_{it} = b_0 + b_1 DV_{IFRS} + b_2 EPS_{it}^{IFRS\&Saudi\ GAAP} + b_3 BVPS_{it}^{IFRS\&Saudi\ GAAP} + b_4 EPS_{it}^{IFRS\&Saudi\ GAAP} * DV_{IFRS} + b_5 BVPS_{it}^{IFRS\&Saudi\ GAAP} * DV_{IFRS} + e_{it}$$

Accounting standards	Year	N	$EPS_{it} * DV_{IFRS}$	$BVPS_{it} * DV_{IFRS}$	Adj R^2	Max. VIF
IFRS and Saudi GAAP	2015–2018	440	0.692 (0.39)	0.551 (.013)*	45.70% {124.098}**	1.466

Note. The Wald chi-square test and *F*-test values are in (.) and {.}, respectively. Variables' definitions: P_{it}= share price for firm i 4 months after the end of fiscal year t ; EPS_{it}= earnings per share for firm i at the end of fiscal year t ; $BVPS_{it}$= book values per share for firm i at the end of fiscal year t ; DV_{IFRS}= dummy variable where 0 indicates Saudi period and 1 indicates IFRS period; $BVPS_{it}^{IFRS\&Saudi\ GAAP}$= panel data values of book values per share; $BVPS_{it}^{IFRS\&Saudi\ GAAP} * DV_{IFRS}$= panel data values of book values per share multiplied by the dummy variable; $EPS_{it}^{IFRS\&Saudi\ GAAP}$= panel data earnings per share; and $EPS_{it}^{IFRS\&Saudi\ GAAP} * DV_{IFRS}$= panel data earnings per share multiplied by the dummy variable. The number in ⟨.⟩ is probability to accept the null hypothesis that the two R^2 values are not statistically different from each other.

*and ** indicate significance at the 0.05 and 0.01 levels, respectively.

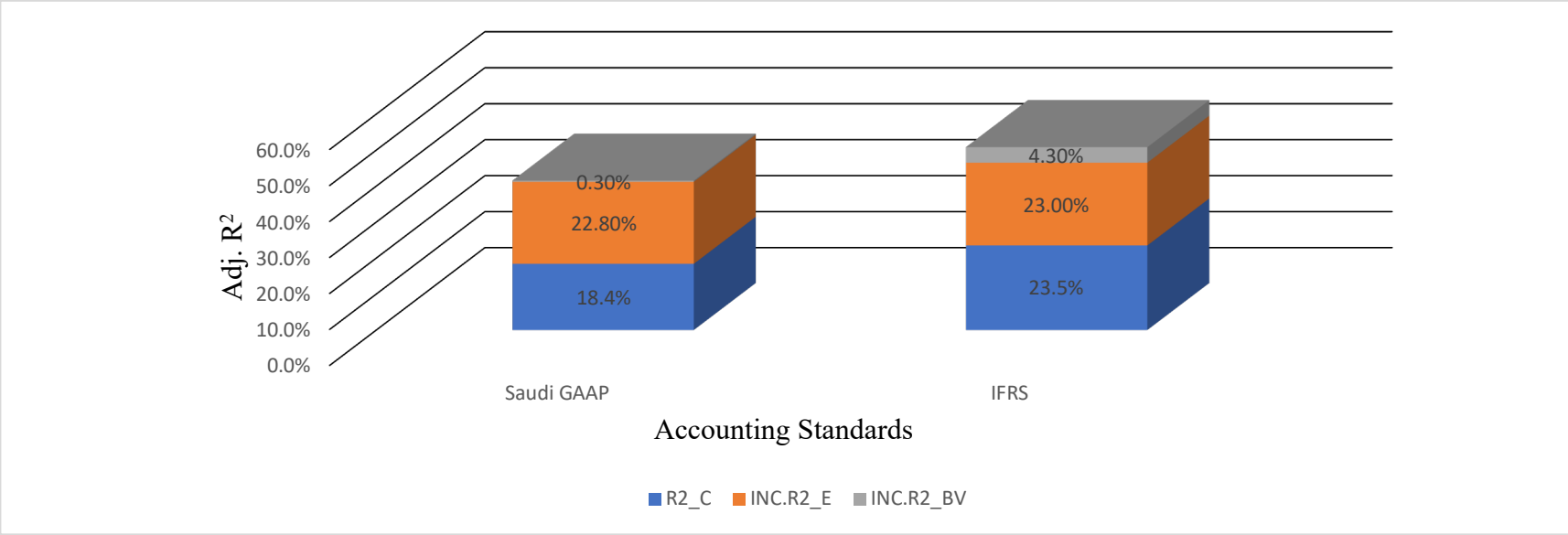

Figure 6.3. Difference in the overall, incremental and common Adj R^2 to both EPS and BVPS between the two set of accounting standards using the price model. R^2_C: the common contribution of BVPS and EPS to the overall Adj R^2 value. INC.R^2_E: the incremental contribution of EPS beyond the R^2_C to the overall Adj R^2 value. INC.R^2_BV: the incremental contribution of BVPS beyond the R^2_C to the overall Adj R^2 value.

Table 6.19

Pre- and Post-IFRS Return Regression Results

Panel A: Pre-and Post-IFRS of the Combined Value Relevance of Accounting Information (EPS and ∆EPS)

$$Ret_{it} = b_0 + b_1 EPS_{it}/P_{it-1} + b_2 \Delta EPS_{it}/P_{it-1} + e_{it}$$

Accounting Standards	Year	*N*	EPS_{it}/P_{it-1}	$\Delta EPS_{it}/P_{it-1}$	Adj R^2	Max. VIF	Cramer (1987) Test
Saudi GAAP	2015 & 2016	214	0.881 (5.829)*	0.578 (1.245)	4.0% {5.450}**	1.069	3.472
IFRS	2017 & 2018	214	1.197 (23.339)**	0.888 (8.875)**	23.4% {33.542}**	1.303	〈0.000〉 **

Panel B: Pre-and Post-IFRS of the Relative Value Relevance of Earnings (EPS)

$$Ret_{it} = b_0 + b_1 EPS_{it}/P_{it-1} + e_{it}$$

Accounting standards	Year	*N*	EPS_{it}/P_{it-1}	Adj R^2	Cramer (1987) Test
Saudi GAAP	2015 & 2016	214	1.013 (6.992)**	3.5% {8.706}**	3.085
IFRS	2017 & 2018	214	1.589 (43.209)**	19.7% {53.257}**	〈0.001〉 **

Panel C: Pre-and Post-IFRS of the Relative Value Relevance of the Change in Earnings (∆EPS)

$$Ret_{it} = b_0 + b_1 \Delta EPS_{it}/P_{it-1} + e_{it}$$

Accounting Standards	Year	*N*	$\Delta EPS_{it}/P_{it-1}$	Adj R^2	Cramer (1987) Test
Saudi GAAP	2015 & 2016	214	0.827 (2.732)	1.7% {4.583}*	2.830

IFRS	2017 & 2018	214	1.517 (19.85)**	15.0% {38.538}**	〈0.002〉 **

Panel D: The Relative Value Relevance of Accounting Information Pre and Post-IFRS (EPS v. ∆EPS)

Accounting Standards	Year	*N*	INC.R^2_EPS	INC.R^2_∆EPS	Vuong (1989) Test EPS v. ∆EPS
Saudi GAAP	2015 & 2016	214	2.3%	0.5%	0.238 〈0.813〉
IFRS	2017 & 2018	214	8.4%	3.7%	0.381 〈0.703〉

Panel E: The Potential Change in the Regression Coefficients of EPS and ∆EPS Due to IFRS Adoption

$$Ret_{it} = b_0 + b_1 DV_{IFRS} + b_2 \frac{EPS_{it}}{P_{it-1}}^{IFRS\&Saudi\ GAAP} + b_3 \frac{\Delta EPS_{it}}{P_{it-1}}^{IFRS\&Saudi\ GAAP} + b_4 \frac{EPS_{it}}{P_{it-1}}^{IFRS\&Saudi\ GAAP} * DV_{IFRS} + b_5 \frac{\Delta EPS_{it}}{P_{it-1}}^{IFRS\&Saudi\ GAAP} * DV_{IFRS} + e_{it}$$

Accounting Standards	Year	*N*	$\frac{EPS_{it}}{P_{it-1}}^{IFRS\&Saudi\ GAAP} * DV_{IFRS}$	$\frac{\Delta EPS_{it}}{P_{it-1}}^{IFRS\&Saudi\ GAAP} * DV_{IFRS}$	Adj R^2	Max. VIF
IFRS and Saudi GAAP	2015–2018	428	0.316 0.486	0.31 0.329	22.70% {42.872}**	1.185

Note. The Wald chi-square test and *F*-test values are in (.) and {.} respectively. Variables' definitions: Ret_{it}= annual stock returns per share for firm *i* at time *t*, measured by the ratio $[(P_{it} + DPS_{it}) - P_{it-1})]/ P_{it-1}$ where $P_{it}$is share price for firm *i* 4 months after the year end *t*; P_{it-1} is the share price 8 months before the fiscal year end *t* and DPS_{it} is dividend per share for firm *i* during year *t* ; EPS_{it}/P_{it-1} = earnings per share for firm *i* at the end of fiscal year *t* divided by P_{it-1}; $\Delta EPS_{it}/P_{it-1}$= annual change in earnings (net income) per share for firm *i* at year end of fiscal year *t* divided by P_{it-1}; DV_{IFRS}= dummy variable where 0 indicates Saudi period and 1 indicates IFRS period; $EPS_{it}/P_{it-1}^{IFRS\&Saudi\ GAAP}$ = panel data values of EPS_{it}/P_{it-1}; $EPS_{it}/P_{it-1}^{IFRS\&Saudi\ GAAP} * DV_{IFRS}$= panel data values of EPS_{it}/P_{it-1} multiplied by the dummy variable; $\Delta EPS_{it}/P_{it-1}^{IFRS\&Saudi\ GAAP}$= panel data of $\Delta EPS_{it}/P_{it-1}$; and $\Delta EPS_{it}/P_{it-1}^{IFRS\&Saudi\ GAAP} * DV_{IFRS}$=panel data of $\Delta EPS_{it}/P_{it-1}$ multiplied by the dummy variable. The number in 〈.〉 is the probability to accept the null hypothesis that the two R^2 values are not statistically different from each other.

*and ** indicate significance at the 0.05 and 0.01 levels, respectively.

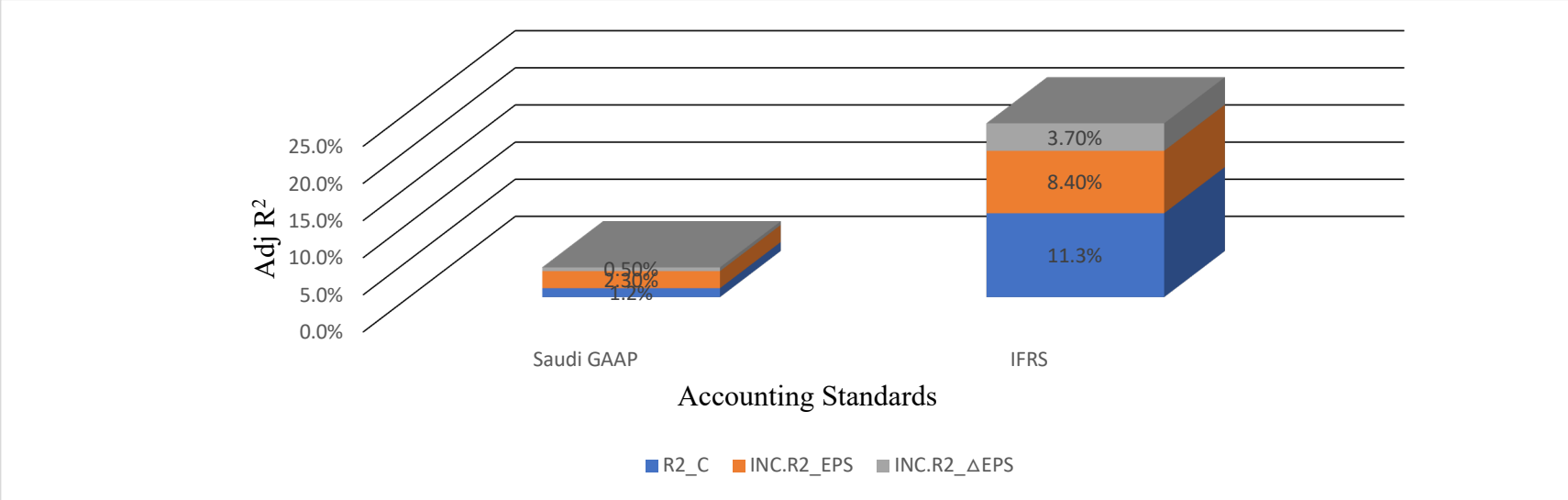

Figure 6.4. Difference in the overall, incremental and common Adj R^2 to both EPS and ΔEPS between two sets of accounting standards using the return model. R^2_C: the common contribution of both EPS and ΔEPS to the overall Adj R^2 value. INC.R^2_EPS: the incremental contribution of EPS beyond the R^2_C to the overall Adj R^2 value. INC.R^2_ΔEPS: the incremental contribution of ΔEPS beyond the R^2_C to the overall Adj R^2 value.

6.5.2.2 Comparative Year (2016) Approach

The second approach employed in this study to measure the impact of IFRS adoption in Saudi Arabia on the value relevance of accounting information is through the comparative year (2016) where all (110) listed firms were required to present their financial reports in the same year using both Saudi GAAP and IFRS. As mentioned in Chapter 5, both the relative (i.e. Saudi GAAP v. IFRS) and incremental (i.e. IFRS over Saudi GAAP) value relevance of accounting information can be measured during the comparative year of 2016. Therefore, the results of the relative and incremental value relevance are presented in Section 6.5.2.2.1 for the price model and in Section 6.5.2.2.2 for the return model.

6.5.2.2.1 Price Model for Relative and Incremental Value Relevance

Table 6.20 presents the multivariate regression results of the price model based on Saudi GAAP-based and IFRS-based accounting information of 110 listed firms during the comparative year (2016; Panel A), the univariate price regression results of (EPS_i^{2016}) during the comparative year (Panel B), the univariate price regression results of ($BVPS_i^{2016}$) during the comparative year (Panel C), a comparison of the incremental and relative value relevance of (EPS_i^{2016}) and ($BVPS_i^{2016}$) during the comparative year (Panel D), and the results of the extended price model to measure the incremental value relevance of IFRS-based accounting information during the comparative year (Panel E).

The impact of IFRS adoption on the combined value relevance of accounting information (Panel A), the Adj R^2 values of the multivariate model of (EPS_i^{2016}) and ($BVPS_i^{2016}$) are significant at the 1% level as indicated by the values of the *F*-tests for both Saudi GAAP-based and IFRS-based models. The value of Adj R^2 slightly increased from 40.50% for the Saudi GAAP-based model to 41.00% for the IFRS-based model. However, this increase of 0.50% is not significant at the 5% level as indicated by the Vuong (1989) *Z*-statistic of 0.098. The regression coefficients on (EPS_i^{2016}) of the multivariate models are always positive and significant at the 1% level in both models during the comparative year (2016) with a slight decrease in magnitude from the Saudi GAAP-based model to the IFRS-based model. This is not the case for ($BVPS_i^{2016}$), which is found to be significant at the 1% level only for the IFRS-based model. This indicates that ($BVPS$) was ignored under Saudi GAAP if (EPS) was known to equity investors who place a greater weight on (EPS) for price valuation. Finding ($BVPS_i^{2016}$) to be significant under IFRS could justify the 0.50%

increase in the overall Adj R^2 from Saudi GAAP-based model to IFRS-based model. Therefore, IFRS adoption in Saudi Arabia has a significant impact on the value relevance of ($BVPS$), but this impact does not qualify to be regarded as a significant impact on the overall value relevance of accounting information.

Referring to the univariate model of (EPS_i^{2016}; Panel B) and the univariate model of ($BVPS_i^{2016}$; Panel C) during the comparative year, both models exhibit significant values of Adj R^2 for both Saudi GAAP-based and IFRS-based models as indicated by the values of the F-tests. The value of the Adj R^2 of the (EPS_i^{2016}) univariate model (Panel B) decreased from 40.00% for the Saudi GAAP-based model to 38.80% for the IFRS-based model. However, this decrease of 1.20% is not significant since the value of the Vuong (1989) Z-statistic of 0.457 is not significant at the 5% level. As for the Adj R^2 value for ($BVPS_i^{2016}$; Panel C), the Saudi GAAP-based model exhibited a value of 21.50%, while the IFRS-based model has a value of 23.50%. Although there is an increase of 2.00% from the Saudi GAAP-based model to the IFRS-based model, this increase is not significant as indicated by the value of Vuong (1989) Z-statistic of 0.704, which is not significant at the 5% level. Therefore, both (EPS) and ($BVPS$) are relatively[50] (individually) value relevant under both accounting standards with no significant difference between the two accounting standards.

Comparison of the incremental value relevance of the two variables (Panel D) of the Saudi GAAP-based model shows that (EPS) provides incremental contribution beyond ($BVPS$) to market valuation by 19.00% of the overall Adj R^2 value of 40.50%, while $BVPS$ has an incremental contribution of 0.50% only. In the Saudi GAAP-based model, (EPS) and ($BVPS$) together contribute to the overall Adj R^2 by 21% (see figure 6.5). However, when using the IFRS-based model, the incremental contribution of ($BVPS$) beyond (EPS) increases to 2.20%, while the incremental contribution of (EPS) decreases to 17.50% of the overall Adj R^2 value of 41.00% for the IFRS-based model. The common contribution of both (EPS) and ($BVPS$) to the overall Adj R^2 is 21.3% for the IFRS-based model (see Figure 6.5). This shows that (EPS) always has higher incremental value relevance than ($BVPS$) for both the Saudi GAAP-based and the IFRS-based models. However, the implementation of IFRS has increased the incremental value relevance of

[50] This indicates that the full impact of the explanatory variable (EPS and $BVPS$) on the dependent variable (P) is value relevant without taking into consideration the correlation between the two explanatory variables as in the full price model with both variables included as predictors.

($BVPS$) while decreasing that of (EPS). Therefore, both (EPS) and ($BVPS$) have incremental value relevance beyond each other and that of (EPS) is much higher than that of ($BVPS$) regardless of the accounting standards being applied.

Comparison of the relative (individual) value relevance of accounting information (EPS v. VPS) for Saudi GAAP-based models (Panel D) shows the Adj R^2 value of 40.00% for the EPS_i^{2016} univariate model (Panel B) and the Adj R^2 value of 21.50% for the ($BVPS_i^{2016}$) univariate model (Panel C) do not differ significantly as indicated by the Vuong (1989) Z-statistic value of 0.654, which is not significant at the 5% level (Panel D). This is also the case for the IFRS-based models where the Adj R^2 value of 38.80% for the (EPS_i^{2016}) univariate model (Panel B) is not statistically different from the Adj R^2 value of 23.50% for the ($BVPS_i^{2016}$) univariate model (Panel C) as indicated by the Vuong (1989) Z-statistic value of 0.532, which is not significant at the 5% level (Panel D). Therefore, neither (EPS) nor ($BVPS$) is relatively (individually) more value relevant than the other.

Last, to measure the incremental value relevance of IFRS-based accounting information beyond those of Saudi GAAP, the price model is extended by including variables that represent the differences between Saudi GAAP-based and IFRS-based accounting information (Panel E). The estimated coefficients of interest are (b_3) and (b_4) since they show whether the differences between Saudi GAAP-based and IFRS-based accounting information are statistically significant. The result of (b_3) shows that the difference in the ($EPS_i^{\text{IFRS}-\text{ Saudi }\_\text{GAAP}\_2016}$) is not statistically significant at the 5% level. However, the result of (b_4) shows that the difference in the ($BVPS_i^{\text{IFRS}-\text{ Saudi }\_\text{GAAP}\_2016}$) is statistically significant at the 5% level. Nevertheless, the overall incremental value relevance of IFRS-based accounting information combined beyond that of Saudi GAAP is not statistically significant at the 5% level as indicated by the value of Vuong (1989) Z-statistic of −0.472. Therefore, while IFRS had no incremental impact on the value relevance of accounting information combined, IFRS-based ($BVPS$) provided incremental value relevance information to equity investors in Saudi Arabia beyond ($BVPS$) when prepared under Saudi GAAP.

6.5.2.2.2 Return Model for Relative and Incremental Value Relevance

Table 6.21 presents the results of univariate return model of (EPS_i^{2016}/P_i^{2015}) for 110 Saudi listed firms that prepared their financial statements for the comparative year (2016) using both

Saudi GAAP and IFRS (Panel A). The reason that the univariate return model of (EPS_i^{2016}/P_i^{2015}) is used instead of the full return model (i.e. EPS_i^{2016}/P_i^{2015} and $\Delta\ EPS_i^{2016}/P_i^{2015}$) is that the IFRS-based ($\Delta\ EPS_i^{2016}$) for the comparative year (2016) cannot be measured since (EPS_i^{2015}) for 2015 was only prepared under Saudi GAAP. Hence, only the relative (individual) value relevance of (EPS) is tested under both accounting standards during the comparative year (2016) using the univariate return model of (EPS_i^{2016}/P_i^{2015}). Further, Panel B presents the results of the extended univariate return model to measure the incremental value relevance of IFRS-based (EPS) during the comparative year (Panel E).

Starting with the impact of IFRS adoption on the relative value relevance of (EPS; Panel A), the Adj R^2 values of 4.20% for the Saudi GAAP-based model and 3.40% for the IFRS-based model are statistically significant at the 5% level as indicated by the values of *F*-test. This slight decrease of 0.80% due to the application of IFRS is not significant at the 5% level as indicated by the Vuong (1989) *Z*-statistic of 0.316, while the (EPS_i^{2016}/P_i^{2015}) regression coefficients of both models (i.e. Saudi GAAP-based and IFRS-based) are significant at the 5% level as indicated by the values of the *t*-tests. This indicates that while (EPS) under both standards was an important measure to equity investors in Saudi Arabia since it significantly explains the variation in (Ret_i^{2016}) during 2016, its importance did not change significantly owing to the adoption of IFRS in Saudi Arabia. Therefore, while (EPS) is value relevant information under both standards, IFRS has no significant impact on the relative (individual) value relevance of (EPS).

Further, to investigate whether IFRS has an incremental value relevance beyond Saudi GAAP reflected in the values of (EPS), the univariate return model of (EPS_i^{2016}/P_i^{2015}) is extended by including a variable to represent the difference between Saudi GAAP-based (EPS) and IFRS-based (EPS; Panel B). The estimated coefficient on ($EPS_i^{2016}/P_i^{2015\ IFRS-Saudi\ GAAP\_2016}$; i.e. b_2) is not statistically significant at the 5% level. This is further supported by the value of the Vuong (1989) *Z*-statistic of 0.052, which is not statistically significant at the 5% level. Therefore, IFRS-based (EPS) provides no incremental value relevance information to equity investors in Saudi Arabia beyond Saudi GAAP-based (EPS).

Table 6.20

Price Regression Results of Comparative Year (2016)

Panel A: The Result of the Price Model for the Comparative Year (2016) to Measure the Impact of IFRS on the Relative Value Relevance of Accounting Information

$$P_i^{2016} = b_0 + b_1 EPS_i^{2016} + b_2 BVPS_i^{2016} + e_i^{2016}$$

Accounting Standards	Year	*N*	EPS_i^{2016}	$BVPS_i^{2016}$	Adj R^2	Max. VIF	Vuong (1989) test
Saudi GAAP	2016	110	5.296	0.371	40.50%	1.600	0.098
			(5.963)**	(1.390)	{38.118}**		
IFRS		110	4.926	0.580	41.00%	1.472	⟨0.461⟩
			(5.751)**	(2.252)**	{32.607}**		

Panel B: The Comparative Year (2016) Results of the Impact of IFRS on the Relative Value Relevance of Earnings (EPS)

$$P_i^{2016} = b_0 + b_1 EPS_i^{2016} + e_i^{2016}$$

Accounting Standards	Year	*N*	EPS_i^{2016}	Adj R^2	Vuong (1989) test
Saudi GAAP	2016	110	6.053	40.00%	0.457
			(8.583)**	{73.665}**	
IFRS		110	6.018	38.80%	⟨0.324⟩
			(8.367)**	{70.008}**	

Panel C: The comparative year (2016) results of the impact IFRS on the relative value relevance of Book values of equity (BVPS)

$$P_i^{2016} = b_0 + b_1 BVPS_i^{2016} + e_i^{2016}$$

Accounting Standards	Year	*N*	$BVPS_i^{2016}$	Adj R^2	Vuong (1989) test
Saudi GAAP	2016	110	1.346	21.50%	0.704

			(5.552)**	{30.821}**	
IFRS		110	1.419 (5.867)**	23.50% {34.421}**	⟨0.241⟩

Panel D: The Incremental and Relative Value Relevance Between Accounting Information During the Comparative Year (2016)

Accounting Standards	Year	*N*	INC.EPS	INC.BVPS	Vuong (1989) Test
					EPS v. BVPS
Saudi GAAP	2016	110	19.00%	0.50%	0.654 ⟨0.513⟩
IFRS		110	17.50%	2.20%	0.532 ⟨0.595⟩

Panel E: The Comparative Year (2016) Results of the Impact IFRS on the Incremental Value Relevance of Accounting Information

$$P_i^{2016} = b_0 + b_1 EPS_i^{Saudi\ GAAP(2016)} + b_2 BVPS_i^{Saudi\ GAAP(2016)} + b_3 EPS_i^{\text{IFRS}-\ Saudi\ GAAP(2016)} + b_4 BVPS_i^{\text{IFRS}-\ Saudi\ GAAP(2016)} + e_i^{2016}$$

Accounting Standards	Year	*N*	$EPS_i^{Saudi\ GAAP(2016)}$	$BVPS_i^{\text{Saudi\_GAAP}}$	$EPS_i^{\text{IFRS}-\text{Saudi\_GAA}}$	$BVPS_i^{\text{IFRS}-\text{Saudi\_GAA}}$	Adj R^2	Max. VIF	Vuong (1989) Test
IFRS–Saudi GAAP	2016	110	5.274 (5.982)**	0.449 (1.673)	-2.124 (−.424)	1.23 (1.992)*	41.60 % 20.41 **	1.65	-0.472 ⟨0.318⟩

Note. The *t*-test and *F*-test values are in (.) and {.} respectively. Variables' definitions: P_i^{2016} = share price for firm *i* 6 months after the end of fiscal year 2016; EPS_i^{2016} = earnings per share for firm *i* at the end of fiscal year 2016; $BVPS_i^{2016}$ = book values of equity per share for firm *i* at the end of fiscal year 2016; $EPS_i^{Saudi\ GAAP(2016)}$ = earnings per share of 2016 prepared under Saudi GAAP for firm *i*; $BVPS_i^{Saudi\ GAAP(2016)}$ = book values of equity per share of 2016 prepared under Saudi GAAP for firm *i*; $EPS_i^{\text{IFRS}-\ Saudi\ GAAP(2016)}$ = the difference between EPS_i^{2016} prepared under Saudi GAAP and EPS_i^{2016}prepared under IFRS; and

$BVPS_i^{\text{IFRS}-\,Saudi\ GAAP(2016)}$ = the difference between $BVPS_i^{2016}$ prepared under Saudi GAAP and $BVPS_i^{2016}$ prepared under IFRS. The number in $\langle . \rangle$ is the probability to accept the null hypothesis that the two R^2 values are not statistically different from each other.

*and ** indicate significance at the 0.05 and 0.01 levels, respectively.

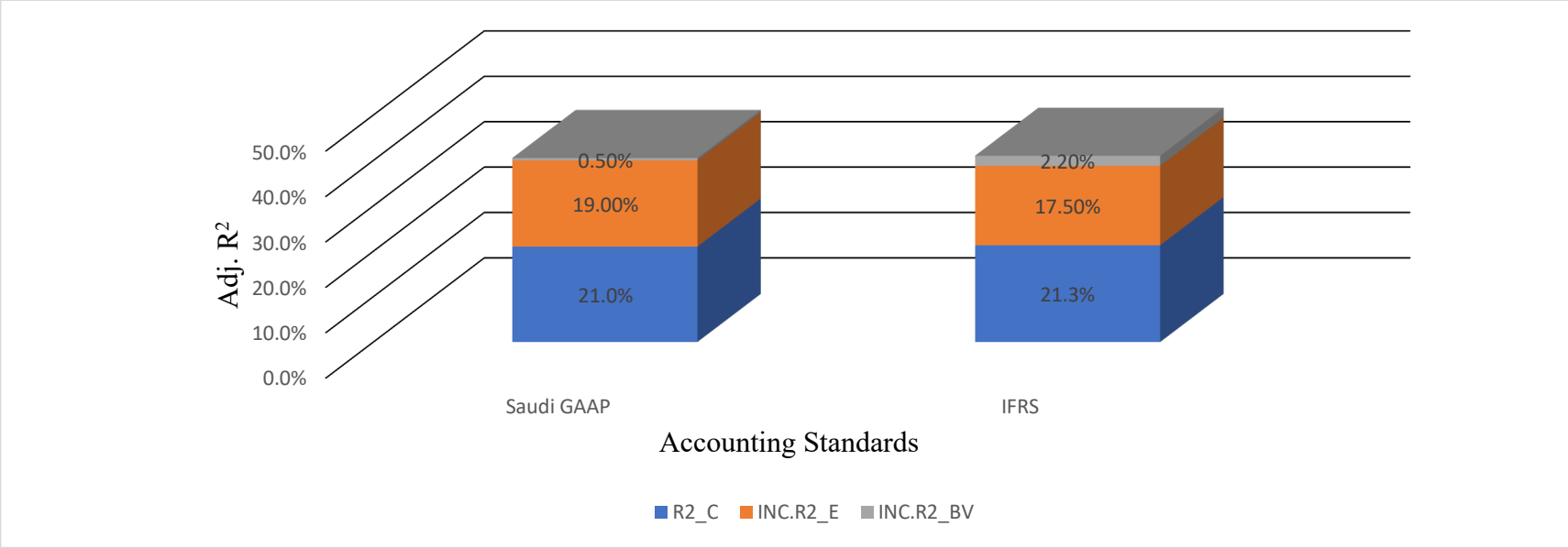

Figure 6.5. Difference in the overall, incremental and common Adj R^2 to both EPS and BVPS between the two set of accounting standards using the price model (comparative year of 2016). R^2_C: the common contribution of both BVPS and EPS to the overall Adj R^2 value. INC.R^2_E: the incremental contribution of EPS beyond the R^2_C to the overall Adj R^2 value. INC.R^2_BV: the incremental contribution of BVPS beyond the R^2_C to the overall Adj R^2 value.

Table 6.21

Return Regression Results of Comparative Year (2016)

Panel A: The Result of the Return Model for the Comparative Year (2016) to Measure the Impact of IFRS on the Relative Value Relevance of Accounting Information

$$Ret_i^{2016} = b_0 + b_1 EPS_i^{2016}/P_i^{2015} + e_i^{2016}$$

Accounting Standards	Year	*N*	EPS_i^{2016}/P_i^{2015}	Adj R^2	Vuong (1989) Test
Saudi GAAP	2016	110	0.93 (2.402)*	4.20% {5.768}*	0.316
IFRS		110	0.856 (2.186)*	3.40% {4.781}*	⟨0.376⟩

Panel B: The Comparative year (2016) results of the impact IFRS on the incremental value relevance of accounting information

$$Ret_i^{2016} = b_0 + b_1 EPS_i^{Saudi\ GAAP(2016)}/P_i^{2015} + b_2 EPS_i^{IFRS-Saudi\ GAAP(2016)}/P_i^{2015} + e_i^{2016}$$

Accounting standards	Year	*N*	$\frac{EPS_i}{P_i^{2015}}^{Saudi\ GAAP(2016)}$	$\frac{EPS_i}{P_i^{2015}}^{IFRS-Saudi\ GAAP(2016)}$	Adj R^2	Vuong (1989) Test
IFRS–Saudi GAAP	2016	110	0.899 (2.286)*	−0.809 −0.517	3.50% {2.998}*	0.052 ⟨0.481⟩

Note. The *t*-test and *F*-test values are in (.) and {.}, respectively. Variable definitions: Ret_i^{2016}= The annual stock returns per share for firm i of year 2016, measured by the ratio $[(P_i^{2016} + DPS_i^{2016}) - P_i^{2015})]/ P_i^{2015}$ where $P_i^{2016}(P_i^{2015})$ is the share price for firm i 6 months after (before) the fiscal year end of 2016, and $DPS_i^{2016}$is dividend per share for firm i from 30 June 2016 to 30 June 2017. EPS_i^{2016}/P_i^{2015}= earnings per share for firm i at the end of fiscal year 2016 divided by P_i^{2015}; $EPS_i^{Saudi\ GAAP(2016)}/P_i^{2015} = EPS_i^{2016}/P_i^{2015}$prepared under Saudi GAAP; and $EPS_i^{IFRS-Saudi\ GAAP(2016)}/P_i^{2015}$= the difference between EPS_i^{2016}/P_i^{2015}prepared under GAAP andEPS_i^{2016}/P_i^{2015} prepared under IFRS. The number in ⟨.⟩ is the probability to accept the null hypothesis that the two R^2 values are not statistically different from each other.

*and ** indicate significance at the 0.05 and 0.01 levels, respectively.

6.6 Impact of Spurious Ratio Problem

As explained in Chapter 5, the use of the ratio model could overstate the value of R^2 owing to a spurious correlation of the ratio. Since the price model is a ratio model, the current study will investigate the effect of spurious correlation on R^2 values pre and post IFRS. Pearson (1896) provided the following formula to calculate the spurious correlation of ratios for a simple single explanatory variable model:

$$\rho_0 = \frac{v_{x_2}^2}{\sqrt{(v_y^2+v_{x_2}^2)}\sqrt{(v_{x_1}^2+v_{x_2}^2)}} \quad (6.1)$$

where v_i is the coefficient of variation of variable *i* and the model is $\frac{y}{x_2} = a + b\frac{x_1}{x_2} + \varepsilon$.

To operationalise this formula for the price model used in this study, y is the market value, x_1 is either book values of equity or reported earnings and x_2 is the number of outstanding shares. Formula (6.1) can be applied for each univariate price model separately, and then, their sum can be calculated to obtain the upper limit of the spurious correlation effect on the R^2 value of the multivariate price model. Since the focus of this study is the impact of IFRS adoption, the current study applies Formula (6.1) to the price model using the pre- and post-IFRS approach only (Section 6.5.2.1.1); as in the comparative year approach, the only difference in the spurious correlation is due to changes in x_1(accounting information), which is the variable of interest.

After applying Formula (6.1) on each univariate model pre and post IFRS, the upper limit impact of the spurious ratio problem on the R^2 values of the multivariate price model is 16.4% out of 41.5% for the Saudi GAAP model and 13.1% out of 50.8% for IFRS model (see Table 6.18). This still leaves the results for both the Saudi GAAP and IFRS periods as significant in explaining the variation in stock prices after controlling for this issue. Thus, the spurious ratio problem can be ignored and hence will not be considered in the yearly analysis using the price model.

Further, the difference of 9.3% in the R^2 values between the Saudi GAAP and IFRS models is in part due to the change in the effect of the spurious ratio, but this can be shown to have a

maximum impact of 0.4% resulting from changes in the number of shares. This 0.4% is very insignificant compared with the change required to accept that there has been a significant change in R^2. Therefore, the spurious ratio problem has no effect on the study's main analysis when using the pre- and post-IFRS approach and this could justify why it has been ignored in all prior studies.

6.7 Regression Results for Additional Analysis

Table 6.22 presents the results of price models pre and post IFRS adoption based on selected firm characteristics by splitting the sample according to firm size (Panel A), profitability (Panel B), audit quality (Panel C), industry affiliation (Panel D), potential growth (Panel E), leverage (Panel F), Gender of the board members (Panel G) and the sentiment of firm's financial news (Panel H). The sample size, which is 220 observations for each period, is partitioned into two 80-observation subsamples based on the median for firm size (Panel A), growth (Panel E) and leverage (Panel F) by dropping the middle 60 observations to obtain the very extreme observations for each category (see Chapter 5). This gives a total of 160 observations for each category of firm size, growth and leverage during both periods. As for the other characteristics of the selected firms, the sample is also partitioned into two subsamples according to the type of auditor for audit quality (Panel C), the earnings sign for profitability (Panel B), industry affiliation (Panel D), the existence of female member for Gender of the board members (Panel G) and the returns sign for the sentiment of firm's financial news (Panel H; see Chapter 5).

6.7.1 Large v. Small Firms

Starting with the values of Adj R^2, both groups of firms classified by size (i.e. large and small) exhibited significant Adj R^2 values as indicated by the F-statistic, which is significant at the 1% level during both periods. However, there is significant variation among these groups in terms of their relevance to equity investors since their Adj R^2 values differ substantially. This is supported by the Cramer Z-statistic of 4.369 (5.230), which indicates that the adjusted R^2 of 59.70% (63.90%) for large firms is significantly different from the adjusted R^2 of 18.40% (16.70%) for small firms during the Saudi GAAP (IFRS) period at the 1% level. Referring to the regression coefficients, ($BVPS$) is not significantly different from 0 during the Saudi GAAP period for both groups. However, this is not the case when IFRS was implemented because ($BVPS$) became significant for both groups, indicating that IFRS has a positive impact on the financial reporting in Saudi Arabia by improving the relevance of the balance sheet to investors. Comparing the regression coefficients

on (EPS) between the two groups, it is noted that (EPS) for large firms is always statistically significant at the 1% level whereas those of small firms are of much lower significance. Overall, although the joint value relevance (R^2) is higher for large firms, both groups have been affected positively and significantly by the adoption of IFRS in term of improving the relevance of ($BVPS$).

6.7.2 Positive v. Negative Earnings

Profit-making firms, which represent the majority of the study sample with a total of 341 observations (180 for the Saudi GAAP period and 161 for the IFRS period), exhibit significant Adj R^2 values of 59% (F = 129.908, $p < 0.01$) and 72.2 % (F = 208.487, $p < 0.01$) for the Saudi GAAP and IFRS periods, respectively. Hence, the accounting information of profit-making firms was jointly value relevant during both periods. In contrast, the accounting information of loss-making firms, which include 99 observations (40 for the Saudi GAAP period and 59 for the IFRS period), was neither jointly nor individually value relevant during both periods because both the Adj R^2 values and regression coefficients are not significantly different from 0. Comparing the joint value relevance (Adj R^2) of the groups (i.e. profit-making firms v. loss-making firms), the Cramer (1987) Z-statistics of 10.114 and 12.918 confirm that the accounting information of profit-making firms was significantly more value relevant than that of loss-making firms during both the Saudi GAAP and IFRS periods, respectively, at the 1% level. With regard to the regression coefficients of profit-making firms, while the coefficients on (EPS) are always positive and significant at 1% during both periods (Saudi GAAP and IFRS), the ($BVPS$) coefficients are only significant at 1% during the IFRS period. Overall, the findings not only indicate that market participants in Saudi Arabia value negative and positive earnings differently but also confirm that the impact of IFRS has been confined to profitable firms where only ($BVPS$) is affected positively by the adoption.

6.7.3 Big4 v. Non-Big4 Firms

Both firms audited by Big4 (N = 198 with 112 for the Saudi GAAP period and 86 for the IFRS period) and firms audited by non-Big4 (N = 242 with 108 for the Saudi GAAP period and 134 for the IFRS period) exhibited Adj R^2 values that are statistically significant at the 1% level. However, the Cramer Z-statistic of 8.779 (8.945) suggests that the adjusted R^2 of 63.6% (80.1%) for the Big4 firms is significantly higher than that for their counterparts, given the adjusted R^2 of 6.5% (21.0%) during the Saudi GAAP (IFRS) period. Hence, while this suggests that the

accounting information of firms audited by any type of auditor was jointly value relevant during both periods, firms audited by Big4 exhibited higher joint value relevance than those audited by non-Big4 during both periods. The regression coefficients of Big4 firms show that (EPS) is always statistically significant during both periods at the 1% level. However, BVPS of Big4 firms is only significant at the 1% level during the IFRS period. As for the non-Big4, the regression coefficients on both (EPS) and ($BVPS$) are not significantly different from 0 during the Saudi GAAP period. This is not the case during the IFRS period as both regression coefficients on (EPS) and ($BVPS$) became statistically significant at the 1% and 5% levels, respectively. Overall, the findings suggest that while the joint value relevance of accounting information has been higher for the group audited by the Big4 firms, IFRS adoption has a positive and significant impact on the individual value relevance of ($BVPS$) for both groups and on the individual value relevance of (EPS) for the non-Big4 group only.

6.7.4 Manufacturing v. Non-Manufacturing Firms

Starting with manufacturing firms (N = 132 for each period), the Adj R^2 values are 43.90% (F = 52.321, p < 0.01) and 45.60% (F = 55.830, p < 0.01) for the Saudi GAAP and IFRS periods, respectively. The Adj R^2 values of the non-manufacturing firms' group (N = 88 for each period) are 41.30% (F = 31.651, p < 0.01) and 57.10% (F = 58.864, p < 0.01) for the Saudi GAAP and IFRS periods, respectively. A simple comparison of the joint value relevance between the two groups (i.e. Adj R^2 values) reveals that while both groups provided joint value relevant accounting information during both periods, the joint value relevance of the accounting information of manufacturing firms (non-manufacturing firms) was higher during the Saudi GAAP (IFRS) period. However, the Cramer (1987) Z-statistics of 0.285 and 1.426 suggest that the Adj R^2 values of both groups are not significantly different from each other during both periods, indicating that both groups provided accounting information that is of a similar joint value relevance. Regarding the regression coefficients, (EPS) is always positive and significant at the 1% level for both groups during both periods. However, this is not the case for ($BVPS$) since its regression coefficient is only significant at the 1% level for manufacturing firms during the IFRS periods. This indicates that while (EPS) was always individually value relevant information to equity investors in both manufacturing firms and non-manufacturing firms regardless of the accounting standards being applied, ($BVPS$) only became important when prepared under IFRS for manufacturing firms. Overall, while the results indicate that the joint value relevance of both groups has been significant

with no significant variation between the two groups during both periods, IFRS had a significant impact on the individual value relevance of ($BVPS$) only.

6.7.5 High Potential Growth v. Low Potential Growth Firms

Firms with high potential growth ($N = 80$ for each period) exhibited Adj R^2 values of 41.20% ($F = 28.658$, $p < 0.01$) and 62.20% ($F = 66.018$, $p < 0.01$) for the Saudi GAAP and IFRS periods, respectively. The counterpart group of firms with low potential growth ($N = 80$ for each period) has values of Adj R^2 of 75.30% ($F = 121.645$, $p < 0.01$) and 85.30% ($F = 230.795$, $p < 0.01$) for the Saudi GAAP and IFRS periods, respectively. This indicates that the accounting information of both groups was jointly value relevant during both periods. However, the Cramer (1987) Z-statistics of 4.079 (3.889) indicates that the difference in the Adj R^2 of 34.10% (23.10%) between the groups is statistically significant at the 1% level during the Saudi GAAP (IFRS) period. This difference is in favour of low potential growth firms, which exhibit higher Adj R^2 values during both periods. This means that the joint value relevance of accounting information was higher for low potential growth firms during both periods. The results of the regression coefficients reveal that both (EPS) and ($BVPS$) are positive and significant at the 1% level for firms with low potential growth during both periods. However, while the coefficients on (EPS) for firms with high potential growth are positive and significant at the 1% level during both periods, the ($BVPS$) coefficient for firms with high potential growth is only significantly different from 0 when IFRS is being applied. This indicates that (EPS) is individually value relevant regardless of whether firms have potential growth or not and whether Saudi GAAP or IFRS is being applied. This is not the case for ($BVPS$), which is found to be individually value relevant only for firms with high potential growth when being prepared under IFRS. Overall, while the accounting information of firms with low potential growth was jointly more value relevant than that of their counterparts, IFRS had a positive and significant impact on the individual value relevance of ($BVPS$) for firms with high potential growth.

6.7.6 High Leveraged v. Low Leveraged Firms

Firms with high leverage ($N = 80$ for each period) exhibit an Adj R^2 value of 7.20% ($F = 4.048$, $p < 0.05$) for the Saudi GAAP period and an Adj R^2 value of 5.60% ($F = 3.333$, $p < 0.05$) for the IFRS period. This indicates that the accounting information of high leveraged firms was jointly value relevant at 5% during both periods. As for the individual value relevance of (EPS) and ($BVPS$) of firms with high leverage, the regression coefficients on both variables are

not statistically different from 0 during the Saudi GAAP and IFRS periods. This shows that both (EPS) and ($BVPS$) of high leveraged firms are not individually value relevant regardless of the accounting standards being applied. As for firms with low leverage (N = 80 for each period), the Adj R^2 values of 51.90% (F = 43.57) and 48.80% (F = 38.718) are statistically significant at the 1% level during the Saudi GAAP and IFRS periods, respectively. The results of the regression coefficients reveal that while ($BVPS$) coefficients are not significantly different from 0 during both periods, those on (EPS) are always positive and significant at the 1% level during both periods. A comparison between the joint value relevance (Adj R^2) of the two groups shows that the group of low leveraged firms provides accounting information that is more jointly value relevant than that of their counterparts as indicated by the Cramer (1987) Z-statistics values of 5.110 and 4.977 during the Saudi GAAP and IFRS periods, respectively. Overall, the results indicate that while only (EPS) of firms with low leverage was individually value relevant regardless of the accounting standards being applied, IFRS had no impact on either variable for both groups.

6.7.7 Firms With Only Male Members v. Firms With Mixed-gender Members

The study examines the value relevance of accounting information for firms with only male members versus mixed-gender members on the board, both pre and post the adoption of IFRS in Panel G. The panel regression model uses book value per share ($BVPS$) and earnings per share (EPS) as independent variables. For firms with only male members (N=380), the Adj R^2 values are 39.40% and 47.20% during the Saudi GAAP and IFRS periods, respectively, while for firms with mixed-gender members (N=60), the Adj R^2 values are 53.70% and 65.20%, respectively. The Cramer test results indicate that the accounting information of firms with mixed-gender members on the board is more jointly value relevant than that of firms with only male members during both periods, with Cramer's (1987) Z-statistics values of 1.243 and 1.911 for the Saudi GAAP and IFRS periods, respectively. Moreover, the regression coefficients on $BVPS$ are only positive and statistically significant for firms with only male members during the IFRS period, while those on EPS are always positive and statistically significant for both types of firms during both periods. These findings suggest that the gender diversity of board members is a relevant factor in the value relevance of accounting information, particularly for EPS, and that IFRS adoption affects only the value relevance of $BVPS$ for firms with only male members.

6.7.8 Good News Firms v. Bad News Firms

The results show that good news firms (N=146) have higher Adj R^2 values of 58.50% and 60.80% during the Saudi GAAP and IFRS periods, respectively, compared to bad news firms (N=282) with Adj R^2 values of 38.70% and 21.40%, respectively. Additionally, the Cramer test results reveal that the accounting information of good news firms is more jointly value relevant than that of bad news firms during both periods. The regression coefficients on $BVPS$ are positive and statistically significant for both types of firms but only when IFRS is applied, while those on EPS are always positive and statistically significant for both types of firms during both periods. These findings suggest that the direction of news is a relevant factor in the value relevance of accounting information, particularly for EPS, and that IFRS adoption significantly increases the value relevance of $BVPS$ for both types of firms. Overall, the study provides valuable insights into the factors that affect the value relevance of accounting information and highlights the importance of considering the nature of news in accounting research.

6.8 Robustness Analysis

The results of the robustness tests presented in Table 6.23 indicate that the values of statistical significance and R^2 are comparable to those reported in Table 6.22 when alternative measurements for firm size and leverage are used (see Section 5.2.3). These results confirm that firms that differ in size and leverage have different levels of accounting information value relevance, where large and low leveraged firms always have accounting information of higher value relevance than their counterparts do, regardless of the accounting standards being applied. This indicates that the findings of this study are robust.

Table 6.22

Price Model Results for Firms With Different Characteristics

Panel A: Large v. Small Firms Pre and Post IFRS										
$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$										
Accounting Standards	Year	Large firms (N = 160)				Small firms (N = 160)				Cramer Test
		N	BVPS	EPS	Adj R^2	N	BVPS	EPS	Adj R^2	
Saudi GAAP	2015 & 2016	80	0.699 (3.594)	4.597 (14.838)**	59.70% {59.538}**	80	0.186 (0.086)	4.265 (5.951)*	18.40% {9.879}**	4.369 ⟨0.00⟩ **
IFRS	2017 & 2018	80	0.781 (8.888)**	8.384 (50.279)**	63.90% {70.893}**	80	0.953 (4.001)*	1.868 (2.109)	16.70% {8.938}**	5.230 ⟨0.00⟩ **
Panel B: Profit-Making V. Loss-Making Firms										
$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$										
Accounting Standards	Year	Profit-Making Firms (N = 341)				Loss-making firms (N = 99)				Cramer Test
		N	BVPS	EPS	Adj R^2	N	BVPS	EPS	Adj R^2	
Saudi GAAP	2015 & 2016	180	0.28 (0.976)	7.48 (63.417)**	59.00% {129.908}**	40	0.158 (0.077)	−1.442 (0.463)	−4.30% {0.187}	10.114 ⟨0.00⟩ **
IFRS	2017 & 2018	161	0.558 (7.818)**	10.815 (114.018)**	72.20% {208.487}**	59	0.335 (0.508)	-0.631 (0.299)	-0.40% {0.872}	12.918 ⟨0.00⟩ **
Panel C: Big4 v. Non-Big4 Firms										
$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$										
Accounting Standards	Year	Big4 firms (N = 198)				Non-Big4 firms (N = 242)				Cramer Test
		N	BVPS	EPS	Adj R^2	N	BVPS	EPS	Adj R^2	

Saudi GAAP	2015 & 2016	112	0.46 (1.954)	6.53 (35.295)**	63.60% {97.861}**	108	0.139 (0.165)	2.139 (2.898)	6.50% {4.730}**	8.779 ⟨0.00⟩ **
IFRS	2017 & 2018	86	0.763 (18.610)**	9.807 (156.606)**	80.10% {171.603}**	134	0.639 (3.834)*	3.012 (9.634)**	21.00% {18.628}**	8.945 ⟨0.00⟩ **

Panel D: Manufacturing v. Non-Manufacturing Firms Pre and Post IFRS

$$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$$

Accounting Standards	Year	Manufacturing ($N = 264$)				Non-Manufacturing ($N = 176$)				Cramer Test
		N	BVPS	EPS	Adj R^2	*N*	BVPS	EPS	Adj R^2	
Saudi GAAP	2015 & 2016	132	0.554 (2.302)	3.86 (10.591)**	43.90% {52.321}**	88	0.103 (0.039)	6.355 (17.560)**	41.30% {31.651}**	0.285 ⟨0.776⟩
IFRS	2017 & 2018	132	1.044 (11.143)**	4.03 (9.319)**	45.60% {55.830}**	88	0.793 (2.214)	6.662 (20.970)**	57.10% {58.864}**	1.426 ⟨0.154⟩

Panel E: High Potential Growth v. Low Potential Growth Firms Pre and Post IFRS

$$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$$

Accounting Standards	Year	High Growth 'High MTB' ($N = 160$)				Low Growth 'Low MTB'($N = 160$)				Cramer Test
		N	BVPS	EPS	Adj R^2	*N*	BVPS	EPS	Adj R^2	
Saudi GAAP	2015 & 2016	80	0.532 (0.85)	3.662 (6.563)**	41.20% {28.658}**	80	0.546 (17.368)**	2.077 (17.928)**	75.30% {121.645}**	4.079 ⟨0.00⟩ **
IFRS	2017 & 2018	80	0.827 (9.113)**	4.79 (22.321)**	62.20% {66.018}**	80	0.843 (174.026)**	1.462 (43.036)**	85.30% {230.795}**	3.889 ⟨0.00⟩ **

Panel F: High Leveraged v. Low Leveraged Firms Pre and Post IFRS

$$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$$

Accounting standards	Year	High leverage (N = 160)				Low leverage (N = 160)				Cramer Test
		N	BVPS	EPS	Adj R^2	N	BVPS	EPS	Adj R^2	
Saudi GAAP	2015 & 2016	80	0.429 (0.967)	0.97 (0.511)	7.20% {4.048}*	80	-0.356 (0.671)	7.332 (35.494)**	51.90% {43.57}**	5.110 ⟨0.00⟩ **
IFRS	2017 & 2018	80	0.405 (1.599)	1.39 (1.6)	5.60% {3.333}*	80	0.499 (0.755)	7.121 (11.260)**	48.80% {38.718}**	4.977 ⟨0.00⟩ **

Panel G: Firms with only male members v. Firms with mixed-gender members Pre and post IFRS

$$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$$

Accounting standards	Year	Firms with only male members (N=380)				Firms with mixed-gender members (N=60)				Cramer Test
		N	BVPS	EPS	Adj R^2	N	BVPS	EPS	Adj R^2	
Saudi GAAP	2015 & 2016	190	0.335 (0.81)	4.906 (19.434)**	39.40% {62.545}**	30	0.073 (0.010)	6.949 (14.833)**	53.70% {17.838}**	1.243 ⟨0.11⟩
IFRS	2017 & 2018	190	0.891 (9.260)**	4.82 (23.636)**	47.20% {85.430}**	30	0.858 (1.308)	10.194 (133.267)**	65.20% {28.202}**	1.911 ⟨0.03⟩ *

Panel H: Good news firms v. Bad news firms Pre and post IFRS

$$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$$

Accounting standards	Year	Good news firms (N=146)				Bad news firms (N=282)				Cramer Test
		N	BVPS	EPS	Adj R^2	N	BVPS	EPS	Adj R^2	
Saudi GAAP	2015 & 2016	48	0..645 (2.389)	7.611 (14.593)**	58.50% {34.128}**	166	0.033 (0.012)	5.012 (23.068)**	38.70% {53.163}**	2.135 ⟨0.016⟩ *
IFRS	2017 & 2018	98	0.795 (7.581)**	7.501 (40.474)**	60.80% {76.205}**	116	0.578 (4.397)*	3.038 (6.549)**	21.40% {16.493}**	4.818 ⟨0.001⟩ **

Note. The *t*-test and *F*-test values are in (.) and {.} respectively. Variables' definitions: P_{it}= share price for firm i 4 months after the year end *t* (i.e. 30 April); EPS_{it} = earnings per share for firm i at the end of fiscal year *t* ; $BVPS_{it}$= book values per share for firm i at the end of fiscal year *t* . The number in 〈.〉 is the probability to accept the null hypothesis that the two R^2 values are not statistically different from each other.

*and ** indicate significance at the 0.05 and 0.01 levels, respectively.

Table 6.23

Regression Results of Alternative Measures Firm Size and Leverage

Panel A: Large v. Small Firms Pre and Post IFRS (Total Sales)										
$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$										
Accounting Standards	Year	Large Firms (N = 160)				Small Firms (N = 160)				Cramer Test
		N	BVPS	EPS	Adj R^2	*N*	BVPS	EPS	Adj R^2	
Saudi GAAP	2015 & 2016	80	0.419 (1.090)	6.573 (26.554)**	61.00% {62.856}**	80	-0.144 (0.083)	2.532 (5.951)*	3.30% {2.367}**	8.060 ⟨0.00⟩ **
IFRS	2017 & 2018	80	0.688 (7.909)**	9.005 (79.003)**	69.10% {89.426}**	80	0.715 (2.321)*	-0.647 (0.133)	4.70% {2.937}**	9.521 ⟨0.00⟩ **
Panel B: High Leveraged v. Low Leveraged Firms Pre and Post IFRS (Debt-to-Equity ratio)										
$P_{it} = b_0 + b_1 BVPS_{it} + b_2 EPS_{it} + e_{it}$										
Accounting Standards	Year	High leverage (N = 160)				Low leverage (N = 160)				Cramer Test
		N	BVPS	EPS	Adj R^2	*N*	BVPS	EPS	Adj R^2	
Saudi GAAP	2015 & 2016	80	.483 (1.177)	1.123 (.903)	10.00% {5.409}**	80	−.361 (.717)	7.472 (40.656)**	55.50% {50.248}**	5.103 ⟨0.00⟩ **
IFRS	2017 & 2018	80	.225 (.389)	2.105 (2.864)	5.90% {3.476}*	80	.658 (1.793)	6.268 (16.300)**	49.90% {40.280}**	5.082 ⟨0.00⟩ **

Note. The *t*-test and *F*-test values are in (.) and {.} respectively. Variables' definitions: P_{it}= share price for firm *i* 4 months after the year end t (i.e. 30 April); EPS_{it} = earnings per share for firm *i* at the end of fiscal year *t* ; $BVPS_{it}$= book values per share for firm *i* at the end of fiscal year *t*. The number in ⟨.⟩ is the probability to accept the null hypothesis that the two R^2 values are not statistically different from each other.

*and ** indicate significance at the 0.05 and 0.01 levels, respectively.

6.9 Chapter Summary

This chapter presented the descriptive statistics and correlation matrices, as well as the results of the main and additional regression analyses of the price and return models used to examine the value relevance of accounting information of firms listed in Saudi Arabia during 2015–2018. The main analysis is concerned with the value relevance during the study period (yearly analysis) as well as the impact of IFRS introduction in Saudi Arabia in 2017 (pre- and post-IFRS and comparative year approaches). The results of the main analysis showed that accounting information was jointly value relevant (R^2) during the study period with a positive significant impact of IFRS adoption on the value relevance of book values of equity only. The additional analysis, which is concerned with the value relevance of the accounting information of firms that differ in terms of their characteristics, revealed that large, profit-making, high audit quality, low potential growth, low leveraged firms, firms with mixed-gender members, and good news firms have accounting information that is of higher value relevance than that of their counterparts during the study period. Alternative measures of firm size and leverage have been used in robustness tests, which confirmed the main results. The results presented in this chapter, which are not affected by the spurious ratio problem (see Section **Error! Reference source not found.**) or a violation of the parametric regression assumptions (see Section 6.4), will be discussed in Chapter 7.

Chapter 7: Discussion and Conclusion

7.1 Introduction

This research was motivated by the recent adoption of IFRS (since 2017) in Saudi Arabia, the lack of research on value relevance in emerging markets and the uniqueness of the Saudi institutional factors (see Chapter 2). The study addresses three main objectives. The first objective (RO_1) is to assess the extent to which the accounting information of non-financial firms listed on Tadawul is used by investors for equity valuation. The second objective (RO_2) is to identify the change in value relevance of accounting information due to the IFRS adoption in Saudi Arabia. The third objective (RO_3) seeks to evaluate the influence of the specific characteristics of firms on the value relevance of accounting information pre and post IFRS adoption (see Chapter 1). Therefore, this chapter addresses these objectives by examining the hypotheses developed in Chapter 4 based on the results reported in Chapter 6, which are then be discussed in light of prior literature (see Chapter 3), the theoretical framework (see Chapter 4) and the Saudi-specific context (see Chapter 2).

The remainder of this chapter is organised as follows. The key findings of this research are discussed in Section 7.2 for the value relevance throughout the study period, Section 7.3 for the impact of IFRS adoption on the value relevance and in Section 7.4 for the influence of firm characteristics on the value relevance pre and post IFRS. Section 7.5 provides a summary of the key findings and links the research questions with the study findings. The major contributions and implications of this study are highlighted in Section 7.6. Section 7.7 discusses the limitations of the study and offers directions for future research. Last, Section 7.8 concludes the chapter.

7.2 Value Relevance Throughout Study Period

This section addresses the first research objective (RO_1), which is related to the value relevance of accounting information in Saudi Arabia throughout the study period. To address this objective, the study asks the following research questions (RQs):

> ***RQ_1***: Was the accounting information of Saudi non-financial listed firms value relevant to equity investors during the study period?
>
> ***RQ_2***: Comparing the value relevance of accounting information (earnings v. book value of equity), which information was more value relevant during the study period?

To answer these research questions, the current study developed two hypotheses (H1 and H2), which are examined in this section using the results reported in Table 6.16 for the price model and Table 6.17 for the return model. These hypotheses, in a null form, are the following:

> $H_0$1: The accounting information of non-financial firms listed on the Saudi Stock Exchange was not jointly value relevant during the study period (2015–2018).

This hypothesis is also tested through the following two sub-hypotheses:

> $H_0$1$_a$: Book values of equity were *not* value relevant during the study period (2015–2018).
> $H_0$1$_b$: Earnings were *not* value relevant during the study period (2015–2018).
> $H_0$2: Earnings were *not* relatively and incrementally more value relevant than book values of equity during the study period (2015–2018).

To test $H_0$1, the overall significance of the yearly and pooled price and return models is to be considered (see Section 5.4). The results of the price model, which are reported in Table 6.16, show that the yearly Adj R^2 values of the price model range from 37.10% to 52.70% with an average of 45.60% during the study period (2015–2018). All Adj R^2 values are at the 1% level as indicated by the *F*-test values (see Section 6.6.1.1). These values are in line with those reported in studies on developed markets (e.g. Horton & Serafeim, 2010; Kouki, 2018), emerging markets (e.g. Alali & Foote, 2012; Kargın, 2013) and the Saudi market (e.g. Albarrak, 2011; Alsalman, 2003; Khanagha, 2011; Oraby, 2017). In the Saudi context, Albarrak (2011) reported values of Adj R^2 that range from 45% to 90% during 1993–2009, while Alsalman (2003) and Khanagha (2011) reported an average value of Adj R^2 of 68% during 1993–2008.

The results of the return model, which are reported in Table 6.17, show that pooled Adj R^2 is 9.20% and yearly Adj R^2 values range between 8.80% and 20.80%. All Adj R^2 values for the return model are at the 1% level as indicated by the *F*-test values (see Section 6.6.1.2). These results are consistent with those reported by Bartov et al. (2005) with a value of 13.9%−14.9% based on a sample from Germany (developed market), Filip and Raffournier (2010) with a value of 19.9%–21.3% based on a sample from Romania (emerging market) and Albarrak (2011) with a value of 3%-40% based on a sample from the Saudi market.

In summary, the results of year and pool price and return models of the current study are comparable with those of earlier studies on developed and emerging countries and on Saudi

Arabia. This provides evidence that the accounting information of Saudi listed firms was important to investors for equity valuation during 2015–2018 despite the Saudi market being inefficient. This also indicates that investors are rational as regards the use of accounting numbers. Hence, the results lead to the rejection of the null hypothesis (H_01) that the accounting information was not jointly value relevant during the study period.

The results can be linked to valuation theory, Saudi institutional factors and the objectives of financial reporting under the Conceptual Frameworks of SOCPA and IASB. First, the theoretical framework of Ohlson (1995) predicted that both book values of equity and earnings are associated with share price (see Section 4.2), and the findings are consistent with this prediction. Another interpretation of the higher value relevance of accounting information in Saudi Arabia is that it could be linked to the limited access to financial information in emerging markets (J. Liu & Liu, 2007). Other Saudi institutional factors (e.g. enforcement quality, audit quality, market financing system, ownership structure and investor protection) are in line with those that produce high value relevant accounting information for equity investors (see Chapter 4). The findings are also consistent with the objectives of financial reporting in Saudi Arabia during the study period (see Chapter 3).

However, to test the partial hypotheses of H_01 (i.e. H_01_a and H_01_b), the results of the significance of the regression coefficients are to be considered. In Table 6.16, the yearly coefficients on earnings are positive and always positive and significant at the 1% level throughout the study period. Hence, the study rejects the null hypothesis H_01_b that earnings were not value relevant during the study period (2015–2018). The regression coefficients on the book values of equity were not significantly different from 0 during 2015–2016. However, the regression coefficients on book values of equity became statistically significant at the 1% level during 2017–2018. Thus, the study fails to reject the null hypothesis H_01_a for 2015 and 2016 (the Saudi GAAP period) but rejects it for 2017 and 2018 (the IFRS period). The reason for this conflicting result will be discussed in Section 7.3.

These findings indicate that earnings were always important to equity investors, while book values of equity were only relevant to investors in 2017 and 2018. It also indicates that the role of book values of equity used to be ignored during the Saudi GAAP period (see Section 7.3). These results are consistent with those of Alali and Foote (2012; UAE sample) and Albarrak (2011; Saudi

sample) who both found that while earnings coefficients were always positive and significant in all years, those on book values of equity were not consistently significant in all years. In fact, these findings are in line with the theoretical framework of Ohlson (1995), which suggests that market value is a weighted function of both earnings and book values (see Section 4.2), where higher regression coefficients on earnings indicate that earnings are expected by equity investors to persist in the future.

To test $H_0$2 (relative value relevance), a comparison of the Adj R^2 values between earnings univariate model and book values of equity univariate model is required (see Section 5.4). The findings of this comparison, which are reported in Panel D of Table 6.18, reveal that earnings and book values of equity do not differ substantially in explaining the variation in share price since their Adj R^2 values are not statistically different as indicated by the values of the Vuong (1989) *Z*-statistics, which are not less than 5% during the study period. Hence, this study fails to reject the relative value relevance component of $H_0$2.

To test the incremental value relevance component of $H_0$2, the incremental contribution of each variable to the overall Adj R^2 of the multivariate model needs to be examined. Panel D of Table 6.18 shows that earnings and book values of equity are incrementally value relevant beyond each other with earnings being more incrementally value relevant than book values of equity (i.e. 22.80% and 23.00% for earnings v. 0.30% and 4.30% for book values of equity during the Saudi GAAP and IFRS periods, respectively) during the study period, while their common contribution to the overall Adj R^2 value is 18.40% for the Saudi GAAP period (2015–2016) and 23.50% for the IFRS period (2017–2018). This leads to rejection of the incremental value relevance component of $H_0$2.

The results of testing $H_0$2 indicate that while both accounting measures are equally important for equity valuation, they convey different information to investors in Saudi Arabia. These findings are consistent with those of prior studies on the Saudi market (e.g. Albarrak, 2011), developed markets (King & Langli, 1998) and emerging markets (Alfraih, 2016). This variation in the role of accounting measures is explained by Collins et al. (1997) who assumed that earnings and book values complement each other in providing value relevant information. They also asserted that the incremental Adj R^2 of earnings and book values of equity shows which accounting variable drives the overall Adj R^2 value, while the common Adj R^2 to both accounting measures

shows how they act as substitutes for each other in explaining share prices. In line with this assertion, the study findings show that the earnings of Saudi listed firms are the main driver of the overall Adj R^2 since they conveyed greater information to equity investors than the book values of equity do during the study period.

The findings of earnings being always (more incrementally) value relevant throughout the study period as opposed to the book value of equity is consistent with the arguments of Joos (1997) and Arce and Mora (2002), who have suggested that higher importance of earnings are usually found in an equity-oriented market as opposed to a credit-oriented market. This is the case in Saudi Arabia because outside investors are the main providers of finance (see Section 2.7.5). These finding are not surprising since the accounting standards implemented (Saudi GAAP and IFRS) in Saudi Arabia are highly influenced by the Anglo-Saxon accounting model, which treats the income statement as the primary focus (Bartov et al., 2005; Black & White, 2003). These results are consistent with those of prior comparative studies that include non-Anglo-Saxon and Anglo-Saxon countries (e.g. Arce & Mora, 2002; Bartov et al., 2001; Black & White, 2003; Graham & King, 2000). Apart from this argument, investors in financially healthy firms place greater weight on EPS rather than BVPS (Barth et al., 1998) since the former reflects how the resources of a firm are being used and is also used as a proxy for future performance (Burgstahler & Dichev, 1997).

7.3 Impact of IFRS Adoption on Value Relevance

Under this section, the second research objective (RO_2), the main focus of this study, concerning the impact of IFRS on the value relevance of accounting information in Saudi Arabia is addressed. This led the study to ask the following additional research questions (RQs):

> RQ_3: Was there any change in the relative value relevance of accounting information after the adoption of IFRS in Saudi Arabia?
>
> RQ_4: Were the reconciliations of accounting information of Saudi non-financial listed firms during the comparative year of 2016 incrementally value relevant to equity investors?
>
> RQ_5: Was there any change to the individual value relevance of accounting measures (EPS v. BVPS) after the adoption of IFRS in Saudi Arabia?

To answer these research questions (RQs), the current study tests the following null hypotheses:

$H_0$3: The joint and relative value relevance of accounting information prepared under IFRS was *not* more than that of information prepared under Saudi GAAP.

$H_0$4: IFRS adjustments to the accounting information measures in the comparative year of 2016 were *not* incrementally value relevant.

$H_0$5: Book values of equity prepared under IFRS were *not* more value relevant than book values of equity prepared under Saudi GAAP.

$H_0$6: Owing to IFRS adoption, the incremental value relevance of book values of equity did not exceed that of earnings during the IFRS adoption period (2017–2018).

$H_0$7: During the comparative year of 2016, the IFRS adjustments to the book values of equity were *not* incrementally value relevant.

$H_0$8: The impact of IFRS adoption on the relative and the incremental value relevance of book values of equity was *not* greater than the impact on the relative and incremental value relevance of earnings.

To test $H_0$3, the results of the Cramer (1987) and the Vuong (1989) tests for the change in the Adj R^2 values due to IFRS adoption using pre- and post-IFRS adoption and comparative year approaches, respectively, need to be examined (see Section 5.3). Under the pre- and post-IFRS adoption, the results of the price model show that the combined Adj R^2 increased from 41.5%, in the Saudi GAAP period, to 50.8%, in the IFRS period (Table 6.18, Panel A). However, this increase of 9.3% is not considered significant since the Cramer *Z*-statistic is 1.529, which is not significant at the 5% level. The results of the return model, conversely, show that the increase of 19.4% in the Adj R^2 value from 4.0% for the Saudi GAAP period to 23.4% for the IFRS period is significant at the 1% level as indicated by the Cramer *Z*-statistic of 3.472 (Table 6.19, Panel A).

A possible explanation for these conflicting findings is that, unlike the price model, which shows how the share price reflects the accounting information at a specific time, the return model shows how the accounting information is reflected in the market value over the return period, which could be affected by other economic factors (see Section 4.2). These factors could increase returns volatility, which causes Adj R^2 to decline (J. Francis & Schipper, 1999). A further investigation reveals that the significant decline in oil price (macroeconomic variable) during

(2015–2016)[51] caused a sharp volatility in Tadawul (Alsufyani & Sarmidi, 2020). Hence, it is possible that the low Adj R^2 value during the Saudi GAAP period (2015–2016) is caused by the price volatility during that period. Inconsistent findings between the return and price models have been reported in prior studies (e.g. Bepari, 2015; J. Francis & Schipper, 1999; M. S. Harris & Muller, 1999) and with IFRS adoption in particular (e.g. Goodwin et al., 2008). These studies suggest placing a greater weight on the results of the price model owing to the inclusion of book values of equity, which is an important measure of firm value. Due to these conflicting findings, the inference of the impact of IFRS, therefore, will be drawn by using the results of the comparative year approach, which is a superior research design compared with the pre- and post-IFRS approach (see Section 5.3).

The results for the comparative year approach are reported in Table 6.20 for the price model and in Table 6.21 for the return model. The results for the price model (Table 6.20, Panel A) indicate that the increase of 0.50% from 40.50% for Saudi GAAP-based accounting information to 41.00% for IFRS-based information is not significant as indicated by the Vuong *Z*-statistic of 0.098, which is not significant at the 5% level. The results for the return model show a decrease of 0.80% from 4.20% for Saudi GAAP-based accounting information to 3.40% for IFRS-based accounting information. However, this decrease is not significant at the 5% level as indicated by the Vuong *Z*-statistic of 0.316. Based on the results of comparative year approach and the price model for the pre and post IFRS approach, the study fails to reject the null hypothesis ($H_0$3) that IFRS adoption in Saudi Arabia did not have a significant impact on the joint and relative value relevance of the accounting information of non-financial listed firms.

A possible explanation for these findings is that the positive impact of IFRS adoption could be more pronounced in the long run as the standards are newly implemented in Saudi Arabia. The country has been facing numerous challenges in implementing IFRS effectively, including 'a lack of qualified accountants, significant dependence on Big4 accounting firms, inadequate coverage of IFRS in university education, and a lack of research' (Nurunnabi, 2018, p. 166). From an institutional theory perspective, these challenges can be viewed as institutional barriers that hinder the efficient incorporation of IFRS practices in Saudi Arabia. As organisations seek to gain

[51] From an average of $98.97 per barrel in 2014 to an average of $52.32 and $43.64 in 2015 and 2016, respectively (retrieved from the U.S. Energy Information Administration website at https://www.eia.gov/).

legitimacy within their institutional context, they need to overcome these barriers gradually and adapt to the new accounting standards (Scott, 2014). Therefore, based on institutional theory, the successful adoption and implementation of IFRS in Saudi Arabia may be a gradual process, as the country must overcome numerous challenges to harmonize its institutional environment with IFRS standards.

High power distance, an institutional factor in Saudi Arabian culture, significantly influences financial reporting practice characterised by limited transparency, conservatism in accounting practices, compromised audit quality, and low voluntary disclosure (see Section 2.3). According to Hofstede (1980), in high power distance cultures like Saudi Arabia, hierarchical structures and centralized decision-making prevail, leading organisations to prioritize authority and control. Consequently, this can result in selective disclosure of information, cautious revenue recognition, auditors' hesitance to challenge higher-ranking individuals, and reduced availability of additional financial information for stakeholders (Gray, 1988). Gray (1988) posits that high power distance societies often prefer accounting values that emphasize authority, secrecy, and conservatism. Saudi high power distance cultural dimension shape the adoption and implementation of new accounting standards like IFRS.

Institutional theory, which focuses on the influence of institutional environments on organisational practices, can provide valuable insights into the limited impact of IFRS adoption on the value relevance of accounting information for non-financial listed firms in Saudi Arabia. In Saudi Arabia, the effectiveness of accounting practices is dependent on the institutional environment in which they are implemented (Scott, 2014). Saudi Arabia's institutional environment is characterized by high levels of government intervention, cultural norms, and religious influences, which may have hindered the expected impact of IFRS implementation on the value relevance of accounting information (Almutairi, Heller & Yen, 2020). The Most important factor of the Saudi institutional environment is that it has high power distance which is a cultural dimension that refers to the extent to which less powerful members of organisations and institutions accept and expect that power is distributed unequally (Hofstede, 1980). In countries with high power distance, such as Saudi Arabia, individuals tend to be more accepting of hierarchical structures and authority. This could affect the implementation of IFRS in several ways.

First, the high power distance culture may lead to a lack of questioning or critical examination of existing accounting practices, thus impeding the effective adoption of IFRS. According to the institutional theory, organisations often adopt new practices to conform to the expectations of external actors and to gain legitimacy (DiMaggio & Powell, 1983). However, in high power distance societies, the need to conform may be less pronounced, as individuals are more likely to accept the status quo and not challenge the existing practices. Consequently, the pressure to adopt and effectively implement IFRS could be weaker in Saudi Arabia compared to countries with lower power distance.

Second, high power distance may result in a reluctance among accountants and auditors to challenge management's accounting decisions. The implementation of IFRS relies on the professional judgment of accountants and auditors, who must make decisions based on the principles set forth in the standards (IASB, 2018). In high power distance societies, however, professionals may be less likely to question the decisions of their superiors or challenge management's accounting choices, thereby limiting the impact of IFRS adoption on the quality of financial reporting.

Third, the high power distance culture in Saudi Arabia may lead to an emphasis on maintaining the appearance of compliance with IFRS rather than ensuring the accurate implementation of the standards. Organisations in high power distance societies may be more likely to adopt IFRS as a form of ceremonial compliance, without fully incorporating the standards into their accounting practices. This superficial adoption of IFRS could result in a limited impact on the value relevance of accounting information for non-financial listed firms in Saudi Arabia. For example, this study only reports a 9.3% increase in Adj R^2 from the pre-IFRS to post-IFRS period, while Kouki (2018) reports a 14.6% increase for firms operating in an open economy with low power distance such as European countries.

To test ($H_0$4) about the impact of the overall adjustments of IFRS adoption on the incremental value relevance during the comparative year, the results of the Vuong (1989) test need to be examined to determine whether the difference between IFRS-based and Saudi GAAP-based information provides significant relevant information to equity investors. The Vuong (1989) *Z*-statistic values are −0.472 for the price model (Panel E, Table 6.20) and 0.052 for the return model (Panel B, Table 6.21), both of which are not significant at the 5% level. Therefore, the null

hypothesis of $H_0$4 is not rejected since IFRS-based information provided no incremental relevant information beyond what Saudi GAAP-based information provided during the comparative year.

With regard to the impact of IFRS adoption on the individual value relevance of accounting information ($H_0$5), the regression coefficients on IFRS-based and Saudi GAAP-based accounting information need to be compared. For the pre- and post-IFRS approach, the results for the price model (Panel A, Table 6.18) show that while the regression coefficient for the book values of equity is insignificant during the Saudi GAAP period, it becomes statistically significant at the 1% level during the IFRS period. The value relevance of earnings has not been affected by the adoption because the coefficients are always statistically significant at the 1% level during the Saudi GAAP and IFRS periods. These results are further justified by the regression coefficients on the cross-product of accounting information and the IFRS dummy variable, which indicate that the role of BVPS has increased significantly following IFRS adoption at the 5% level (Panel E, Table 6.18). The results for the return model (Panel E, Table 6.19) show that neither the earnings level nor the change in the earnings level are affected by the adoption of IFRS since their cross-product with IFRS dummy variable is not significant at the 5% level. Similar findings are reached when applying the comparative year approach (see Table 6.20 for the price model and Table 6.21 for the return model). Therefore, the study rejects the null hypothesis of $H_0$5 since the individual value relevance of book values of equity increased significantly because of IFRS adoption.

With regard to $H_0$6, the results in Panel D of Table 6.18 clearly show that the incremental contribution of book values of equity beyond earnings to the overall Adj R^2 increased from only 0.30% for the Saudi GAAP period (2015–2016) to 4.30% for the IFRS period (2017–2018). This is a significant increase in the role of book values of equity for market valuation during the IFRS period. This is further confirmed by the yearly regression coefficients of the book values of equity for the years 2017 and 2018. Hence, the study rejects the null hypothesis $H_0$6. This finding is attributed to the impact of IFRS adoption on the role of the balance sheet by imposing a greater use of fair value measurement.

To test $H_0$7 about the individual incremental value relevance of accounting information caused by the adoption of IFRS during the comparative year, the regression coefficients on the difference between IFRS-based and Saudi GAAP-based information are to be considered. Panel E of Table 6.20 for the price model shows that the IFRS-based book values of equity (earnings) have

(does not have) incremental value relevance beyond those prepared under Saudi GAAP. For the return model (Panel B, Table 6.21), the results show that IFRS adoption provides no incremental value relevance of earnings level beyond Saudi GAAP, which is consistent with the price model findings. In line with the expectation of the study, the null hypothesis of $H_0$7 is rejected, suggesting that IFRS adjustment to the book values of equity does provide incremental value relevant information to equity investors in Saudi Arabia.

As for the last hypothesis ($H_0$8) under this section, which compares the effect of IFRS adoption on the relative and incremental value relevance of each accounting measure separately (i.e. EPS v. BVPS), the results of the price model for both the pre and post IFRS approach (Table 6.18) and the comparative year approach (Table 6.20) show that the regression coefficients on the book value of equity (earnings) only became significant when prepared under IFRS (always significant). This indicates that IFRS affects the relative value relevance of the book value of equity to a greater extent than that of earnings. With regard to the impact of IFRS on the incremental value relevance, the pre- and post-IFRS approach shows that the incremental contribution of book values of equity (earnings) increased from 0.30% (22.80%) for the Saudi GAAP period to 4.30% (23.00%) for the IFRS period (see Panel D, Table 6.18). Similarly, the comparative year approach shows that the book values of equity (earnings) provided an incremental contribution of 0.50% (19.00%) and 2.20% (17.50%) for the Saudi GAAP and IFRS periods, respectively. The increase in the incremental value relevance of the book value of equity of 4% for the pre- and post-IFRS approach and 1.70% for the comparative year approach is higher than the increase in the incremental value relevance of earnings of 0.20% and the decrease of 1.50% for the pre- and post-IFRS approach and the comparative year approach, respectively. Therefore, the study rejects the null hypothesis of $H_0$8.

Unlike in the IFRS period (2017–2018), the regression coefficients on BVPS are not statistically significant during the Saudi GAAP period (2015–2016). The use of the historical cost principle to measure balance sheet items, as required by Saudi GAAP, could be the main reason for BVPS to be less relevant. This is in line with the prediction and findings of Liang and Riedl (2014) that balance sheet items reveal more relevant private information when these are measured at fair value rather than historical cost. This argument has been empirically supported by Khurana and Kim's (2003) study on US bank holding firms during 1995–1998 that found that fair value is more value relevant than historical cost if determined appropriately. More recent evidence from

25 European countries provided by Liao et al. (2021) also showed that the use of fair value is far superior to historical cost for balance sheet items in providing more value relevant information, especially during a financial crisis. This also justifies the dominant role of the statement of profit or loss in Saudi Arabia.

The regression coefficients on BVPS became significant following IFRS adoption, indicating an improvement in the role of balance sheet under IFRS. Despite the significant increase in the role of book values of equity caused by IFRS adoption in Saudi Arabia, it does not qualify to be considered a significant impact on the overall value relevance of accounting information since earnings were not affected significantly by the adoption. This finding is consistent with that of prior studies that have found that improvement in the value relevance is confined to the book values of equity after IFRS adoption and have attributed this improvement to the fair value measurement principle in IFRS (e.g. Gjerde et al., 2008; Hung & Subramanyam, 2007; Kargın, 2013; Kaushalya & Kehelwalatenna, 2020; Oliveira et al., 2010; Păşcan, 2015; Tsalavoutas et al., 2012).

Since the results suggest that the impact of IFRS is through the book values of equity, the study further analyses the financial reports of the selected sample to explore what drove the large changes in book values of equity. The required data for the analysis were collected from the financial reports of the comparative year (2016) since the comparative figures provide the opportunity to identify the changes in book values of equity as a result of IFRS implementation. Hence, the analysis is conducted on all firms that changed their book values of equity by at least 5%, which is 27 firms. The analysis shows that 20 of these 27 firms were significantly affected by the introduction of fair value measurement. Of these 20 firms, 15 had their assets impaired owing to the decrease in their fair value, which is required to determine the recoverable amount of an asset when conducting an impairment test as prescribed in IAS 36. This decrease accounted for 80.42% of the total changes in the book values of equity of these 15 firms. Four firms had significant alteration to their book values of equity because of the remeasurement of their financial assets and liabilities using fair values, as per IAS 39/IFRS 9, with an average effect on book values of equity of 60.25%. Two firms had a significant drop in their agricultural produce and biological assets owing to the remeasurement using fair value, as per IAS 41, with an average effect on the book values of equity of 83.00%. In total, the average impact of fair value measurement on the total change in the book values of equity of firms selected for the analysis is 58.69%. Therefore,

the impact of IFRS adoption in Saudi Arabia on book values of equity is mainly due to the application of fair value measurement.

7.4 Value Relevance Among Firms With Different Characteristics Pre and Post IFRS Adoption

This section addresses the third research objective (RO_3), which seeks to evaluate the influence of firm-specific characteristics on the value relevance of accounting information pre and post IFRS adoption. This led the study to ask the following research questions (RQs):

> RQ6: To what extent do the selected firm characteristics influence the value relevance of accounting information in Saudi Arabia?
>
> RQ7: To what extent did IFRS adoption alter the value relevance of accounting information of firms with different characteristics?

To answer these research questions (RQs), the following null hypotheses are tested in this section:

- **Firm size hypotheses:**

  H_09_a: The combined value relevance of accounting information of large firms did *not* differ from that of small firms during the study period (2015–2018).

  H_09_b: IFRS did *not* have significant effects on the difference in the value relevance of the accounting information of firms of different sizes.

- **Profitability hypotheses:**

  H_010_a: During the study period (2015–2018), the accounting information of profit-making firms was *not* jointly more value relevant than that of loss-making firms.

  H_010_b: Earnings were *not* more value relevant than book values of equity in profit-making firms during the study period (2015–2018).

  H_010_c: Book values of equity were *not* more value relevant than earnings in loss-making firms during the study period (2015–2018).

  H_010_d: IFRS adoption did *not* affect the value relevance of accounting information in loss-making firms.

- **Audit quality hypotheses:**

$H_0 11_a$: The combined and relative value relevance of the accounting information of firms audited by Big4 firms was not higher than that of firms audited by non-Big4 firms during the study period (2015–2018).

$H_0 11_b$: The impact of IFRS adoption on the value relevance of accounting information was not higher among firms audited by Big4 firms.

- **Potential growth hypotheses:**

  $H_0 12_a$: The value relevance of the accounting information of firms with low potential growth did *not* differ from that of firms with high potential growth during the study period (2015–2018).

  $H_0 12_b$: IFRS did not have a significant impact on the value relevance of accounting information of firms with high potential growth.

- **Industry hypotheses:**

  $H_0 13_a$: The relative and combined value relevance of the accounting information of manufacturing firms did *not* differ from that of non-manufacturing firms during the study period (2015–2018).

  $H_0 13_b$: IFRS adoption did not have a significant impact on the difference in the value relevance of accounting information between manufacturing and non-manufacturing firms.

- **Leverage hypotheses:**

  $H_0 14_a$: The accounting information of low leveraged firms was not jointly and individually more value relevant than that of high leveraged firms during the study period (2015–2018).

  $H_0 14_b$: IFRS adoption did not improve the value relevance of the accounting information of high leveraged firms.

- ***Gender of the board members hypotheses:***

  $H_0 15_a$: The accounting information of firms with only male members on the board was not jointly and individually more value relevant than that of Firms with mixed-gender members during the study period (2015–2018).

  $H_0 15_b$: IFRS adoption did not have a significant impact on the difference in the value relevance of accounting information between firms with only male members and firms with mixed gender members on the board.

- ***The sentiment firm's financial news hypotheses:***

$H_0 16_a$: The accounting information of good news firms was not jointly and individually more value relevant than that of bad news firms during the study period (2015–2018).

$H_0 16_b$: IFRS adoption did *not* have a significant impact on the difference in the value relevance of accounting information between good news firms and bad news firms.

To test these hypotheses ($H_0 9$–$H_0 16$), the study uses the overall significance of the model (i.e. Adj R2), the results of the Cramer (1987) test and the regression coefficients of the price model pre and post IFRS adoption. These results are reported in Table 6.22 based on the selected firm characteristics by splitting the sample according to firm size (Panel A), profitability (Panel B), audit quality (Panel C), industry affiliation (Panel D), potential growth (Panel E), leverage (Panel F), gender of the board members (Panel G) and the sentiment of firm's financial news (Panel H).

7.4.1 Large v. Small Firms

The results (Panel A, Table 6.22) indicate that large firms provided accounting information that is of higher value relevance (Adj R^2) than that of small firms during both periods as supported by the Cramer *Z*-statistic values (see Section 6.7.1). Hence, the null hypothesis of $H_0 9_a$ is rejected. This finding contrasts with the argument that small firms should exhibit higher value relevance (R^2) as investors have very limited sources of information about their performance, which makes their financial statements of high relevance to investors (Brimble & Hodgson, 2007; C. J. Chen et al., 2001; Lam et al., 2013). However, it is supported by the opposing argument that claims that investors do not place great weight on the accounting information of small firms since this group usually includes startups that are incurring losses (Collins et al., 1997; Hayn, 1995). Unlike the earnings of small firms, the earnings of large firms are usually deemed to be persistent from the investor's perspective since they 'have more stable and predictable operations and more opportunities to diversify risk across divisions and business activities' (Gaio, 2010, p. 706). Habib and Azim (2008) have argued that large firms are usually more profitable firms that are audited by Big4 auditors, attributing the higher value relevance to these factors rather than the size of the firm.

However, when referring to the regression coefficients, the book values of equity for both groups of firms (i.e. large and small firms) were not significantly different from 0 during the Saudi GAAP period but increased significantly during the IFRS period (see Section 6.7.1). This supports the main findings of the study (see Section 7.3) concerning the impact of IFRS on the book values

of equity. The regression coefficients on earnings for large firms are always statistically significant at the 1% level, whereas those for small firms are less significant (see Section 6.7.1). This is in line with Hayn's (1995) argument that investors view the earnings of small (large) firms as transitory (permanent).

Regarding the impact of IFRS on differences in the value relevance of accounting information (Adj R^2) between firms of different sizes, it appears that IFRS has a similar effect on both firm size groups. This is evidenced by the fact that the gap between the two groups remained unchanged after the adoption, indicating that large firms had higher (Adj R^2) value relevant accounting information during both periods. This indicates that the effect of firm size dominates the effect of IFRS adoption, which only affected the book values of equity for both firm size groups. The overall impact of IFRS adoption on the Adj R^2 values are insignificant for both firm size groups (Panel A, Table 6.22). Hence, the null hypothesis of $H_0 9_b$ is not rejected. This is in line with the current study's prediction and the findings of prior studies that claimed that large firms are already applying advanced accounting practice that is closer to IFRS (Chalmers et al., 2011; Goodwin et al., 2008; Van der Meulen et al., 2007), while small firms are less likely to be affected by the adoption since their economic operations are not complicated (Gastón et al., 2010).

7.4.2 Positive v. Negative Earnings

The results for profit-making firms v. loss-making firms (Panel B of Table 6.22) show that the accounting information of the former is more value relevant than that of the latter, which were not significant during both Saudi GAAP and IFRS period (see Section 6.7.2). This is line with the prediction of the study, and hence, the null hypothesis of $H_0 10_a$ is rejected. This finding is consistent with that of prior empirical studies (C. J. Chen et al., 2001; Hayn, 1995; He, Tan, & Wong, 2020; Jiang & Stark, 2013) and the theoretical framework of Ohlson (1995), which suggests that investors consider that the earnings of profit-making firms will persist in the future. Another possible argument for this finding is that investors view the accounting information of profit-making firms as that of a going concern while they view this information of loss-making firms as that of an abandonment option (Hayn, 1995). This also depends on how investors assess the potential profitability of loss-making firms (Dorminey, Sivakumar, & Vijayakumar, 2018).

To test hypotheses ($H_0 10_b$ and $H_0 10_c$), the significance of the regression coefficients on the book values of equity and earnings for the two groups are to be considered. The regression

coefficients on both accounting measures for loss-making firms are insignificant during the Saudi GAAP and IFRS periods (see Panel B, Table 6.22). This is also reflected in the Adj R^2 values, which are insignificant during both periods for loss-making firms. Hence, the study fails to reject the null hypothesis of $H_0 10_c$. For profit-making firms, in contrast, the coefficients on earnings are significant at the 1% level during both periods. However, the coefficients on their book values of equity are only significant at the 1% level during the IFRS period. Again, this supports the main findings of the study (see Section 7.3) on the impact of IFRS adoption on the book values of equity. These findings lead to the rejection of the null hypothesis of $H_0 10_b$.

The finding that the earnings of profit-making firms are always value relevant is attributed to the argument that equity investors view earnings as permanent and thus place a greater weight on earnings as an indicator of future earnings (Collins et al., 1999). This is consistent with this study's findings. Conversely, the finding that the earnings coefficients of loss-making firms are negative and insignificant (Hayn, 1995), which is the case in this study, is attributed to the argument that investors view losses as transitory and not permanent. However, the study's findings contradict the argument that suggests that investors of loss-making firms place a greater weight on the book values of equity as a proxy for abandonment or liquidation value (Collins et al., 1997). Similar findings were reported by C. J. Chen et al. (2001) and Badu and Appiah (2018), who found the accounting information, including the book values of equity, of loss-making firms to be irrelevant. This could be attributed to the argument that investors of loss-making firms rely on other accounting information, such as R&D expenditures and dividends (Franzen & Radhakrishnan, 2009; Jiang & Stark, 2013) or past accounting information to determine the likelihood of a loss reversal (Joos & Plesko, 2005) or other non-accounting information, such as firms' potential growth (see Section 3.114). Therefore, the findings suggest that the accounting information of loss-making firms is irrelevant in Saudi Arabia and the book values of equity cannot be used as an alternative measure of firms' value when firms are generating losses.

With regard to the impact of IFRS ($H_0 10_d$), only profit-making firms benefited from the adoption, through improving the value relevance of the book values of equity, as shown by the increase in the Adj R^2 value from 59% in the Saudi GAAP period to 72.2% in the IFRS period. The accounting information of loss-making firms, in contrast, was irrelevant regardless of the accounting standards being implemented. Similar results were found by prior studies (e.g. Elbakry et al., 2017; Karampinis & Hevas, 2011); this confirms that the impact of IFRS is limited to profit-

making firms only. Hence, the null hypothesis of $H_0 10_d$ is not rejected. This is in line with the argument that investors do not rely on accounting information when valuing loss-making firms. Therefore, IFRS adoption in Saudi Arabia has no influence on the value relevance of the accounting information of loss-making firms.

7.4.3 Big4 v. Non-Big4 Firms

In line with the study's prediction, firms audited by Big4 firms provided accounting information that was of higher value relevance (i.e. Adj R^2) than those audited by non-Big4 firms during the Saudi GAAP and IFRS periods (see Section 6.7.3). This is confirmed by the Cramer *Z*-statistic values pre and post IFRS adoption (Panel C, Table 6.22). Hence, the null hypothesis of $H_0 11_a$ is rejected. This finding is supported by those of prior empirical studies on value relevance (e.g. Alali & Foote, 2012; C. Lee & Park, 2013). A possible justification for the variation between the Big4 and non-Big4 groups is that investors have more confidence in the accounting information audited by the Big4 firms since they are better trained to constrain aggressive earnings management and are more likely than non-Big4 firms to issue going concern warnings (J. R. Francis & Wang, 2008). This is because Big4 auditors are more independent (DeAngelo, 1981; Watts & Zimmerman, 1986) and sensitive about their reputation (J. R. Francis & Wang, 2008) and have better training programs for their staff (Craswell, Francis, & Taylor, 1995; DeFond, Francis, & Wong, 2000).

With regard to the impact of IFRS adoption ($H_0 11_b$), both groups benefited from the adoption. Again, this improvement in the value relevance of accounting information is due to the increased usefulness of book values of equity to investors as a result of the fair value measurement under IFRS (see Section 7.3). This finding is confirmed by the regression coefficients on the book values of equity, which became statistically significant following IFRS adoption. In relation to the difference in impact of IFRS adoption between the two groups, the accounting information of firms audited by the Big4 firms during the IFRS period achieved the highest Adj R^2 value of 80.10% between the two groups. Hence, the null hypothesis of $H_0 11_b$ is rejected. This is, indeed, in line with the study's expectation because Big4 firms are not only better trained to deal with the IFRS reporting regime (Armstrong et al., 2010) but also collaborate with IASB by providing financial and professional resources in terms of funds and volunteers (Camfferman & Zeff, 2007). Overall, these findings are consistent with those of prior relevant literature regarding the higher relevance

of accounting information audited by the Big4 firms, in general, and during the IFRS period, in particular.

7.4.4 High Potential Growth v. Low Potential Growth Firms

The Cramer (1987) *Z*-statistics values (Panel E, Table 6.22) show that firms with low potential growth had higher value relevant accounting information than those with high potential growth, both during the Saudi GAAP period and the IFRS period (see Section 6.7.5). Hence, the null hypothesis of $H_0 12_a$ is rejected, suggesting that firms with different levels of potential growth in Saudi Arabia have different levels of accounting information value relevance. This finding is consistent with that of prior empirical studies, which have found that the lower the potential growth, the higher the value relevance of accounting information (e.g. Dontoh et al., 2007; Frank, 2002; Lam et al., 2013). A possible explanation for this finding is that firms with low potential growth usually include mature firms with a stable level of earnings, which leads investors to place a greater weight on the reported earnings based on the assumption that the earnings will persist in future (Charitou et al., 2001).

In relation to the impact of IFRS adoption ($H_0 12_b$), the combined value relevance of both groups increased after the adoption of IFRS. However, the impact on firms with high potential growth was greater than that on their counterparts. This increase is statistically significant as indicated by the (un-tabulated) value of the Cramer (1987) *Z*-statistic of 2.264, which is significant at the 5% level. Again, this increase is due to the effect of fair value measurement under IFRS (see Section 7.3) since the regression coefficient on the book values of equity of firms with high potential growth became statistically significant only during the IFRS period. Hence, the study rejects the null hypothesis of $H_0 12_b$. This contradicts the study's prediction and the findings of prior empirical studies that have suggested that IFRS adoption should not affect firms with high potential growth since the investors of such firms rely more on non-financial information when valuing these firms (e.g. Dontoh et al., 2004; Lam et al., 2013). A possible justification is that firms with high potential growth, which usually include small firms and startups with limited sources of information, have the incentive to produce high-quality accounting information to gain investors' and lenders' trust. Consequently, investors rely more on the disclosed financial information of these firms.

7.4.5 Manufacturing v. Non-Manufacturing Firms

The results for manufacturing v. non-manufacturing firms (Panel B of Table 6.22) indicate that the combined value relevance of accounting information (Adj R^2) between the two groups did not differ substantially during the Saudi GAAP and IFRS periods as indicated by the Cramer (1987) *Z*-statistic values (see Section 6.7.4). Hence, the study fails to reject the null hypothesis of $H_0 13_a$. This finding is inconsistent with that of prior empirical studies that found that the value relevance of accounting information is lower among technology-based firms with highly intensive use of intangible assets (e.g. Amir & Lev, 1996; Collins et al., 1997; Lev & Zarowin, 1999). Despite the arguments that suggest that manufacturing (non-manufacturing) firms that produce have less (high) intangible assets intensity (Badu & Appiah, 2018), the study's findings confirm that the partitioning according to the manufacturing status does not distinguish between technology-based and industrial-based firms. In fact, a limited number of listed firms belong to the tech/services-based group.[52] The need for economic transformation in Saudi Arabia from an oil-dependent economy to a knowledge-based economy has been acknowledged by Saudi officials. This had led to the launch of Vision2030 in 2016 (see Section 2.5). Therefore, the number of service/tech-based firms is expected to grow in the future in Saudi Arabia.

With regard to the impact of IFRS adoption ($H_0 13_b$), the results (Panel B of Table 6.22) show that the combined value relevance of the accounting information of both groups increased following IFRS adoption. However, this increase is more pronounced among manufacturing firms since their regression coefficients on the book values of equity became statistically significant at the 1% level after IFRS adoption. This further confirms the main findings of the study, which suggests that the impact of IFRS is confined to the role of the balance sheet (see Section 7.3). The book values of equity of non-manufacturing firms were not affected by the adoption (see Section 6.7.4). Hence, in line with the study's prediction, the null hypothesis of $H_0 13_b$ is rejected since the two groups were affected differently by the adoption. A possible justification for the improvement being restricted to manufacturing firms is that they have substantial investments in property, plant, and equipment (Kerstein & Kim, 1995), which are the components of the balance sheet that are more likely to be affected by the introduction of the fair value measurement within IFRS.

[52] Four telecommunication firms, two software and services firms and one pharmaceutical firm.

7.4.6 High Leveraged v. Low Leveraged Firms

In line with the study's prediction, low leveraged firms provided accounting information of higher value relevance (higher Adj R^2) than that of high leveraged firms during the Saudi GAAP and IFRS periods (see Section 6.7.6). This fining is confirmed by the values of the Cramer *Z*-statistic pre and post IFRS adoption (Panel F, Table 6.22). Hence, the null hypothesis of $H_0 14_a$ is rejected. This finding is consistent with the prediction of the study and the findings of prior empirical studies (e.g. Ertugrul, 2021; Gaio, 2010; Habib & Azim, 2008). It is also supported by the argument that high leveraged firms, which include small and less mature firms with high expenditure on R&D and expansion (I. Martinez, 2003), are motivated to manipulate financial statements by increasing transitory earnings to avoid debt covenant violations (Habib & Azim, 2008). See Table 6.13 for the pattern among firms with different characteristics. Another possible argument has been provided by Ali and Hwang (2000) who claimed that high leveraged firms share private information with creditors directly, which lowers the quality of the disclosed accounting information. Consequently, the value relevance of accounting information is lower for firms with a high level of leverage. Therefore, high leveraged firms in Saudi Arabia have lower value relevant accounting information regardless of the accounting standards being implemented.

Concerning the impact of IFRS adoption on firms that differ on the leverage level ($H_0 14_b$), the results indicate that neither group was positively affected by the IFRS adoption (Panel F, Table 6.22). Rather, the Adj R^2 for both groups slightly decreased following IFRS adoption. This is in line with the study's prediction, which suggests that IFRS would not improve the value relevance of high leveraged firms. Hence, the null hypothesis of $H_0 14_b$ is not rejected. This is consistent the findings of prior empirical studies (e.g. Ertugrul, 2021; J. A. Martínez et al., 2014; Van der Meulen et al., 2007). The findings are supported by the argument that investors view high leveraged firms' accounting information as most likely to be manipulated (Ertugrul, 2021), and IFRS adoption, per se, does not guarantee higher accounting quality. Thus, investors place a lower (greater) weight on the disclosed accounting information (non-financial based information) of high leveraged firms. This leads to lower value relevant information of high leveraged firms. Therefore, the IFRS adoption in Saudi Arabia has not improved the value relevance of accounting information of high leveraged Saudi listed firms.

7.4.7 Firms With Only Male Members v. Firms With Mixed-gender Members

The results for firms with only male board members v. firms with mixed-gender board members (Panel G of Table 6.22) indicate that the combined value relevance of accounting information (Adj R^2) between the two groups differed substantially during the Saudi GAAP and IFRS periods as indicated by the Cramer (1987) *Z*-statistic values (see Section 6.7.7). Hence, the null hypothesis of $H_0 15_a$ is rejected. This is in line with the prediction of the study which suggest that firms with mixed-gender members on their boards or in their management teams have been found to exhibit better financial performance and more value-relevant accounting information than those with only male members (see Section 3.11.7). This is supported by the argument that the engagement of female members contributes to better decision-making and problem-solving (Carter et al., 2003), which stems from the notion that individuals from diverse backgrounds bring unique experiences and perspectives to the table, resulting in more effective decision-making (Joecks, Pull, & Vetter, 2013).

Another argument suggests that firms with mixed-gender boards and management teams are more likely to exhibit ethical behaviour and a greater sense of social responsibility (Bear et al., 2010). In turn, this can lead to improved financial reporting quality and increased value relevance of accounting information, which are important for investors and other stakeholders. In addition, firms with diverse boards are less likely to engage in financial misreporting or aggressive accounting practices (Krishnan & Parsons, 2008). This can be attributed to the increased scrutiny that comes with gender diversity, leading to higher-quality financial reporting and increased value relevance of accounting information.

In Saudi Arabia, traditional cultural values and gender norms may influence the dynamics of mixed-gender boards, resulting in different decision-making processes compared to all-male boards (See section 2.3.1). Further, there has been a recent push for gender diversity in corporate leadership, which has resulted in a greater emphasis on the importance of mixed-gender boards and management teams. This trend has been supported by the Vision 2030 initiative of the Saudi government, which aims to increase women's participation in the workforce and promote gender diversity in leadership positions (See section 2.3.1). The Vision 2030 is considered as an institutional pressure for gender diversity. Studies in the Saudi context have also shown the benefits of gender diversity on financial performance and the value relevance of accounting

information. For example, Al-Matari and Alosaimi (2022) found that gender diversity in the boards of Saudi-listed companies enhances corporate performance, suggesting that diverse boards produce more value-relevant accounting information. Therefore, firms in Saudi Arabia are expected to appoint female members to the board of directors as a way of gaining legitimacy and support from stakeholders and may enhance the reputation of firms and lead to higher value relevance of their accounting information.

From an institutional theory perspective, gender diversity in leadership positions can be seen as a response to institutional pressures. In this case, firms may adopt mixed-gender leadership structures due to mimetic pressures (imitating successful organisations) and normative pressures (conforming to established norms or best practices) (DiMaggio & Powell, 1983). Thus, firms with mixed-gender members may be perceived as more legitimate and better aligned with stakeholder expectations, as they reflect the diverse nature of society and the workforce (Dezsö & Ross, 2012). Further, firms with mixed-gender boards and management teams may be more likely to adhere to regulations and adopt good governance practices, as they are seen as more responsive to the institutional environment (Adams & Ferreira, 2009). Taken together, the accounting information of firms with mixed-gender members are expected to be more value relevant than their counterparts. Therefore, firms with mixed-gender members in Saudi Arabia have higher value relevant accounting information regardless of the accounting standards being implemented.

Concerning the impact of IFRS adoption on firms that differ on the gender composition of their boards ($H_0 15_b$), the results indicate that both groups was positively affected by the IFRS adoption (Panel G, Table 6.22). However, neither group was significantly affected by the IFRS adoption as the Adj R^2 for both groups slightly increased following IFRS adoption from 39.40% to 47.20% and from 53.70% to 65.20% for firms with only male members and firms with mixed gender members, respectively. This slight increase does not qualify to be considered as a major effect of IFRS. Hence, the null hypothesis of $H_0 15_b$ is not rejected. A possible justification for the findings is that the period of this study is immediately following IFRS adoption which may have been characterized by a learning curve and adjustment process for both firms and their stakeholders. As a result, the expected improvements in the value relevance of accounting information may not have been immediately observable for both types of firms. Therefore, the adoption of IFRS in Saudi Arabia has not yet increased the value relevance of accounting information of Saudi-listed firms with differing gender board composition.

However, the increase of the Adj R^2 for firms with mixed gender members (11.50%) after IFRS became mandatory in Saudi Arabia is more than that of firms with only male members (7.80%). This is in line with the study's prediction, which suggests that the impact of IFRS adoption is expected to be more pronounced among firms with mixed gender members (see Section 4.5.4). This is because gender diversity contributes to better decision-making, enhanced professional judgment, improved corporate governance, and increased stakeholder trust, ultimately leading to effective implementation of IFRS.

7.4.8 Good News Firms v. Bad News Firms

In line with the study's prediction, good news firms provided accounting information of higher value relevance (higher Adj R^2) than that of bad news firms during the Saudi GAAP and IFRS periods (see Section 6.7.6). This finding is confirmed by the values of the Cramer *Z*-statistic pre and post IFRS adoption (Panel H, Table 6.22). Hence, the null hypothesis of $H_0 16_a$ is rejected. This finding is consistent with the prediction of the study and the findings of prior empirical studies (e.g. Ball & Brown, 1968; Francis & Schipper, 1999; Koonce & Lipe, 2010). One possible explanation is good news firms typically have stronger financial performance and greater growth potential, making their accounting information more valuable to investors. In contrast, bad news firms may have weaker financial performance and lower growth potential, thereby diminishing the perceived value of their accounting information (Huang, Li, Tse & Tucker, 2018).

Another possible explanation is that good news firms tend to have more transparent and reliable financial reporting practices. For example, good news firms may be more likely to disclose detailed information about their business operations, financial risks, and future prospects, which enhances the credibility and usefulness of their financial statements. In contrast, bad news firms may be more likely to engage in earnings management or other accounting practices that reduce the reliability and relevance of their accounting information (Healy & Wahlen, 1999).

In addition, good news firms are frequently associated with stronger corporate governance structures and more effective internal controls, which can further improve the reliability and relevance of their accounting information. For instance, positive news firms typically have more independent and diverse boards of directors, stronger audit committees, and more stringent internal audit processes, which reduces the risk of financial misstatements and increases investor

confidence in their financial reports (Beasley, Carcello, Hermanson & Lapides, 2000). Therefore, good news firms in Saudi Arabia have higher value relevant accounting information regardless of the accounting standards being implemented.

Concerning the impact of IFRS adoption on firms that differ on the quality of firm' news ($H_0 16_b$), the results indicate that neither group was significantly affected by the IFRS adoption (Panel H, Table 6.22). Rather, the Adj R^2 for bad news firms slightly decreased following IFRS adoption. This is in line with the study's prediction, which suggests that IFRS would not improve the value relevance of bad news firms as they tend to resist proper IFRS application in order to avoid revealing negative information. Hence, the null hypothesis of $H_0 16_b$ is not rejected. The findings are supported by the argument that investors view bad news firms' accounting information as most likely to be manipulated (Healy & Wahlen, 1999), and IFRS adoption, per se, does not guarantee higher accounting quality. Thus, investors place a greater (lower) weight on the disclosed accounting information of good news (bad news) firms. This leads to lower value relevant information of bad news firms. Therefore, the IFRS adoption in Saudi Arabia has not improved the value relevance of accounting information of Saudi listed firms with bad news.

7.5 Summary of Research Findings

Given that all research hypotheses were expressed in the negative form, Table 7.1 summarises the expected findings versus the actual findings on testing these hypotheses.

Table 7.1

Summary of Research Objective, Questions and Their Corresponding Hypotheses Status

No.	Research Objective	Research Questions	Topic	Null H	H Status	
					Hypothesised Status	Actual Status
1	RO_1	RQ_1	Value relevance in Saudi Arabia	H_01	Reject	Rejected
				H_01_a	Reject	Accepted
				H_01_b	Reject	Rejected
		RQ_2		H_02	Reject	Accepted
2	RO_2	RQ_3	Impact of IFRS adoption	H_03	Accept	Accepted
				H_04	Accept	Accepted
		RQ_4		H_05	Reject	Rejected
				H_06	Reject	Rejected
				H_07	Reject	Rejected
		RQ_5		H_08	Reject	Rejected
3	RO_3	RQ_6	Impact of firms' characteristics	$H_0\underline{9_a}$	Reject	Rejected
				H_09_b	Accept	Accepted
				H_010_a	Reject	Rejected
				H_010_b	Reject	Rejected
				H_010_c	Reject	Accepted
				H_010_d	Accept	Accepted
				H_011_a	Reject	Rejected
				H_011_b	Reject	Rejected
		RQ_7		H_012_a	Reject	Rejected
				H_012_b	Accept	Rejected
				H_013_a	Reject	Accepted
				H_013_b	Reject	Rejected
				H_014_a	Reject	Rejected
				H_014_b	Accept	Accepted
				H_015_a	Reject	Rejected
				H_015_b	Reject	Accepted
				H_016_a	Reject	Rejected
				H_016_b	Reject	Accepted

7.6 Major Contributions and Implications of This Study

This study provides the following significant contributions and implications regarding the impact of IFRS adoption and country-level and firm-level factors on the value relevance of accounting information of non-financial listed firms in Saudi Arabia during 2015–2018.

First, the study fills the gap in the scarce value relevance literature on developing countries, in general, and Saudi Arabia, in particular, a country that is very distinctive in terms of its legal, political and cultural aspects that differentiate it from other countries (see Chapter 2), given that most studies pay attention to developed countries (see Section 3.9). It complements prior empirical Saudi-based studies by providing more recent evidence of the value relevance of accounting information in Saudi Arabia (2015–2018) using a more refined methodology. It advances Saudi-based studies through proper implementation of the valuation models (see Section 3.9.4). To the best of the author's knowledge, the current study is the first to employ both the Vuong (1989) and Cramer (1987) tests to measure the change in the adjusted R^2 values caused by IFRS adoption in Saudi Arabia. Therefore, researchers interested in the value relevance in Islamic and Arabic countries, particularly Saudi Arabia, would find this study to be a valuable resource.

Second, the study's findings reveal that the level of value relevance (Adj R^2) in Saudi Arabia is comparable with those of developed countries. This finding highlights that the Saudi country-level factors (see Chapter 2), which influence the financial reporting, are deemed adequate in providing value relevant accounting information. It also shows that investors in Saudi Arabia are rational when using accounting information. Therefore, this should have implications for the official bodies in Saudi Arabia (e.g. MC, CMA, SAMA, Tadawul and SOCPA) and current and potential investors and financial analysts engaged in Tadawul, as well as for other countries with similar characteristics to Saudi Arabia.

Third, the current study is, to the best of the author's knowledge, the first to provide timely empirical findings on the effect of IFRS adoption on the value relevance in Saudi Arabia. Thus, this study responds to the call for more in-depth single-country studies to examine the impact of IFRS adoption (Weetman, 2006) on the value relevance in developing country (Kaaya, 2015). Specifically, it responds to a recent call by Nurunnabi et al. (2020) who urged that empirical research be conducted to provide evidence about the impact of IFRS implementation in Saudi Arabia. Thus, this study contributes to the literature by examining a recent adoption of IFRS, which is considered the biggest event in the financial reporting history

(Hung & Subramanyam, 2007), in the largest stock exchange in the Middle East region (Rehman, 2018). Conducting a single-country study controls for country-specific institutional factors (e.g. legal, political and cultural differences) that may affect the reliability and validity of the findings in a multi-country study (Ruland et al., 2007). Therefore, the study's findings should have implications for accounting standards setters who would be interested in the effect of implementing IFRS on the usefulness of financial reporting. This study should be of particular importance to IASB since it assesses the two fundamental qualitative characteristics (relevance and reliability) of accounting information that are specified in the IASB Framework (Barth et al., 2001).

Fourth, it provides a comprehensive evaluation of the influence of firms' characteristics on the value relevance of accounting information pre and post IFRS adoption in Saudi Arabia. Previous Saudi-based value relevance studies did not consider the effect of firm-level factors on the level of value relevance of accounting information (see Section 3.9.4). The results about the influence of firm characteristics should have implications for the selected firms regarding the perception of the value relevance of their accounting information by market participants. This could urge those firms that have been identified as having lower value relevant accounting information (in general and during the IFRS period, in particular) to advance their knowledge about IFRS and undertake training programs. Auditing firms operating in Saudi Arabia should find the study's findings useful because these reveal how market participants perceived the accounting information that they have audited pre and post IFRS implementation.

Last, this study, as only the second study to apply both the pre/post IFRS methodology and the comparative year methodology to the same IFRS implementation, should help give assurance, owing to the very similar results under both approaches, that the most frequent results in the literature, using the pre/post IFRS methodology, are valid despite it being the weaker methodology because of its failure to control for other possibly relevant factors across the years and for time-series and cross-sectional issues, such as non-stationarity and spurious ratio problems.

7.7 Limitations and Direction for Future Studies

As with any research, this thesis has some limitations that could be considered in future studies. The study has four potential limitations, which are related to its sample, period and accounting quality metric used. These limitations are outlined next.

First, financial and unlisted firms in Saudi Arabia were excluded from the study sample. This is because financial firms use different accounting practices and follow different regulations (Hellström, 2006; Kouki, 2018). It is also because they have adopted IFRS prior to non-financial firms (see Section 3.3). Unlisted firms were excluded because they adopted IFRS (in 2018) after non-financial listed firms (see Section 3.3) and are not subject to public disclosure. Hence, future studies could consider examining the value relevance of accounting information among financial and unlisted firms.

Second, because this is a single-country study, the results cannot be generalised. However, conducting a single-country study is preferable for controlling institutional factors between countries. Future research could include a sample of countries with similar institutional factors but different accounting standards (e.g. a comparison within Arab or Muslim countries) in order to gain a better understanding of the impact of accounting standards on the value relevance of accounting information. Alternatively, cross-country studies could be conducted using a sample of countries that use the same accounting standards (i.e. IFRS) but have different institutional factors (e.g. Middle Eastern countries versus Western countries). Such studies should provide valuable insight into the impact of institutional factors on the value relevance of accounting information.

Third, the study period is relatively short since the IFRS period is considered a transition period, which may create some noise in the results. This factor could justify the overall finding of no significant impact of IFRS adoption on the value relevance of accounting information. Thus, a more in-depth study that interviews or surveys people responsible for IFRS implementation may be required to determine the reasons behind this finding precisely. However, this period is essential to this study since the comparative year approach, which is a superior research design, can only be conducted during the year of IFRS adoption. Future studies could examine the long-term effects of IFRS by extending the IFRS period to allow sufficient time for IFRS effects to manifest. This is of particular importance to the case of IFRS adoption in Saudi Arabia where some IFRS (i.e. IAS 16, IAS 38 and IAS 40) were deferred during the study period. This deferral is deemed to have a major impact on the expected effect of IFRS adoption on the financial statements, in general, and the balance sheet (equity book values), in particular. Thus, the effect of these deferred IFRS should be considered in future studies.

Fourth, this study considers the effect of IFRS adoption on accounting quality using only one market-based metric: financial reporting quality (i.e. value relevance). Future studies

could consider other measures of accounting quality, such as accrual quality, earnings persistence, earnings predictability, earnings smoothness (accounting-based metrics), timeliness and conservatism (market-based metrics). Such studies should provide stronger evidence of the effect of IFRS on accounting quality in Saudi Arabia and will lead to better and more reliable findings.

Despite these limitations, addressing which are beyond the scope of this study, this thesis makes substantial contributions to the existing body of knowledge concerning the adoption of IFRS and its effect on the value relevance of accounting information in Saudi Arabia.

7.8 Concluding Remarks

The main purpose of the study is to investigate the value relevance of the accounting information of non-financial listed firms in Saudi Arabia during the Saudi GAAP period (2015–2016) and the IFRS period (2017–2018). The secondary purpose is to assess the influence of the specific characteristics of firms on the value relevance of accounting information pre and post IFRS adoption. In particular, the study explores the association between accounting information and market values (RO_1) through the Adj R^2 and regression coefficients of the valuation models (i.e. price and return), whether this association altered after IFRS adoption (RO_2) and whether this association differs according to the different characteristics of firms, pre and post IFRS adoption (RO_3).

The results show that accounting information was value relevant to equity investors in making investment decisions during the study period as indicated by the yearly adjusted R^2 values, which are statistically significant at the 1% level. Employing both the pre-and post-IFRS approach and the comparative year approach, the study documents that although the joint value relevance (R^2) did not improve as a result of IFRS adoption, the relative value relevance of book values of equity significantly improved at the 5% level after IFRS became mandatory in Saudi Arabia, reflecting the importance of fair value measurement under IFRS. However, there was no significant improvement to earnings after IFRS adoption. The study attributes the finding of no change in the joint value relevance (Adj R^2) from Saudi GAAP to IFRS to the fact that IFRS was recently implemented in Saudi Arabia, a country that lacks qualified accountants, research and coverage of IFRS in universities (see Section 7.3). However, it is expected that the value relevance of accounting information will improve gradually in Saudi Arabia by allowing sufficient time for the effects of IFRS adoption to take place.

The study also explores whether the main findings are influenced by firm-specific factors, including size, profitability, audit quality, industry, potential growth, leverage, the sentiment of firm's financial news and gender of the board members. In line with the study's expectations and the extant literature, the findings confirm that large firms, profit-making firms, firms audited by the Big4 firms, firms with low potential growth, low leveraged firms, good news firms and firms with mixed-gender boards always exhibit significantly higher joint value relevance (Adj R^2) than their counterparts do, regardless of the implemented accounting standards. These results are consistent with those of prior research that investors value profitable firms as a going concern (Joos & Plesko, 2005), have more confidence in the accounting information audited by the Big4 firms (J. R. Francis & Wang, 2008), view large firms as more stable with predictable operations (Gaio, 2010) and assume that low leveraged firms with low potential growth have more persistent earnings that are less likely to be manipulated (Habib & Azim, 2008).

Further, the results for firms with mixed-gender boards are consistent with the view that the appointment of female members to the board of directors may signal a commitment to diversity of skills and expertise on the board, inclusivity, and corporate social responsibility, leading to higher value relevance of their accounting information. As for good news firms, the results are consistent with the notion that good news firms have better financing access, lower capital costs, increased legitimacy and trustworthiness, higher investor valuation of their accounting information, and a greater willingness to adopt transparent accounting practises like IFRS to signal their commitment to transparency and comparability. However, the findings do not show that industry, based on manufacturing status, influence the value relevance of accounting information in Saudi Arabia. This finding is attributed to the low number of listed firms in the tech-based industry (see Section 7.4).

The results of all subsamples, using the characteristics of firms, with the exception of loss-making firms, which were not found to provide value relevant information, confirm the main results that IFRS adoption has a positive impact on the book values of equity only. Further, the findings reveal that accounting information (earnings and book values of equity) of firms audited by the Big4 firms are the best at explaining the variation in the share price among all subsamples. This finding suggests that investors have more confidence in the Big4 auditors as regards accounting information prepared under IFRS, with which these auditors are known to be more familiar and experienced (see section 7.4). High leveraged firms and loss-making firms did not benefit from IFRS adoption because the investors of such firms place a

greater weight on non-financial-based information when evaluating these firms. Hence, the switch to IFRS is not expected to affect these firms. These findings are in line with the study's predictions and those of related literature (e.g. Bartov et al., 2005; Van der Meulen et al., 2007), which found no effect of IFRS on high leveraged firms and loss-making firms.

The results suggest that market participants in Tadawul, which is regarded as an emerging and less efficient market (Lamouchi, 2020), are rational in terms of their use of accounting numbers. It also provides evidence of change in the relative value relevance of book values of equity after IFRS adoption, suggesting that the courageous move to IFRS directly serves the need of equity investors who used to ignore the role of the balance sheet (statement of financial position) under Saudi GAAP. The results of subsamples of firms with different characteristics indicate that firm-level factors are more influential than accounting standards in determining the value relevance of accounting information. This means that investors pay more attention to firm-level factors when valuing firms rather than just relying on the quality of the accounting standards. Therefore, these findings should have implications for accounting standards setters (IASB and SOCPA), auditing firms, listed firms and all current and potential investors (i.e. local or foreign) in Saudi Arabia (see Section 7.6).

The current study provides timely evidence about the case of IFRS adoption in Saudi Arabia in response to the overwhelming demand imposed by the ambitious Saudi Vision 2030. This is because IFRS adoption in the country is part of the Vision's objectives of adopting the best international practices and transforming the economy by attracting FDI (see Sections 2.5.1 and 3.2). Therefore, this study would be beneficial to foreign investors intending to invest in Tadawul, for it provides evidence of the usefulness of accounting information in Saudi Arabia, as well as to Saudi policymakers, since it provides a partial evaluation of the implementation of Saudi Vision 2030. However, this study urges future studies to continue monitoring the long-term effect of IFRS adoption on the financial reporting quality, in general, and value relevance, in particular, to provide a useful assessment of the IFRS implementation in Saudi Arabia in order to aid Saudi policymakers, accounting standards setters (i.e. SOCPA and IASB) and all other users of accounting information (e.g. existing and potential investors, customers. lenders, creditors and government agencies).

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Appendices

Appendix 1: CMA Rules and Regulations

Table A1

List of Rules and Regulations Issued by CMA

#	Name	Issuance Year	Amendment Year
1	Glossary of defined terms used in the regulations and rules of the capital market authority	2004	2021
2	Market conduct regulations	2004	2021
3	Securities business regulations	2005	2020
4	Capital market institutions regulations	2005	2020
5	Authorised persons regulations	2005	2017
6	Securities business regulations	2005	-
7	Real estate investment funds regulations	2006	2021
8	Investment funds regulations	2006	2021
9	Instructions for companies' announcements	2006	2019
10	Corporate governance regulations	2006	2017&2021
11	Merger and acquisition regulations	2007	2018
12	The resolution of securities disputes proceedings regulations	2011	2017
13	Prudential rules	2012	-
14	Procedures and instructions related to listed companies with accumulated losses reaching 20% or more of their share capital	2013	2018

#	Name	Issuance Year	Amendment Year
15	The procedures guide for public consultation on the implementing regulations projects	2014	2018
16	Credit rating agencies regulations	2014	-
17	Rules for qualified foreign financial institutions investment in listed securities	2015	2019
18	Instructions for book building process and allocation method in initial public offerings (IPOs)	2016	2019
19	Investment accounts instructions	2016	2018
20	Regulatory rules and procedures issued pursuant to the companies' law relating to listed joint stock companies	2016	2020
21	The guidance note for the investment of non- resident foreigners in the parallel market	2017	2019
22	Rules on the offer of securities and continuing obligations	2017	2021
23	The rules for special purposes entities	2017	2021
24	Financial technology experimental permit instructions	2018	-
25	Instructions on the price stabilisation mechanism in initial public offerings	2018	2021
26	Rules for registering auditors of entities subject to the authority's supervision	2018	-
27	Instructions for investment funds announcements	2018	2021
28	Instructions for the foreign strategic investors' ownership in listed companies	2019	-
29	Securities central counterparties regulations	2019	-
30	Instructions on issuing depositary receipts out of the Kingdom	2020	-

Source: CMA's official website (2021)

Appendix 2: Saudi GAAP Issued by SOCPA

Table A2

Accounting Standards (S) and Professional Opinions (O) Issued by SOCPA and SAA

Year of Issue	Issuer	Type of Issue		Name of Issues	No. of Issues per Year per Type		Accumulated Issues per Type	
					S	O	S	O
1986	SAA	S	-	• Presentation and general disclosure	1	-	1	-
1994	SOCPA	-	O	• When is it permissible for a working entity or under construction to prepare an incomplete set of financial statements, such that it is limited, for example, to a statement of financial position only	-	1	1	1
1995	SOCPA	-	O	• The principle of adjusting the useful life of fixed assets that are fully depreciated but are still in use	-	1	1	2
1996	SOCPA	-	O	• The disclosure and depreciation of unused assets The disclosure of the early production of trees that are in the growth stage	-	2	1	5
1997	SOCPA	S	-	• Foreign currency Inventory Related party disclosure	3	-	4	5
1998	SOCPA	S	-	• Revenue Administration and marketing expenses Research and development cos Consolidation of financial statements investment in securities	5	-	9	5
1999	SOCPA	S	-	• Preliminary financial reports Zakat and income tax (revised in 2016)*	2	-	11	5

Year of Issue	Issuer	Type of Issue		Name of Issues	No. of Issues per Year per Type		Accumulated Issues per Type	
					S	O	S	O
2001	SOCPA	S	-	• Fixed assets Segmental Accounting for leases Segmental Reports	3	-	14	5
2002	SOCPA	S	-	• Accounting for investment according to the equity method Intangible assets	2	-	16	5
2003	SOCPA	S	O	• Accounting for government subsidies and grants (Accounting standard) Capitalization of financing costs for fixed assets (Opinion) Permissibility to reevaluate fixed assets that are depreciated and still in use (Opinion)	1	2	17	6
2007	SOCPA	S	O	• Accounting for the impairment of non-current assets (standard) Earnings per share (standard) Accounting treatment of real estate units that are prepared for sale using the time-sharing system (Opinion)	2	1	19	7
2009	SOCPA	S	O	• Accounting for construction contracts and services (standard) • Revaluation of non-current assets in accordance with IFRS in topics that are not covered by the Saudi GAAP (Opinion)	1	1	20	8
2010	SOCPA	-	O	• Capitalization of Murabaha costs that are used to finance fixed assets	-	3	20	11

Year of Issue	Issuer	Type of Issue		Name of Issues	No. of Issues per Year per Type		Accumulated Issues per Type	
					S	O	S	O
				• Interpretation of paragraph (121) of the Consolidation of Financial Statements Standard • The disclosure of temporary and non-temporary decline in securities				
2011	SOCPA	S	O	• Accounting for business combinations (Accounting standard) Accounting for test and trial operation costs (Opinion)	1	1	21	12
2012	SOCPA	-	O	• Accounting treatment of owners' transactions with the entity* Additional disclosure requirements for listed firms Accounting treatment of the process of transforming an entity from a certain legal form to another* The accounting treatment of the distribution of bonus shares by the investee company	-	4	21	16
2013	SOCPA	-	O	• Accounting for the investment according to the equity method in a case where the purchase price is less than the share of the investing entity in the book value of the net assets of the investee entity • The accounting treatment of a parent entity's consolidated financial statements in a case where a subsidiary investing in its parent	-	3	21	19

Year of Issue	Issuer	Type of Issue		Name of Issues	No. of Issues per Year per Type		Accumulated Issues per Type	
					S	O	S	O
				• Accounting treatment of paid in advance administrative costs that are used to receive finance				
2014	SOCPA	-	O	• Accounting treatment for a business combination of entities that are subject to the same control prior to the combination or there are related party relationships among them*	-	1	21	20
2015	SOCPA	-	O	• Accounting treatment that should be applied by firms investing in non-for-profit organisations*	-	1	21	21
2016	SOCPA	-	O	• Appropriate reporting framework for government agencies and Not-for-profit organisations* • Appropriate accounting treatment for changes in the useful life or depreciation method of assets as a result of their disaggregation according to their main components for the purpose of depreciation in accordance with the requirements of IAS 16 upon switching to IFRS* • Appropriate accounting treatment to deal with PPEs that are fully depreciated and have no residual value but are still used when switching to IFRS* • Explaining how to use the potion 'deemed cost' when switching to IFRS*	-	4	21	25

Year of Issue	Issuer	Type of Issue		Name of Issues	No. of Issues per Year per Type		Accumulated Issues per Type	
					S	O	S	O
2017	SOCPA	-	O	• Accounting treatment that should be applied to comply with the announcement of General Authority for Zakat and Income Tax requiring on listed firms pay Zakat and Income Tax based on the percentage of actual ownership at the end of the year as well as the changes in ownership that occurred throughout the fiscal year (revised in 2021) *	-	1	21	26
2019	SOCPA	-	O	• Clarification on how to determine end of service payment when an SME is unable to apply 'the projected unit credit method' without undue cost or effort. *	-	1	21	27
2021	SOCPA	S		• The liquidation-based financial reporting standard: principles and requirements for recognition, measurement, presentation, and disclosure* • The standard of financial reporting during bankruptcy proceedings: preventive settlement or financial restructuring*	-	2	21	29

Note. These standards and opinions with (*) are still enforceable along with IFRS because they are not covered by the endorsed version of IFRS (SOCPA, 2021). The letter 'S' refers to accounting standards while the letter 'O' refers to professional opinions.

Source: SOCPA's official website (2021)

Appendix 3: SOCPA Review Plan of IFRS

Table A3

Thematic Groups of IFRS Based on Common Subjects Developed by SOCPA for its Review Plan

Group	Subject	Year of Review
Group 1	Presentation of financial statements	
	IAS 1 Presentation of Financial Statements	1
	IAS 7 Statement of Cash Flows	1
	IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors	1
	IAS 10 Events After the Reporting Period	1
	IAS 24 Related Party Disclosures	1
	IAS 33 Earnings Per Share	1
	IAS 34 Interim Financial Reporting	1
	IFRIC 10 - Interim Financial Reporting and Impairment	1
	IFRS 8 Operating Segments	1
	IFRIC 17 - Distributions of Non-cash Assets	1
Group 2	Employee benefits	
	IAS 19 Employee Benefits	2
	IAS 26 Accounting and Reporting by Retirement Benefit Plans	2
	IFRS 2 Share-based Payment	2
	IFRIC 14 - IAS 19 – The Limit on a Defined Benefit Asset, Minimum Funding Requirements, and their Interaction	2

Group	Subject	Year of Review
Group 3	Non-current assets - I	
	IAS 2 Inventories	2
	IAS 16 Property, Plant and Equipment	2
	IAS 23 Borrowing Costs	2
	IAS 38 Intangible Assets	2
	SIC 32 - Intangible Assets-Web Site Costs	2
Group 4	Group accounts	
	IAS 27 Separate Financial Statements (revised)	2
	IAS 28 Investments in Associates (revised)	2
	IFRS 10 Consolidated Financial Statements	2
	IFRS 11 Joint Arrangements	2
	IFRS 12 Disclosure of Interests in Other Entities	2
	IFRS 3 Business Combinations	2
Group 5	Non-current assets - II	
	IAS 40 Investment Property	3
	IAS 36 Impairment of Assets	3
	IAS 41 Agriculture	3
	IFRS 5 Non-current Assets Held for Sale and Discontinued Operations	3
	IFRS 13 Fair Value Measurement	3
Group 6	Revenue recognition	
	IAS 11 Construction Contracts	3

Group	Subject	Year of Review
	IAS 18 Revenue	3
	IAS 20 Accounting for Government Grants and Disclosure of Government Assistance	3
	IFRIC 13 - Customer Loyalty Programs	3
	IFRIC 15 - Agreements for the Construction of Real Estate	3
	IFRIC 18 - Transfers of Assets from Customers	3
	SIC 10 - Government Assistance-No Specific Relation to Operating Activities	3
	SIC 31 - Revenue-Barter Transactions Involving Advertising Services	3
Group 7	Leasing	
	IAS 17 Leases	4
	IFRIC 4 - Determining whether an Arrangement contains a Lease	4
	IFRIC 12 - Service Concession Arrangements	4
	SIC 15 - Operating Leases-Incentives	4
	SIC 27 - Evaluating the Substance of Transactions Involving the Legal Form of a Lease	4
	SIC 29 - Disclosure-Service Concession Arrangements	4
Group 8	Financial Instruments	
	IAS 32 Financial Instruments: Presentation	4
	IFRS 7 Financial Instruments: Disclosures	4
	IFRS 9 Financial Instruments	4
	IFRIC 2 - Members' Shares in Co-operative Entities and Similar Instruments	4
	IFRIC 19 - Extinguishing Financial Liabilities with Equity Instruments	4
	IFRIC 16 - Hedges of a Net Investment in a Foreign Operation	4

Group	Subject	Year of Review
Group 9	Foreign Currency	
	IAS 21 The Effects of Changes in Foreign Exchange Rates	5
	IAS 29 Financial Reporting in Hyperinflationary Economies	5
	IFRIC 7 - Approach under IAS 29 Financial Reporting in Hyperinflationary Economies	5
Group 10	Income Taxes	
	IAS 12 Income Taxes	5
	SIC 25 - Income Taxes-Changes in the Tax Status of an Entity or its Shareholders	5
Group 11	Provisions	
	IAS 37 Provisions, Contingent Liabilities and Contingent Assets	5
	IFRIC 1 - Changes in Existing Decommissioning, Restoration and Similar Liabilities	5
	IFRIC 5 - Rights to Interests arising from Decommissioning, Restoration and Environmental Rehabilitation Funds	5
	IFRIC 6 - Liabilities arising from Participating in a Specific Market—Waste Electrical and Electronic Equipment	5
Group 12	Insurance	
	IFRS 4 Insurance Contracts	5
Group 13	Mineral Assets	
	IFRS 6 Exploration for and Evaluation of Mineral Assets	5

Group	Subject	Year of Review
Group 14	First-time Adoption	
	IFRS 1 First-time Adoption of IFRSs	5

Note. Source: SOCPA's official website (2021).

Appendix 4: A Comprehensive Comparison Between IFRS and Saudi GAAP

Table A4

Comparing the Objective and Qualitative Characteristics of IASB Framework With Those of SOCPA Framework

Characteristics	IASB	SOCPA
General objective of financial reporting	General purpose financial reporting has the objective of offering financial information regarding the financial entity that helps investors, lenders, and creditors in taking decisions regarding buying, selling, or holding debt or equity instruments, providing loans, and other kinds of credit (Paragraph, 1.2)	General purpose financial statement reporting has the key objective of offering relevant information to fulfil the requirements of external users (existing and potential investors, customers, lenders and other creditors) so that they can take decisions related to an entity and determine if a firm is able to generate future cash flows (paragraph, 70).
Fundamental qualitative characteristics		
Relevance	Financial information, which has predictive or confirmatory value, is relevant when it is capable of affecting the decisions made by users (paragraph, 2.6-2.10)	Accounting information is relevant when it helps primary users in examining the results of alternate decisions being considered by decision-makers to make inform decision regarding their relationship with their entity. (Paragraph, 314)
Reliability (Faithful representation)	Accounting information is reliable (faithfully represented) when it accurately represents the phenomenon it intends to explain. For this, the following attributes must be present: neutrality, completeness, and lack of errors (paragraph, 2.12-2.19)	Accounting information presents an accurate representation of what it intends to represent by giving a true depiction of reality not the exact reality since accounting information is subject to a variety of accounting estimates (paragraph, 317).
Enhancing qualitative characteristics		

Characteristics	IASB	SOCPA
Comparability	Information is comparable if it allows users to recognise and understand similarities and differences between various entities or across different fiscal periods within the same entity (Paragraph, 2.24-2.29)	Accounting information is comparable if it enables users to identify the similarities and differences (in terms of accounting item used, reporting currency, the presentation of accounting information, accounting policies and the disclosure of any material factor) among different reporting entities within the same industry as well as within the same entity across different periods (Paragraph, 322-323).
Verifiability	Accounting information is verifiable if it enables multiple competent and independent observers to concur, though not always completely, that a given depiction is a faithful representation (Paragraph, 2.30-2.32).	accounting information is verifiable if two independent and unrelated parties have used the same accounting measurement and disclosure should reach to the same results (Paragraph, 318).
Timeliness	Timeliness refers to providing accounting information to decision-makers in sufficient time which could influence their decisions (Paragraph, 2.33).	Accounting information must be made available to users whenever they require it, because disclosing accounting information at a specific time may influence their decisions. Thus, accounting information should be released periodically without a delay between the end of a fiscal period and publication date (Paragraph, 324-325)
Understandability	Accounting data is understandable if it allows users to have a reasonable understanding of business and economic activities, as well as to diligently review and analyse the data. A reporting entity, therefore, should classify, characterise, and present information in a clear and concise manner (Paragraph, 2.34-2.36).	when preparing financial statements, a reporting entity should take into account the fact that the level of expertise and competence of its users varies. Thus, a reporting entity should categorise the information into meaningful groups, use clear titles, gather related information against each other, and make the

Characteristics	IASB	SOCPA
		frequently used indicators available (Paragraph, 327-328)

Note. Source: IASB's Conceptual Framework (2018) and SOCPA's Conceptual Framework (1997).

Table A5

Comparison Between IFRS and Saudi GAAP

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IAS 1 Presentation of Financial Statements IAS 7 Cash Flow Statements IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors IAS 10 Events after the Balance Sheet Date IAS 37 Provisions, Contingent Liabilities and Contingent Assets	SAS 1 Presentation and general disclosure	<u>Name and order of principal financial statements:</u> Statement of financial position (balance sheet) Statement of profit or loss and other comprehensive income for the period (presented as a single statement or separate statements) Statement of changes in equity Statement of cash flows Notes to the financial statements <u>Classification of liabilities</u> Non-current liabilities could include long-term debts that will be financed using existing loans even if they are due within 12 months. <u>Classification of expenses</u> Expenses in profit or loss may be analysed using either the ‘ nature of expense’ or the ‘ function of expense’ methods. Deferred tax is always classified as non-current liability/liability.	<u>Name and order of principal financial statements:</u> Balance sheet Statement of income Statement of cash flows Statement of changes in shareholders’ equity Notes to the financial statements <u>Classification of liabilities</u> Current liabilities are only those which will be settled using current assets. <u>Classification of expenses</u> Expenses in profit or loss must be analysed using the ‘function of expense’ method only. The classification of Deferred tax depends on the nature of the related liabilities or assets; thus, it could be current or non-current. <u>Extra-ordinary items</u>

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IFRS 5 Non-current Assets Held for Sale and Discontinued Operations.		<u>extra-ordinary items</u> Does not allow any item to be disclosed as extra-ordinary <u>Comparative figures</u> allows shorter or longer comparative figures where reasons for the selection must be disclosed <u>Specific disclosure</u> IAS1 requires specific disclosure in a case of critical accounting judgement made by management and departures from IFRS. Also, an explicit statement asserting compliance with IFRS is required. <u>Cash flow statement</u> Allows the choice of either direct or the indirect method. Interest received could be classified as either operating, investing or financing activity (IAS 7).	must be disclosed <u>Comparative figures</u> Must be similar <u>Specific disclosure</u> No Specific disclosure is required as in IFRS <u>Cash flow statement</u> A specific format of indirect method. Interest received is normally classified as an operating activity Saudi GAAP does not have designated standards for each of IAS 1, IAS 7, IAS 8, IAS 10, IAS 37, and IFRS 5. However, SAS 1 partially covers these standards.
IAS 21 The Effects of Changes in Foreign Exchange Rates	SAS 2 Foreign currency	<u>Two types of currencies:</u> 1- functional currency is the currency of 'the primary economic environment in which the entity operates.' (IAS 21 paragraph 8) 2- presentation currency is the 'currency in	Largely similar but Saudi GAAP only permits cost model and does address the accounting treatment in a case where the functional currency differs from the presentation currency. All

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		which financial statements are presented.'(IAS 21 paragraph 8,9) <u>Initial recording:</u> All transactions are recoded at exchange rate on date of transaction or using average rate if the exchange rate does not fluctuate significantly. <u>Retranslation:</u> Monetary items (cash or can be settled in cash) must be retranslated using the closing rate at year end. Non-Monetary items if fair value model is used retranslate using the exchange rate at evaluation date; if cost model is used initial recoding continues and retranslation is not required. Exchange differences recognised in profit or loss.	transaction must be reported in Saudi Riyals.

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IAS 2 Inventories	SAS 3 Inventory	<u>Measurement of closing inventory</u> Closing inventory is measured on a line-by-line basis at the lower of cost or Net Realisable Value (NRV). <u>Impairment</u> Inventory must be written down if the cost is higher than NRV and the written down amount should be recognised as an expense in the same period. Prior impairment losses may be reversed under IAS 2 up to the initial impairment loss amount. <u>Methods of determining cost</u> 'Last In First Out' LIFO is not permitted. 'First In First Out' FIFO and weighted average are permitted. A consistent use of the same measurement method among items with similar characteristics is required.	<u>Measurement of closing inventory</u> Closing inventory is measured on a line-by-line basis at the lower of cost or fair value. In certain cases, inventory could be measured at higher than cost if it has fixed value and does not require marketing expenses to sell it (e.g. precious metals). <u>Impairment</u> Inventory must be written down if the cost is higher than fair value and the written down amount should be recognised as an expense in the same period. Prior impairment losses may not be reversed under SAS 3 <u>Methods of determining cost</u> LIFO, FIFO, and the weighted average are all permitted. weighted average is the preferred method. It does not explicitly require a consistent use of the same measurement method among items with similar characteristics. The chosen method must be justified and any different between the chosen method and the weighted average must be disclosed.

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IAS 24 Related Party Disclosures	SAS 4 Related party disclosure	A related party could be any individual or other reporting entity that is related to a reporting entity. External auditor is not a related party. Regardless of whether transactions have taken place, disclosure is required about Parent-subsidiary relationship, Key management personnel, and Related party transactions.	Under the Saudi GAAP, the disclosure is required if transactions have taken place. External auditor is considered as a related party. No required disclosure for compensation given to management.
IAS 18 Revenue replaced by IFRS 15 Revenue from contracts with customers from January 2018.	SAS 5 Revenue	Revenue is recognised as control is passed, either over time or at a single point in time. Control is the power to direct the use of an asset and to collect almost all of its remaining benefits. Incidental revenue is recognised	largely similar but IFRS should be applied in a case where Saudi GAAP does not cover. Incidental revenue is not mentioned.
No designated standard	SAS 6 Administration and marketing expenses	No separate standard for Administration and marketing expenses and no separate disclosure is required	Expenses for administration and marketing must be disclosed separately
IAS 38 Intangible Assets	SAS 7 Research and development costs	There is no designated standard for research and development costs as IAS 9 Accounting for Research and Development Activities replaced by IAS 38 in July 1999. Differentiate between research cost and development cost; research cost is always expensed, while the development cost must be capitalised if certain criteria are met (i.e. technically feasible, intention to complete, ability to sell asset, probable benefits, can	Research and development costs must be expensed

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
	SAS 17 Intangible assets	complete project, and can measure reliably) and amortised over its useful life. Otherwise, it should be recognised as an expense. The incorporation cost may be capitalized if certain criteria are met. Otherwise, it should be expensed. Intangible assets initially measured at cost Either cost model and evaluation model (contingent on the availability of active market) may be used for subsequent measurement. Intangible assets with indefinite useful life (e.g. Goodwill) are not amortised but impairment should be assessed annually. Intangible assets with finite useful life are amortised and assessed for impairment whenever there is an indication. The amortisation period should be reviewed at least annually.	The incorporation cost must be capitalized. Intangible assets initially measured at cost and measured at cost less accumulated amortisation subsequently. revaluation is prohibited. All intangible assets are always amortised.

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		Amortisation is recognised in profit or loss unless it is included in the cost of another asset.	
IFRS 10 Consolidated Financial Statements IAS 27 Separate Financial Statements	SAS 8 Consolidation of financial statements	IFRS 10 (issued in 2011) requires the presentation of minority interest to be within the total equity but separately from the parent shareholders	SAS 8 (issued in 1998), which is older than IFRS 10, requires a separate presentation of the minority interest from the equity.
IAS 32 Financial Instruments: Presentation IAS 39 Financial Instruments: Recognition and Measurement	SAS 9 Investment in securities	<u>General:</u> Four separate standards under IFRS to deal with presentation (IAS 32), recognition and measurement (IAS 39 and IFRS 9), and disclosure(IFRS 7) of Financial Instruments. IFRS 9 largely replaced IAS 39. A comprehensive guidance on hedge accounting and derivatives. <u>Classification:</u> The classification of financial instrument, which could be either equity or liability or	<u>General:</u> Only one standard with limited guidance in general and no guidance on hedge accounting and derivatives in particular. <u>Classification:</u> Trade securities Available for sale Held to maturity Loans and receivables are not addressed under SAS 9. <u>Initial measurement:</u>

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IFRS 9 Financial Instruments		compound of both, depends on the type of share which could be: Ordinary shares = equity Preference shares= if redeemable or irredeemable with no contractual obligation to deliver cash always liability; otherwise, treated as financial equity. financial instrument could be any of the followings: At fair value through profit or loss Available for sale Held to Maturity Loans and receivables <u>Initial measurement:</u> Both financial asset and liability are measure at Fair value. <u>Subsequent measurement:</u> Financial asset, depends on certain conditions, is measured at either amortised cost, fair value through other comprehensive income (FVTOCI), or fair value through profit or loss (FVTPL). Financial liability, which is held for trading, should be measured at fair value through profit or loss (FVTPL). Otherwise, it should be held at amortised cost.	Securities should be measured at cost. <u>Subsequent measurement:</u> Fair value for securities which have an active market. Otherwise, they should be held at cost. <u>Impairment:</u> Impairment depends on the significance of the decline in fair value which could be recognised as permanent if certain indicators suggest a continual decline.
IFRS 7 Financial Instruments: Disclosures			

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		Impairment: Credit losses approach is adopted where a security could be impaired and permanent decline in its the fair value could be recognised after considering the risk of default and other factors.	
IAS 34 Interim Financial Reporting	SAS 10 Preliminary financial reports	Frequency Public entities are encouraged to submit interim reports no later than 60 days after the first half of each fiscal year. Content of an interim report All four primary statements, selected explanatory notes, and earnings per share along with comparative figures for previous interim periods and a previous full year. Recognition and measurement The same accounting policies used to prepare annual reports should be applied. Disclosure Any significant events or transactions that have occurred since the end of the most recent full period must be disclosed.	Largely similar, but SAS 10 does not require the inclusion of the statement of changes in shareholders' equity into the interim report. Also, comparative figures do not include the preceding full year annual report. Listed firms are required to state that ' the interim reports may not give an accurate indicator of the annual operating results'. the approach must be integral where interim reports are part of the annual reports.

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		Approach Allows either integral or discrete No required statement as in Saudi GAAP	
IAS 12 Income Taxes (no corresponding standard for Zakat)	SAS 11 Zakat and income tax	Under IFRS, there is no corresponding standard for Zakat. Income tax is charged to the profit or loss for the same period. Deferred tax is determined based on the temporary difference which is tax base minus carrying amount. if the carrying amount is higher, it gives deferred tax liability. otherwise, it would give deferred tax assets.	SAS 11 distinguishes between types of owners of the company where Saudi shareholders are subject to Zakat, while non-local shareholders are subject to income tax. Deferred tax under SAS 11 is similar to IAS 12 with much fewer details.
IAS 16 Property, Plant and Equipment	SAS 13 Fixed assets	Initial measurement Cost= purchase price + directly attributable costs +estimated cost of dismantling and site Restoration after use Measurement of a self-constructed asset The cost of constructing the asset. Subsequent measurement allows the choice between: Cost model= Historical cost - accumulated	Initial measurement Cost= purchase price + directly attributable costs. There is no guidance on dismantling and site restoration costs. Measurement of a self-constructed asset The lower of constructing the asset

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IAS 40 Investment Property		depreciation - accumulated impairment losses Revaluation model= fair value - subsequent depreciation - subsequent impairment losses Accounting for a revaluation An increase in fair value is usually recognised in other comprehensive income (OCI) A decrease in fair value is usually recognised in profit or loss Depreciation Separate depreciation must be applied to components of an asset with varying patterns of benefit. Idle assets should be depreciated unless it is held for sale. Reassessment of useful life, residual value and depreciation method is required annually under IAS 16. Investment property it can be measured at either cost or fair value (if can be measured reliably). if cost model is applied, fair value must be disclosed in the notes. Definition of eligible borrowing costs Borrowing costs are eligible for capitalisation if they associated with the construction or acquisition of qualifying	cost or fair value. Subsequent measurement Only cost model is allowed Depreciation Depreciation should be suspended for Idle assets. Depreciation on components of an asset is no covered under SAS 13 Reassessment of useful life, residual value and depreciation method is only required when there is an indication of changes in circumstances. Investment property Investment property should only be measured at cost; whereas, fair value is permitted to be disclosed in notes. Qualifying assets may be used to capitalised borrowing costs There is no designated standard for investment property as in IFRS. There is no designated standard on borrowing cost. however, paragraph 122 of SAS 13 (fixed assets) states that qualifying assets are only limited to fixed assets which requires a significant period of time to be prepared for either use or sale.
IAS 23 Borrowing Costs			

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		assets (IAS 23, paragraphs 5&6). Otherwise, they should be expensed and recognised in profit or loss as incurred (IAS 23, paragraph 8). <u>Qualifying assets</u> These are assets that require a significant period of time to be prepared before they may be used, or even sold. Qualifying assets could be property, plant, and equipment, intangible assets, investment properties, or inventories (IAS 23, paragraphs 5&7).	
IAS 36 Impairment of Assets	SAS 19 Accounting for the impairment of non-current assets	<u>Frequency of impairment</u> Whenever there is internal or external indications of impairment for any asset and annually for Goodwill and Intangibles with indefinite life or not yet available for use (IAS 36 paragraph 9-12). <u>Testing for impairment</u> Comparing the carrying amount with the recoverable amount which the higher of Fair value less costs to sell or value in use. value in use is the present value of future cash flows expected to be generated from an asset. <u>Accounting for impairment</u> if the carrying amount exceeds the recoverable amount, an impairment loss is recognised immediately in profit or loss.	<u>Frequency of impairment</u> SAS 19 list various impairment indicators. <u>Testing for impairment</u> Comparing the carrying amount with the gross undiscounted cash flows expected to be generated from an asset. Fair value is not used in the comparison but allowed to be disclosed in the notes. <u>Accounting for impairment</u> if the carrying amount exceeds the gross undiscounted cash flows, an impairment loss is recognised immediately in profit or loss.

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		IAS 36 is more comprehensive than SAS 19 as the former covers various of assets while the latter only addresses non-current assets.	SAS 19 is limited to the impairment of non-current assets, but IFRS should be applied in cases not covered in Saudi GAAP.
IAS 17 Leases replaced by IFRS 16Leases from January 2019	SAS 14 Accounting for leases	<u>The classification of finance lease</u> Under a finance lease, the lessee bears almost all of the risks and rewards associated with owning the underlying asset. Otherwise, it is an operating lease (IFRS 16 paragraph 61,62). <u>Simplified accounting</u> is applied if the lease term is 12 months or less and the underlying asset is of a low value (IFRS 16 paragraphs 5,6,7,8). According to paragraph 63 of IFRS 16, the following situations (individually or in combination) would normally indicate a finance lease: The asset will be transferred at the end of the lease period. The lessee has the option to buy the asset at the end of the lease period, and the pricing indicates that this option will be exercised with reasonable certainty. Leasing often lasts for most of the asset's useful life. The present value of minimum lease payments at the commencement of the lease	<u>Classification of finance lease</u> Under SAS 14, An entity's finance lease classification is determined by satisfying one of the four conditions: 1- the lease amount is equivalent to 90% of the value of the leased asset. 2- the lease duration is equivalent to 70% of useful life of the leased asset. 3-bargain purchase option 4-At the end of the lease period, the leased asset is transferred to the lessee. SAS 14 does not apply Simplified accounting for low value asset or short term lease as in IFRS 16

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		is nearly all of the asset's fair value. The lease asset is so specialised in nature that it can only be used by the lessee without substantial change.	
IFRS 8 Operating Segments	SAS 15 Segmental Reports	<u>Definition of reporting segment</u> According to paragraph 5 of IFRS 8, 'an operating segment is a component of an entity: • That engages in business activities from which it may earn revenues and incur expenses • Whose operating results are regularly reviewed by the chief operating decision maker (CODM) of an entity in order to make decisions • For which discrete financial information is available'. <u>Reportable operating segments</u> To report an operating segment, it must have a segment total of 10% or more of either total revenue, profit of all segments reporting a profit, or assets. At least 75% of the entity's external revenue must come from all reportable operating segments combined.	Similar

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IAS 28 Investments in Associates and Joint Ventures IFRS 11 Joint Arrangements IFRS 12 Disclosure of Interests in Other Entities	SAS 16 Accounting for investment according to the equity method	<u>Definition of associate</u> Associate is defined 'as an entity over which the investor has significant influence' (IAS 28, paragraph 3). associate is accounted for using the equity method and must be included in the consolidated financial statements. <u>Definition of joint arrangements</u> A joint arrangement is 'an arrangement of which two or more parties have joint control.'(IFRS 11 Appendix A) Joint control requires: a contractual arrangement and unanimous consent. <u>Forms of joint arrangement</u> Joint ventures (requires the application of the equity method) Joint operations (requires a recognition of shares of assets, liabilities, expenses, and revenues). <u>The equity method</u> <u>Initial measurement</u>: cost <u>Subsequent measurement</u>: adjustment is required to reflect the changes in the investor's share post acquisition. (IAS 28, paragraph 10) <u>Impairment</u> According to paragraph 41A of IAS 28, Whenever there are indicators (external or internal) of impairment, the investment in	There are no designated standards for Investments in Associates and Joint Ventures (IAS 28), Joint Arrangements (IFRS 11), and Disclosure of Interests in Other Entities (IFRS 12). However, the application of equity method accordance to SAS 16 is similar of what is required under IFRS 11 and IAS 28. The required disclosure under SAS 16 is limited compared what required under IFRS 12 which provides an extensive detail.

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		an associate or joint venture must be examined. An associate or joint venture's profit after tax and other comprehensive income are recognised in the income statement (IAS 28, paragraph 27). Unrealised profits and losses should be removed to the extent of the investor's stake in the associate (IAS 28, paragraph 28). <u>Disclosure</u> According to paragraph 1 of IFRS 12 'an entity should disclose information that helps the users of its financial statements to evaluate the nature of, and risks associated with, its interests in other entities.' This should include judgements and assumptions used to determine whether an entity controls or has joint control or significant influence over another entity	

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IAS 20 Accounting for Government Grants and Disclosure of Government Assistance	SAS 18 Accounting for government subsidies and grants	Types of grant Capital= to acquire an asset Revenue= for other purposes Recognition A grant is recognised as an income in profit or loss if entity is certain that it will comply with grant condition and the grant will be received (IAS 20, Paragraph 7&12). Presentation It could be presented as deferred income in the statement of financial position and grant income in the statement of profit and loss. Otherwise, it could be netted off against the related expenditure or assets. Government assistance Disclosure required in the note for significant government assistance (IAS 20, paragraph 36).	Types of grant No clear distinction between capital and revenue grants Recognition Similar, but in certain cases, it could be accounted for as owner's equity. Presentation Netting off is not allowed and it should be presented as a separate item. Government assistance Similar
IAS 33 Earnings Per Share	SAS 20 Earnings per share	IAS 33 requires the disclosure of the per share basic and diluted income from continuing operations and net profit or loss.	SAS 20 requires the disclosure of the per share basic and diluted income from main operations, other operations, and net profit or loss.

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IAS 11 Construction Contracts replaced by IFRS 15 Revenue from contracts with customers from January 2018	SAS Accounting for construction contracts and services	IFRS 15 applies the following five steps with regard to contract with customers: Step 1: Identify the contract with the customer Step 2: Identify the separate performance obligations in the contract Step 3: Determine the contract price Step 4: Allocate the transaction price to the performance obligations in the contract Step 5: Recognise revenue when (or as) the entity satisfies a performance obligation	Largely similar (same contract components and methods to determine the contact cost, transaction allocation and performance obligation). However, SOCPA stipulate that IFRS should be applied in cases where there is no guidance under Saudi GAAP.
IFRS 3 Business Combinations	SAS 21 Accounting for business combinations	<u>The acquisition method</u> IFRS 3 requires the application of acquisition method for all business combinations by applying the followings: 1. Identify the acquirer 2. Determine the acquisition date (control of the business date). 3. Measure and recognise all identifiable assets, assumed liabilities, and non-controlling interest in the acquiree. 4. Recognise and measure of goodwill or a gain from a bargain purchase (IFRS 3, paragraph 5). <u>Goodwill calculation</u> Goodwill = Consideration transferred+ non-controlling interest- Fair value of identifiable net assets of acquired (IFRS 3,	Similar, but Goodwill must be amortised and assessed for impairment annually.

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		paragraph 32). Goodwill may not be amortised but should be tested for impairment annually. Impairment losses may not be reversed. Bargain purchase should be recognised as an income in profit or loss (IFRS 3, paragraphs 34-36). <u>Measurement</u> Consideration is measured at fair value (IFRS 3, paragraph 37). The non-controlling interest is measured at either fair value or a proportion of the fair value of net assets (IFRS 3, paragraph 19). The acquired identifiable assets and assumed liabilities are measured at their fair values (IFRS 3, paragraph 11, 18)	
IAS 19 Employee Benefits	No corresponding standards	<u>Types of employee benefits</u> 1-Short-term employee benefits 2-Post-employment benefits (pensions) 3-Other long-term benefits 4-Termination benefits. <u>Post-employment benefits (pensions)</u>	There is no standard on employee benefit under the Saudi GAAP. Thus, IAS 19 should be applied. However, in practice, post-employment benefits (pension) are applied in accordance to the requirement of the Saudi Labour

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IAS 26 Accounting and Reporting by Retirement Benefit Plans		Defined contribution and defined benefit plans are the two types allowed under IAS 19 (paragraph 8). Under the defined contribution plan, contributions are recognised as expenses at the end of year in which they must be paid (IAS 19, paragraphs 32 & 43). Defined benefit plan applies the actuarial valuation method where assets or liability is recognised based on the difference between the fair value of the pension plan assets and the present value of the defined benefit obligation (IAS 19 paragraph 66).	Law. According to Article 84 of the Saudi Labour Law, the employer must pay the employee's 'end of service benefits,' which are calculated as a half-month salary for the first five years and a monthly salary for the following years based on the employee's previous salary. The end of service benefits are recognised as liabilities. Actuarial valuation method is not required under the Saudi GAAP, but there are few firms are applying it.
IFRS 2 Share-based Payment	No corresponding standard	<u>Types of share-based payment</u> 1- An equity settled share-based payment 2-A cash settled share-based payment 3- Share-based payment that allows the choice between the two above. <u>Recognition</u> Assets or expenses are recognised when the counterpart delivers goods or services respectively in exchange for share-based payment (decrease in equity).	There is no standard on Share-based Payment under the Saudi GAAP. Thus, IFRS 2 should be applied.

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		Measurement the transaction is measured at the fair value on the grant date of the equity instruments when the counterparty is an employee, or at the fair value of goods or services when the counterparty is a third party (IFRS 2 paragraphs 14&15).	
IAS 41 Agriculture	No corresponding standard	According to paragraphs 12 and 13 of IAS 41, all Biological assets agricultural produce should be measured at fair value, if can be determined reliably, less cost to sell when reporting financial statements. Otherwise, they should be measured at cost (IAS 41, paragraph 30)	There is no standard on agriculture under the Saudi GAAP. Thus, AS 41 should be applied. However, SOCPA prohibits using fair value for biological assets and producing cattle as per one of its professional opinions.
IFRS 13 Fair Value Measurement	No corresponding standard	Definition of fair value According to Appendix A of IFRS 13 'Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.' The Scope of IFRS 13 IFRS 13 only prescribes how to determine the fair value when required by other IFRS standards and it does not prescribe when to apply it (IFRS 13, paragraph 6). Valuation techniques After determining the asset/ liability to be measured, its best and highest use from	No guidance on fair value measurement

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		market participants point of view, and its principal or most advantageous market, an entity could apply one or combination of the following valuation approaches: 1. Market approach (using similar assets or liabilities prices and information) 2. Cost approach - (using the replacement cost) 3. Income approach (using discounted future cash flows)	
IAS 29 Financial Reporting in Hyperinflationary Economies	No corresponding standard	<u>Hyperinflation</u> There is no clear definition, but the standard suggests that cumulative inflation rate of one hundred percent over three years would indicate hyperinflation. <u>Restatement</u> According to paragraph 8 of IAS 29, the financial statements of a hyperinflationary firm must be restated into current measuring units. A gain or loss resulted from the restatements should be included and disclosed separately in profit or loss statement (IAS 29, paragraph 9).	There is neither standard nor guidance on the financial reporting in hyperinflationary economies under Saudi GAAP.

Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
IFRS 4 and IFRS 17 (effective from January 2021) Insurance Contracts	No corresponding standard	Rules for insurer and reinsurer IFRS 4 defines the insurance and reinsurance contacts and prohibits insurer and reinsurer from: 1- making a provision for claims that do not exist as of the reporting date 2- offsetting of insurance liabilities against reinsurance assets. It also requires insurer and reinsurer : 1-testing for the adequacy of reported liabilities 2-conduct an impairment test for reinsurance assets (IFRS 4, paragraph 14). Measurement There is no guidance on the measurement of an insurance contract. Recognition IFRS 17 requires an initial recognition of insurance contract as a liability which should be remeasured at each reporting date where any change is recognised in the statement of profit or loss and other comprehensive income.	There is neither standard nor guidance on Insurance Contracts under Saudi GAAP. Thus, IFRS should be the main source of guidance.
IFRS 6 Exploration for and Evaluation of Mineral Assets	No corresponding standard	Capitalisation policy According to paragraph 9 of IFRS 6, entities are required to develop a policy for determining how much of expenditure on exploration for and evaluation of mineral	There is neither standard nor guidance on exploration for and evaluation of mineral resources under Saudi GAAP. Thus, IFRS

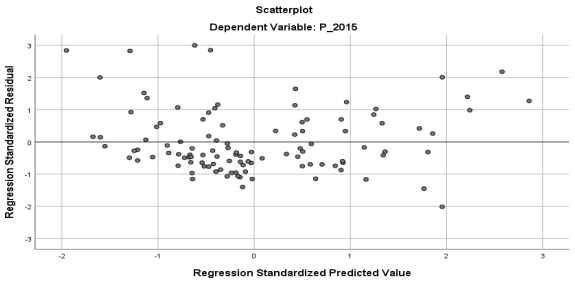
Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		resources should be capitalised. Disclosure Disclosure about the policy used and exploration and evaluation assets is required as per paragraph 23. Impairment Paragraph 18 of IFRS 6 states that any exploration and evaluation assets must be assessed for impairment whenever there are indications.	should be the main source of guidance.
IFRS 1 First-time Adoption of IFRS	No corresponding standard	The scope of IFRS 1 IFRS 1 prescribe the procedure for firms transitioning to IFRS for the first time. Recognition Only assets and liabilities that are qualified for recognition under IFRS should be recognised regardless of whether they were recognised under the previous GAAP. Measurement All recognised assets and liabilities should be remeasured in accordance with IFRS where the adjustments should be recognised in either equity or retained earnings. Presentation The presentation of the financial statements should be in accordance with IFRS. Disclosure an explicit statement stating that the 'general purpose financial statements	There is neither standard nor guidance for first-time adopter applying the Saudi GAAP.

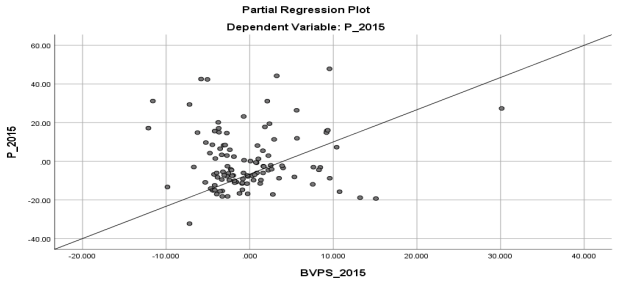
Accounting Standards		Key Differences	
IAS/IFRS	Saudi GAAP	IFRS	Saudi GAAP
		comply with IFRSs for the first time' is required for first-time adopters (IFRS1, paragraph 3). Exemptions first-time adopters are exempted from applying certain accounting treatments in IFRS 3 (Business Combinations), IFRS 2 (Share-based Payment), IFRS 16 (Leases), IAS 21 (The Effects of Changes in Foreign Exchange Rates), IAS 23 (Borrowing Costs) and IFRS 9 (Financial Instruments).	

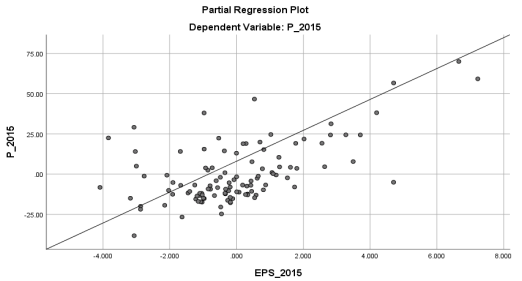
Note. Source: Albarrak (2011); Alkhtani (2010); Almansour (2019); Almotairy & Alsalman (2012); Alsamkari et al. (2021); Deloitte's IAS Plus website (2021); Elhaj (2019); Herath & Alsulmi (2017); IFRS Foundation (2021); Iqbal (2012); Nurunnabi (2017); Nurunnabi et al. (2021); SOCPA's website (2021).

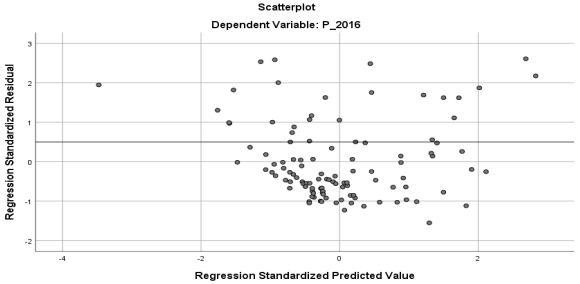
Appendix 5: Scatterplots Required to Assess the Regression Assumptions

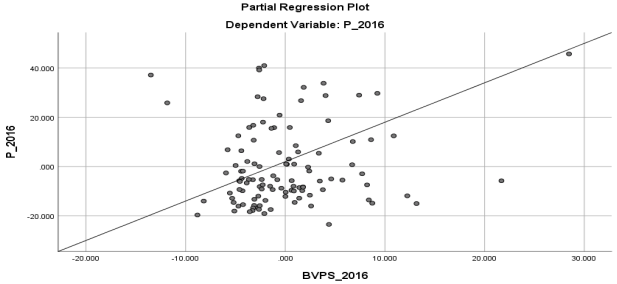
Yearly price models scatterplots:

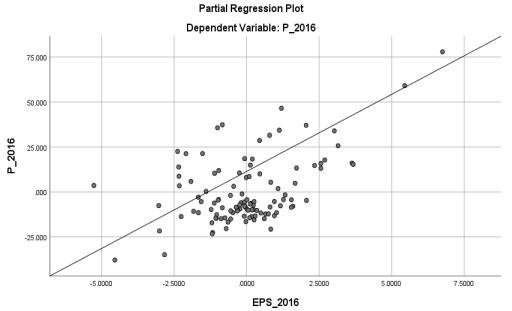


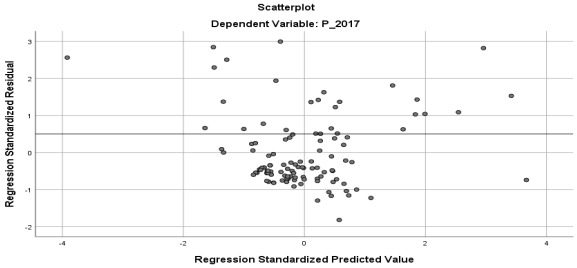


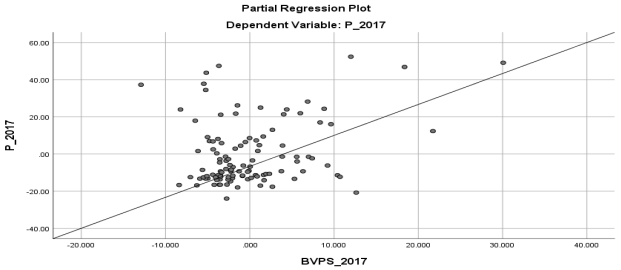


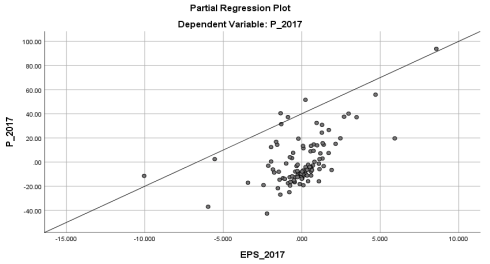


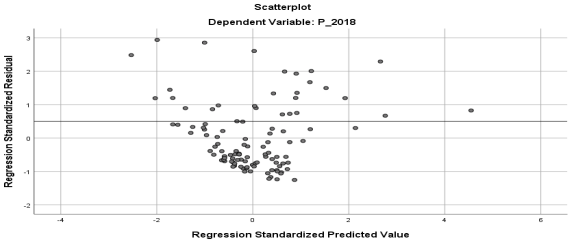


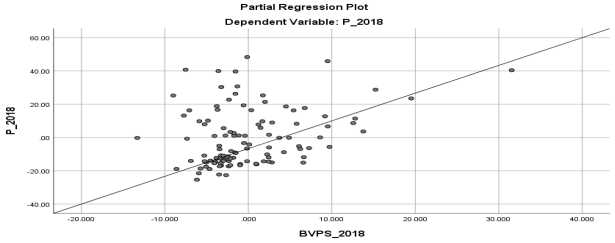


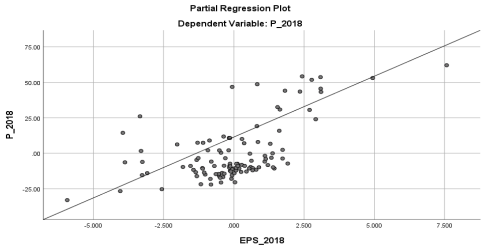




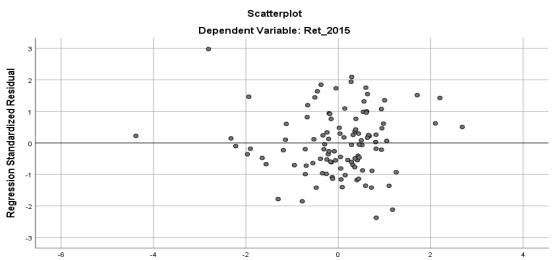


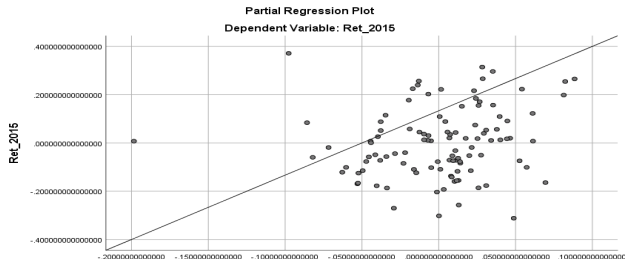


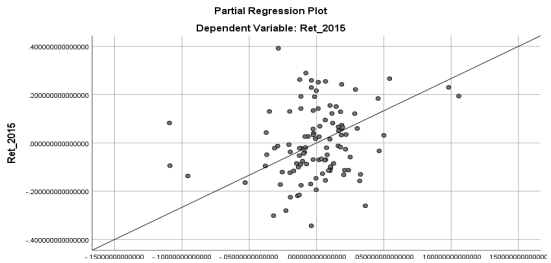


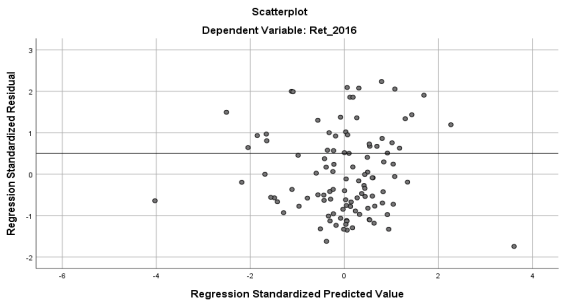


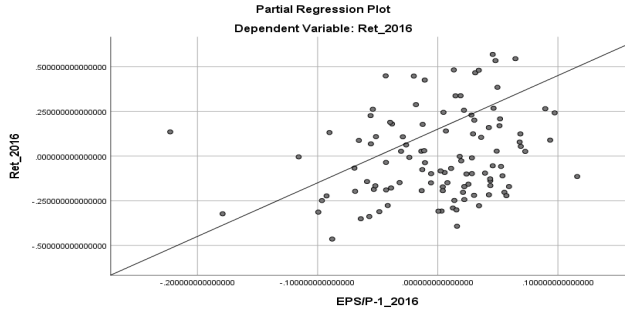
Yearly return models scatterplots:

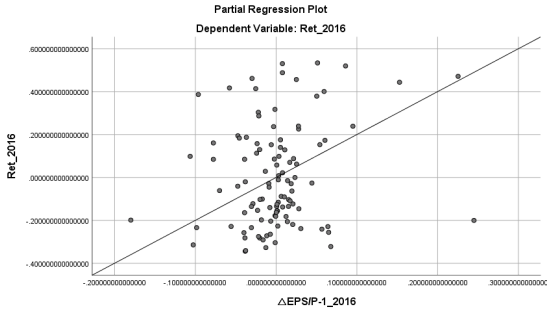


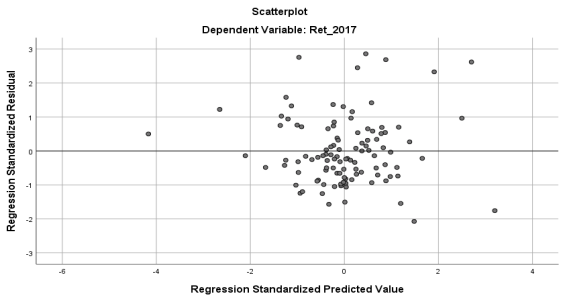


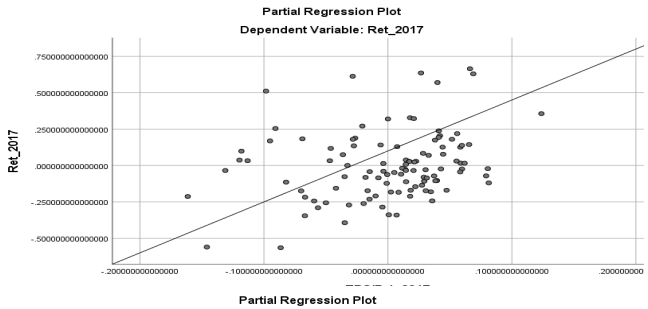


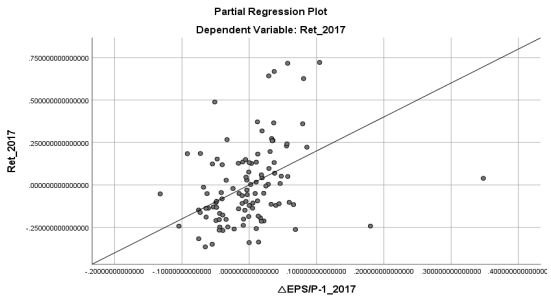


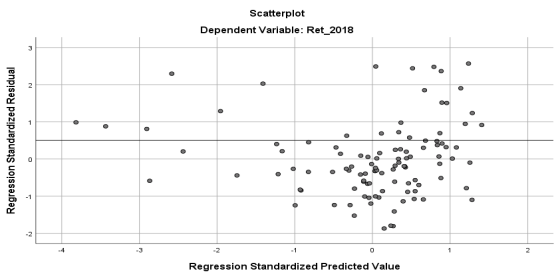


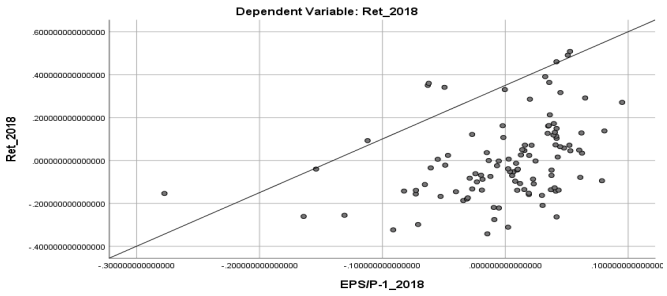


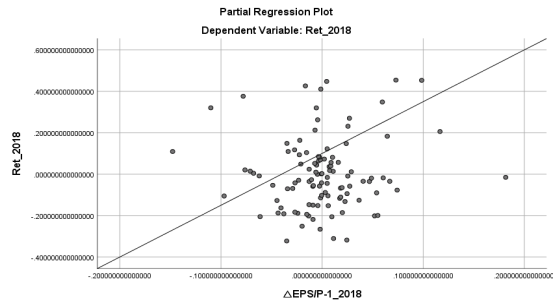






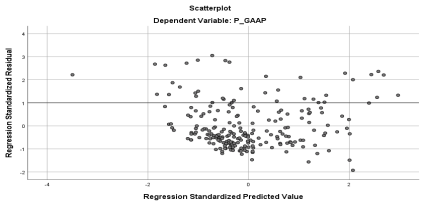


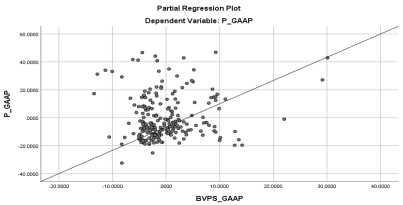


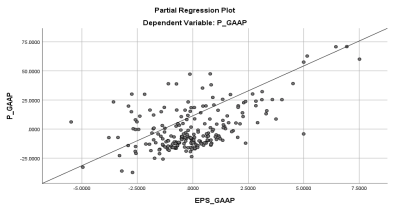


Scatterplots for pre- and post-IFRS approach:

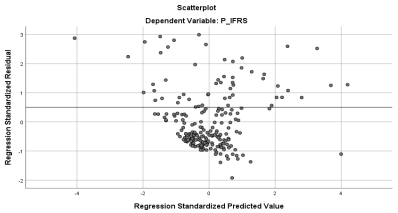
Price model (Saudi GAAP):

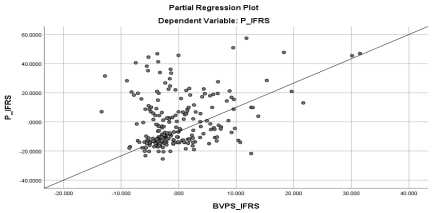


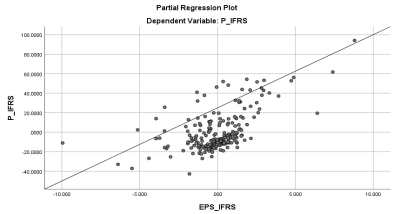




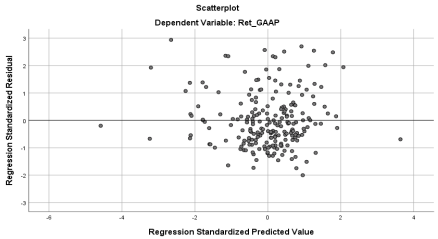
Price model (IFRS):

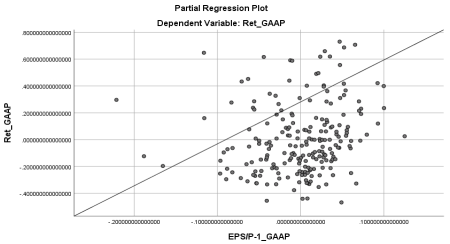


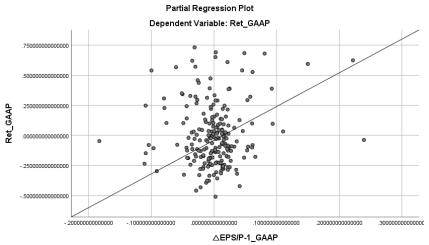




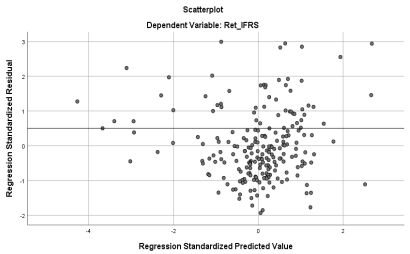
Return model (Saudi GAAP):

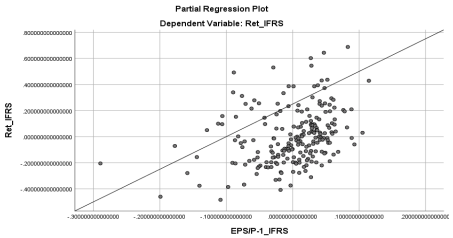


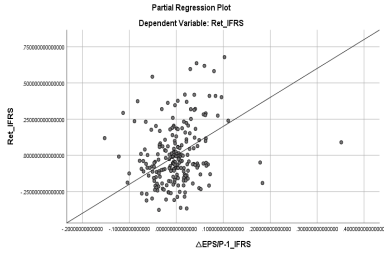




Return model (IFRS):

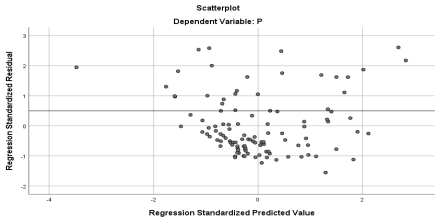


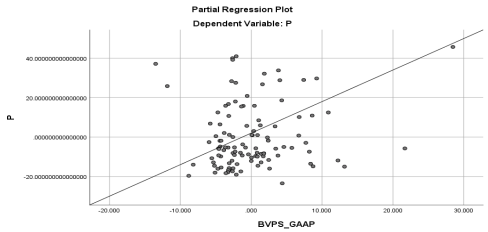


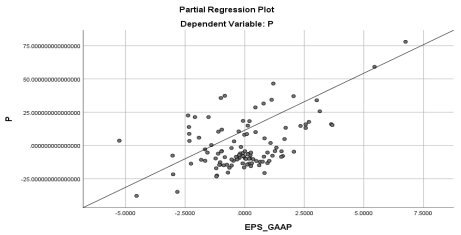


Scatterplots for Comparative year (2016) approach:

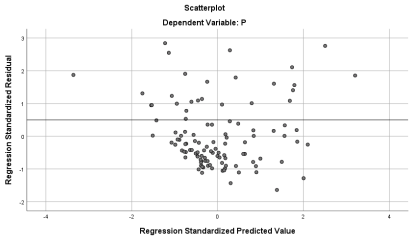
Price model (Saudi GAAP):

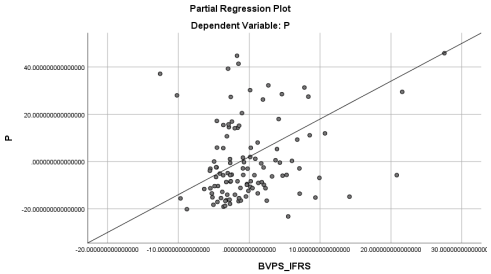


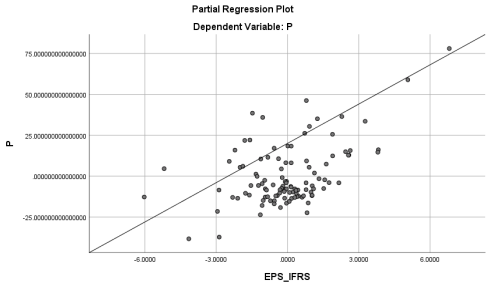




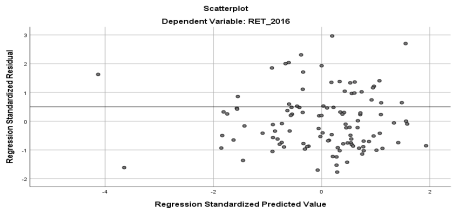
Price model (IFRS):

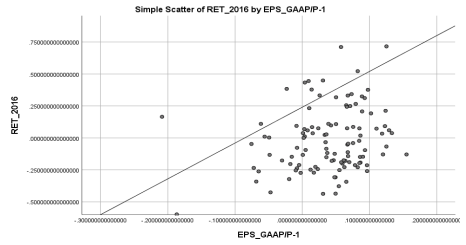






Return model (Saudi GAAP):





Return model (IFRS):