

**MODELLING LOCAL GOVERNMENT FINANCIAL  
CONDITIONS IN INDONESIA**

**By**

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## **Abstract**

In the context of Indonesia, fiscal decentralisation causes variation in local government financial condition. Some local governments experience financial problems, but some others are not. Such variation creates the need for local government stakeholders to have an effective instrument to monitor the soundness of local governments in managing finance (i.e planning, budgeting, executing, and monitoring). In addition, the stakeholders need to know what factors determine the variation in financial condition. Until now, in Indonesia, stakeholders have faced difficulties in knowing the soundness of local government financial conditions. The difficulties of knowing the financial condition of local government are due to lack of agreement about an effective assessment model and lack of uniformity in financial condition indicators (Chaney et al., 2002; Honadle, 2003; Kloha, et al., 2005b; Wang et al., 2007). Furthermore, there is little empirical evidence about the factors affecting the financial condition of local government (Dennis, 2004; Jones & Walker, 2007). Therefore, the objectives of this study are, firstly, to develop an instrument to measure the financial condition of local governments in Indonesia and, secondly, to determine factors affecting financial condition of local governments.

This study utilises a quantitative approach to achieve its research objectives. The unit analysis is the entity of local government. To achieve the first objective this study uses both primary and secondary data. The secondary data are the local government audited financial statements during the financial years 2007-2010. Primary data are also used in order to determine the relative weight of each dimension forming the measure of the financial condition of local government. The data are collected by using questionnaires. To collect the primary data, personally administered questionnaires were given to groups of respondents who worked at the Directorate of Fiscal Balance of the Ministry of Finance, the Directorate of Regional Finance of the

Ministry of Home Affairs, the Supreme Audit Board, local governments and universities in Indonesia. To achieve the second objective, this study uses secondary data, which are socioeconomic and demographic data including population numbers, population density, minimum regional wage, gross domestic product, jurisdiction area, number of people who live above the poverty line and age profile of the population. The data are collected from the Central Bureau of Statistics of the Republic of Indonesia, the Ministry of Home Affairs and the Ministry of Finance. To analyse the data, this study uses the Analytic Hierarchy Process and some statistical tools, namely correlation tests, the Cronbach alpha test, the ANOVA test and multiple regression analysis.

Pertaining to the first objective, the instrument developed uses six dimensions (short-term solvency; budgetary solvency, long-term solvency, financial independence, financial flexibility, service-level solvency) and each dimension has its own indicators. In total there are 19 indicators examined. The reliability of the indicators forming a dimension is assessed using correlation tests and the reliability of the measure as a whole – a composite index – is assessed using the Cronbach alpha test. The framework used to achieve the second objective is the framework of demand and supply. There are seven factors examined as independent variables: population size, population density, age profile of the community, wealth of the community, revenue base of a local government, financial efficiency, and cost of services and goods provided by local government.

Results of reliability tests show that 18 indicators are reliable and only one indicator is not reliable. The coefficient of the Cronbach alpha test is 0.833, meaning that the instrument developed is reliable. In addition, results of validity tests show that the measures have the characteristics of predictive validity, convergent validity and concurrent validity. Results of the multiple regression analysis show that four factors (financial efficiency, cost of services and goods, population size and revenue base)

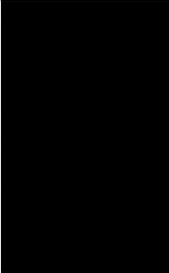
significantly influence the financial condition of local government, whereas the other three factors do not.

This study appears to be the first study of its kind in Indonesia in terms of method, design, findings, and framework. The study proposes a new method to assess the financial condition of local government. The benefits of the instrument developed are that it could be used to: enhance local governments' public accountability; improve service delivery; help local government to detect any signs of financial distress; rank local government bonds; build industry ratios for local government; and encourage competition among local governments. In addition, this study provides underlying framework, the framework of demand and supply, to explain factors affecting the financial condition of local government.

***Keywords:** financial condition, local government, framework of supply and demand, short-term solvency, long-term solvency, budgetary solvency, service-level solvency, financial flexibility, revenue base, financial independence*

## Declaration

“I, Irwan Taufiq Ritonga, declare that the PhD thesis entitled *Modelling local government financial conditions in Indonesia* is no more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, 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.”

Irwan Taufiq Ritonga ..........Date.....31 August 2014

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I dedicate this thesis to my late parents and my family.

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## **Publications associated with this thesis**

### **Journal article**

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### **Conference papers**

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  - a. The 13th Annual Conference Asian Academic Accounting Association (AAAA), Kyoto University, Japan, 9 – 12 November 2012.
  - b. International Public Sector Conference: Reshaping and Energizing the Public Sector, University Teknologi Mara Malaysia, Sutera Harbour Resort, Kota Kinabalu, Sabah, Malaysia, 25 – 26 September 2012.
  - c. Airlangga Accounting International Conference and Doctoral Colloquium: Governance, Competitive Advantages and Accounting Issues in Emerging Countries, Universitas Airlangga Indonesia, Bali International Convention Center, Bali, Indonesia, 28 – 29 June 2012.
3. Ritonga, IT, Clark, C and Wickremasinghe, G 2012 “Assessing financial condition of local government in Indonesia: An exploration”, presented at International Accounting Conference and Student Research Forum: A New Paradigm of Accounting for Capital Market and Corporation: Bridging the Gap between Theory and Practices, Universitas Indonesia, Bidakara Hotel, Jakarta,

Indonesia, 22 – 23 November 2012.

4. Ritonga, IT, Clark, C and Wickremasinghe, G 2013 “Methods of assessing local government financial condition: A literature review”, will be presented at the 12<sup>th</sup> A-CSEAR<sup>1</sup> conference: Social and Environmental Accounting, Waikato University, Hamilton, New Zealand, 1 – 3 December 2013.

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<sup>1</sup> The A-CSEAR conference is the Centre for Social and Environmental Accounting Research’s annual Australasian conference.

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## List of abbreviations

AHP	Analytic Hierarchy Process
ANOVA	Analysis of Variance
AP	Age profile
Bapeda	Badan Perencanaan Daerah (Regional Development Planning Agency)
BLUE	Best Linear Unbiased Estimator
BUDG	Budgetary solvency
CICA	Canadian Institute of Chartered Accountants
CI	Consistency index
CR	Consistency ratio
CSG	Cost of goods and services
CV	Consistency vector
CW	Community wealth
FCI	Financial condition index
FE	Financial efficiency
FLEX	Financial flexibility
FTMS	Fiscal trend monitoring system
GAF	General Allocation Fund
GASB	Governmental Accounting Standards Board
GDP	Gross domestic product
GPBP	Preparation of General Policy of Budget Preparation
ICMA	International City/County Management Association
LG	Local Government
LGWP	Local Government Work Plan
LONG	Long-term solvency
MoHA	Ministry of Home Affairs

MoF	Ministry of Finance
PD	Population density
POP	Population
RB	Revenue base
RI	Random index
SAB	Supreme Audit Board
SERV	Service-level solvency
SHORT	Short-term solvency
SKPKD	Satuan Kerja Pengelolaan Keuangan Daerah (Regional Financial Management Agency)
TBPC	Tentative budget priority and ceiling
UNDP	United Nations Development Programme
VIF	Variance inflation factor
VULN	Financial independence
WSV	Weighted sum vector

# CHAPTER 1

## INTRODUCTION

### 1.1 Research background

In 1999 Indonesia began a new era of local government autonomy (Act No. 22/1999) in which the central government decentralised many aspects of its authority over local government. As a result, one aspect of the new local autonomy is financial decentralisation granting local government the rights to manage revenue, expenditure and finance. However, one result of financial decentralisation is that more than 30 percent of the central government budget is now being distributed to local governments through a decentralisation fund that has increased significantly in size, almost six times from \$US9.08 billion in 2001 to \$US52.27 billion in 2012, (assuming \$1 US = Rp9,000) (Act No. 35/2000; Act No. 12/2011). Table 1 on page 2 gives details about the decentralisation fund from 2001 to 2013.

However, the central government only provides local government with principles for managing local finance rather than the detailed rules it provided previously. As a result, financial conditions<sup>2</sup> among local governments may vary. For example, 124 out of 491 of local governments in Indonesia experienced financial problems paying their employees' salaries in the financial year 2011 (*Harian Surya*, 2 August 2011, p.1). In the Central Java Province only, 11 out of 35 local governments experienced such problems (*Harian Kedaulatan Rakyat*, 16 June 2011, p.1). This variation in financial condition creates the need for local government stakeholders – central governments, central and local parliaments, and communities – to have an effective instrument to monitor the soundness of a wide range of local governments in managing finance (i.e. planning, budgeting, executing, and monitoring).

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<sup>2</sup> Financial condition is the financial capability of a local government to fulfil its obligations, to anticipate unexpected events and to execute its financial rights efficiently and effectively.

**Table 1.1: Decentralisation funds from 2001 to 2013 (in billion rupiahs)**

<b>Financial year (1)</b>	<b>General allocation fund (2)</b>	<b>Special allocation fund (3)</b>	<b>Revenue-sharing fund (4)</b>	<b>Special autonomy fund (5)</b>	<b>Adjustment fund (6)</b>	<b>Total decentralisation fund (7) = (2) + (3) + (4) + (5) + (6)</b>	<b>State budget (8)</b>	<b>% Total decentralisation fund to state budget (9) = (7) / (8)</b>
<b>2001</b>	60,516.69	900.56	20,259.26	0.00	0.00	81,676.51	315,756.06	25.87%
<b>2002</b>	69,114.13	817.28	24,600.35	1,382.28	2,054.72	97,968.75	344,008.80	28.48%
<b>2003</b>	76,978.01	2,616.58	27,895.94	1,539.56	7,847.62	116,877.70	370,591.78	31.54%
<b>2004</b>	82,130.93	3,128.10	26,927.87	1,642.62	5,212.76	119,042.27	374,351.26	31.80%
<b>2005</b>	88,765.60	4,323.12	31,217.79	1,775.26	5,467.28	131,549.05	397,769.31	33.07%
<b>2006</b>	145,664.20	11,569.80	59,358.40	2,913.28	563.84	220,069.52	647,667.82	33.98%
<b>2007</b>	164,787.40	17,094.10	68,461.25	4,045.75	4,406.10	258,794.60	763,570.80	33.89%
<b>2008</b>	179,507.14	21,202.14	66,070.85	7,510.29	6,939.04	281,229.46	854,660.14	32.91%
<b>2009</b>	186,414.10	24,819.59	85,718.73	8,856.56	14,882.01	320,690.99	1,037,067.34	30.92%
<b>2010</b>	203,485.23	21,133.38	81,404.80	9,099.61	8,687.80	323,810.83	1,047,666.04	30.91%
<b>2011</b>	225,532.82	25,232.80	83,558.39	10,421.31	48,234.97	392,980.30	1,229,558.47	31.96%
<b>2012</b>	273,814.44	26,115.95	100,055.20	11,952.58	58,471.30	470,409.46	1,435,406.71	32.77%
<b>2013</b>	311,139.29	31,697.14	101,962.36	13,445.57	70,385.88	528,630.24	1,683,011.10	31.41%

**Sources:** State Budget Act 2000 No. 35; 2001 No. 19; 2002 No. 29; 2003 No.28; 2004 No. 36; 2005 No. 13, 2006 No.18; 2007 No. 45; 2008 No. 41; 2009 No. 47; 2010 No. 10; 2011 No.22; 2012 No. 19

In addition, the stakeholders need to know what factors determine the variation in local government financial condition. Therefore, in Indonesia, the need for information about the financial condition of local governments has been increasing since financial decentralisation.

Local government in Indonesia, at each of the provincial, municipal and district levels, must prepare financial statements consisting of a balance sheet, a statement of actual performance compared to budget, and a statement of cash flows (Act No. 17/2003, Act No. 1/2004, Act No. 32/2004 and Government Regulation No. 58/2005). These financial statements must be audited by the Supreme Audit Board of the Republic of Indonesia in order to assure compliance with the Government Accounting Standards (Act No. 15/2004). These financial statements inform users about the values of total assets, total debt, net assets, total revenues, total expenditures and cash inflows and outflows. However, these audited financial statements do not inform users about local government financial condition or financial health because the Government Accounting Standard does not require such information.

This study defines the financial condition of a local government as the financial capability of a local government to fulfil its obligations, to anticipate unexpected events and to execute its financial rights efficiently and effectively.<sup>3</sup> Knowledge about the financial condition of a local government is important because it is the main provider delivering services directly to the public including health, education and infrastructure. Local government financial condition has a significant impact on the political, social and economic conditions in its jurisdiction (Carmeli, 2003). Carmeli (2007) found that the financial conditions of local governments in Israel have important consequences for educational and employment progress. However, a local

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<sup>3</sup> Discussion of the definition of financial condition of local government can be found in Chapter 2 sections 2.2 and 2.3 of this thesis.

government can deliver these services if and only if it is in a good financial condition. In its worst condition, a local government is unable to create and deliver public value to its constituents (Carmeli, 2008). A good financial condition assures the sustainability of local government in delivering services at an appropriate quality to their residents (Carmeli, 2006). Moreover, the good financial condition of a local government not only directly impacts on the local community, but also plays an important role in the economy (Carmeli, 2007). If local government fails to meet its financial obligations, the regional economy could be adversely affected (Honadle & Jones, 1998).

Unlike the business sector, in which assessments of the financial condition of firms have been extensively researched, research assessing the financial condition of local governments is relatively new, with such research commencing in the 1980s in the United States (Kloha et al., 2005a). Within industrialised countries, experts have begun assessing local government financial condition after the great recession started in 2008 (Padovani & Scorsone, 2011). This can be contrasted with the business sector, where such research commenced 20 years earlier. In the business sector, Beaver (1966) and Altman (1968; 2000) established a seminal model to predict the financial conditions of a firm. In the local government sector, scholars and practitioners have attempted to develop measures for assessing local financial conditions using various dimensions and indicators<sup>4</sup> (see Brown, 1993, 1996; Groves et al., 1981; Hendrick, 2004; Honadle et al., 2003; Kleine et al., 2003; Kloha et al., 2005a, 2005b; Ladd & Yinger, 1989; Mercer & Gilbert, 1996; Nollenberger et al., 2003; Wang et al., 2007; Zafra-Gómez et al., 2009a). However, there is little agreement as to what are the appropriate dimensions and indicators that can be used to measure the specific financial conditions that can occur in different contexts (Dennis, 2004; Wang et al., 2007). In addition, Padovani et al., (2010) state that there

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<sup>4</sup> See section 1.10 for definitions of dimension and indicator.

is a lack of research on local government financial condition measurement systems. There is still a lack of any international comparison of how financial condition is identified and measured across countries. Such a situation is tightly intertwined with the information available to measure financial condition (Padovani & Scoresone, 2011).

According to prior research, as cited above, there are two types of dimensions used to assess the financial condition of a local government. The first dimension is environmental factors including socioeconomic, political and demographic considerations (Hendrick, 2004; Kloha et al., 2005a, 2005b; Krueathep, 2007; Ladd & Yinger, 1989). The second dimension is financial factors (i.e. accounting information), which are mainly sourced from local government financial statements (Brown, 1993, 1996; Carmeli, 2002; Groves et al., 1981; Padovani et al., 2010; Wang et al., 2007; Wolff & Jesse, 1998). This study utilises accounting information sourced from local government financial statements in developing a measure of local government financial condition in Indonesia.

## **1.2 Research gap**

In general, the literatures discussed above (see Carmeli (2002), Carmeli (2008), Nollenberger et al. (2003), Dennis (2004), Honadle et al. (2003), Kloha et al. (2005a), Wang et al. (2007), Carmeli (2008), Zafra-Gomez et al. (2009a; 2009b; 2009c) do not state what theories are used to explain the factors affecting the financial condition of a local government. Kloha et al. (2005a) argue that previous research assessing local government financial condition has several weaknesses, such as too many variables, exclusion of key variables, ambiguous expectations, failure to allow for diverse preferences, use of relative rather than absolute size, inability to focus on one locality and data availability. Wang et al. (2007) also criticise previous research for not utilising financial statements and statements of operations to assess

financial condition. Prior research has used non-financial socioeconomic variables to assess the financial condition. Socioeconomic variables of a local government might influence financial condition; however, these variables are not part of the financial condition (Wang et al., 2007). Wang et al. (2007) argue that to assess financial condition, one should use financial factors to build dimensions and indicators.

Not only is there still little agreement about the dimensions and indicators for assessing financial condition, but also most of the previous research only discusses procedures to assess the financial condition of a local government (Brown, 1993, 1996; CICA, 1997; Groves et al., 1981; Hendrick, 2004; Honadle & Jones, 1998, Kleine et al., 2003; Kloha et al., 2005a; Wang et al., 2007; Wolff & Jesse, 1998; Zafra-Gómez et al., 2009a, 2009b). Previous researchers have not analysed the factors influencing local government financial condition; how these factors influence financial condition; and why one local government is healthier than another. Honadle et al. (2004) and Kamnikar et al. (2006) suggest that the financial community requires further study and analysis to determine the best methodology for assessing the financial condition of state and local governments.

### **1.3 Research problems**

Although local government stakeholders in Indonesia need information about local government financial conditions, until now they have faced difficulties in knowing whether these conditions are sound or not. In general, the difficulties of knowing the financial condition of local government are due to lack of agreement about an effective assessment model and lack of uniformity in financial condition indicators (Chaney et al., 2002; Honadle, 2003; Kloha, et al., 2005b; Wang et al., 2007). In the United States, most states do not have indicators to monitor the financial condition of their local governments (Honadle, 2003; Kloha et al. 2005b). If a state utilises certain

indicators to monitor its financial condition, the indicators do not effectively assess the financial condition (Kloha et al., 2005b).

Despite the need for these indicators, to date, of the limited research that has been undertaken internationally (Jones & Walker, 2007), none has been conducted in the Indonesian context. Furthermore, there is little empirical evidence about the factors affecting the financial condition of local government in Indonesia (Dennis, 2004; Jones & Walker, 2007). This situation has created difficulties for local government executives and legislators in making effective policy responses whenever the financial conditions of local government worsen. Further, the quality of decision-making might have improved if this information had been available.

#### **1.4 Research questions**

Based on the research problem stated above, this study raises the following two questions:

1. What are the effective dimensions and indicators for assessing the financial condition of a local government in Indonesia?
2. What factors, either external socioeconomic factors or internal management practices, affect the financial condition of local government in Indonesia?

#### **1.5 Research objectives**

The objectives of this study are:

1. to develop a measure of the financial condition of a local government based on the government financial reporting framework; and
2. to determine the factors affecting the financial condition of a local government.

The framework used to answer the research questions is the demand and supply framework related to public finance (Deacon, 1978; Hyman 1990; Ohls & Wales,

1972). This framework indicates that the demand for services and products provided by a local government depends on income, price, population of the community, prices of other products, quality, tastes and expectations about the future. On the supply side, the cost to produce and to deliver services and products is the determinant of the supply of services and products by a local government. As applied to this study, this framework hold that it is expected that the independent variables used in this study (population size; age profile; population density; wealth of community; financial efficiency; revenue base of local government; and cost of production of services and goods) significantly influence or explain the dependent variable (the financial condition of local government).

### **1.6 Contribution to knowledge (academic contribution)**

The study offers a new method to assess the financial condition of local government by proposing new dimensions and indicators and also methods in developing a composite index of the financial conditions, which will be an improvement on the existing methods. Therefore, the method of this study can be a reference for other international scholars in assessing the financial condition of local government because at the international level, the literature concerning local government financial condition is quite limited (Padovani & Scorsone, 2011). Furthermore, the study explains the factors influencing the financial condition of local government that have not been much discussed in previous studies. To explain the variation in financial condition, the supply and demand framework is be used as the underlying theory. In addition, the study bridges the field of public finance and the field of public sector accounting.

For Indonesian scholars, this study represents the first attempt to analyse the financial condition of local governments in Indonesia. Results of this study will encourage

both Indonesian scholars and practitioners to do further research in the field of assessing local government financial condition.

### **1.7 Statement of significance (practical contribution)**

Outcomes of this study will contribute benefits to local government and its stakeholders, including central government, legislative, people, etc. For local government itself, assessing its financial condition is important because information resulting from the assessment will help local government to detect any signs of financial distress and in turn help to avert financial crisis (Jung, 2009) and improve service delivery (Carmeli 2006, 2007; Ngwenya, 2010).

In addition, local governments can develop an instrument as an alert system to detect undesirable financial conditions that are likely to happen. In turn, local government will be in a good position to identify and avoid financial difficulties before they occur (Kloha et al., 2005a). Leaders of a local government can also evaluate their actions and communicate their reasons associated with actual outcomes (Carmeli, 2002). Furthermore, local leaders can use the information about the financial condition index in local election campaigns in order to be elected.

For the central government, the results of the study will be valuable, especially for the Ministry of Home Affairs and the Ministry of Finance, in monitoring the financial condition of local governments and providing an input to these ministries into developing policies and regulations related to managing local government finance. Carmeli (2002) asserts that the central government will benefit from the presence of a financial condition index because it will be equipped with an effective instrument to distribute the decentralisation fund and to implement policies.

The legislative members of a local government and the community can use the information about the local government's financial condition to watch over local government executives in managing local government finance. By using this information, they can monitor and evaluate whether the executives are maintaining local government finance steadily in a good condition, compared to other local governments. As a result, there will be competition among local government executives in managing local government finance. Further, the information could be used by society as one consideration in the re-election of politicians and in decisions to locate business (Casal & Gomez, 2011).

### **1.8 Scope of the research**

This research focuses only on the financial statements of local governments in Java from the financial year 2007 to 2010. The population of this research is all local governments in Indonesia, consisting of provincial local governments, municipal local governments and district local governments.

Based on financial statements of local governments from the financial year 2007 to 2010, this research aims to develop an instrument to measure the financial condition of local government and to examine the factors affecting financial condition by using socioeconomic data (i.e. population size, population density, age profile of community, community wealth, revenue base of local government, the cost of services and goods, and financial efficiency).

### **1.9 Context of the study**

The sections below will provide a brief description of the environments surrounding local government finance. These environments include local government autonomy and financial decentralisation and local government financial management. A more detailed description about the context of the study can be found in Appendix J.

### **1.9.1 Local government autonomy and financial decentralisation in Indonesia**

Indonesia is a unitary state in the form of a republic. Indonesia consists of 530 autonomous local governments, of which 33 are provincial local governments, 98 are municipal local governments and 399 are district local governments (Ministry of Home Affairs Regulation No. 18/2013). Local government autonomy was started in 1999, regulated by Act No. 22/1999 on regional autonomy and amendment by Act No. 32/2004. These acts state that local government autonomy is the delegation of authority and submission of some of the central government's affairs to local governments within the framework of democracy and national development by involving local people's aspirations and participation. Thus, the development in a region is based on its people's perceptions, both economically and politically.

Based on these acts, the central government manages the affairs of foreign policy, defence and security, judiciary, monetary and national financial affairs and religion. Local governments conduct affairs other than those matters, such as education, health and public works. The division of governmental affairs is based on the criteria of externality, accountability and efficiency with regard to harmonious relationship between the level and or composition of government (Act No. 38/2007).

To support the implementation of regional autonomy and in accordance with the concept of money follows functions<sup>5</sup>, the central government must allocate funds to finance the activities and affairs of the local governments. The funds allocated to local governments are called decentralisation funds. Act No. 32/2004 on regional autonomy and Act No. 33/2005 on fiscal balance mandate that the central government has to allocate at least 26% of domestic revenues as decentralisation funds. The funds

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<sup>5</sup> Concept of money follows functions referring to the budget allocation which is based on the functions of each level of local government entrusted by the law to it in order to avoid overlapping of functions and activities performed by each level of local government (State Finance Act 17, 2003).

are intended to provide certainty for local government's funding sources and to minimise the gap in financial capacity among regions. Decentralisation funds consist of the general allocation fund, revenue sharing fund, special allocation fund, special autonomy fund and adjustment fund.

The general allocation fund (GAF) is sourced from the central government budget and is intended to reduce fiscal imbalance among local governments (i.e. horizontal fiscal imbalance) through the application of a formula that considers basic needs, fiscal capacity and fiscal needs of local governments. The formula is:  $GAF = \text{Basic Allocation} + (\text{Fiscal Need} - \text{Fiscal Capacity})$  (Act No. 33/2004). Fiscal need of a local government is measured based on its population, area, construction cost index and human development index (Act No. 33/2004), whereas fiscal capacity of a local government is measured based on its local own revenues and sharing fund revenues (Act No. 33/2004). Thus, if a local government has a low human development index (i.e. bigger fiscal need), it will get more GAF compared to a local government with a higher human development index (i.e. smaller fiscal need). On the other hand, if a local government has a larger local own revenue (i.e. larger fiscal capacity), it will get a lower GAF compared to a local government with a smaller local own revenue (smaller fiscal capacity).

The revenue sharing fund is sourced from the central government budget and is intended to reduce the vertical fiscal imbalance between central and local governments (Act No. 33/2004). Local governments which are rich in natural resources (e.g oil, gas, and minerals) will get higher revenue sharing fund compared to those with small or no natural resources. Central government transfers the revenue sharing fund to local government in the same fiscal year as the revenues are realised.

The special allocation fund is sourced from the central government budget and is allocated to a particular local government in order to help fund a specific activity that is a local government affair in accordance with national priorities.

The special autonomy funds are funds that are allocated to finance the implementation of special autonomy in the Aceh Province, Papua Province and Papua Barat Province as provided in Act No. 11/2006 regarding the Government of Aceh and Act No. 21/2001 on special autonomy for Papua Province.

Finally, the adjustment fund is a fund for a local government that receives a smaller general allocation fund compared to the previous fiscal year.

Table 1.1 above reports that the general allocation fund has the biggest proportion of the total decentralisation funds transferred by the central government. From financial year 2001 to 2013 its proportion was, on average, about 70% of total decentralisation funds. This situation shows that Indonesia implements a system of fiscal equalisation in intergovernmental transfers. However, Shah (2012) and Shah et al. (2012) argue that the system is primarily focused on a gap-filling approach to provincial-local finance to ensure revenue adequacy and local autonomy but without accountability to local residents for service delivery performance, lack of transparency, inequity, and uncertainty in allocation.

To finance their expenditures, local governments depend heavily on decentralisation funds. This study finds that from 2008 to 2010, on average, decentralisation funds contributed 91.76% and 86.65% of total revenue of district local governments and municipal local governments in Java, respectively. In other words, district local governments and municipal local governments generated their own revenues to total only about 8.24% and 13.35%, respectively of their total revenue. This situation occurs because local governments are only allowed to raise non-strategic revenue (i.e. small revenues), such as hotel tax, restaurant tax and street lighting tax. Strategic

revenues (i.e. large revenues), such as income tax, value added tax, proceeds from minings (oil, gas, and minerals), belong to the central government. This practice is the implementation of Article 33 verses 2 and 3 of the Constitution, which state: “(2) Branches of production which are important for the state and dominating the life of the people should be controlled by the state; (3) Land and water and the natural wealth contained therein shall be controlled by the state and used for the welfare of the people.”

From the explanation in the above paragraphs, it can be concluded that, in substance, financial decentralisation in Indonesia is not on the revenue side because of the limited objects of revenues that can be raised by local governments. Financial decentralisation is on the expenditure side, where local governments are granted authority to make policies and allocate their financial resources (i.e. from either decentralisation funds or local own revenues) based on their people’s perceptions, both economically and politically, to achieve community welfare (Act No. 33/2004).

### **1.9.2 Local government financial management in Indonesia**

The three main parts of local government financial management are budget preparation, budget implementation and the accounting system. The following paragraphs provide a brief description of each of these parts.

#### **Budget preparation**

The local government budget is the basis for local government financial management during a financial year. The financial year starts on 1 January and ends on 31 December each year.

The basis used in preparing the budget is cash. In preparing the budget, a local government has to implement performance-based budgeting principles (Government

Regulation No. 58/2005). In implementing these principles, local government must ensure that there is a relationship between the amounts of money spent (input) and the output achieved for every activity or program. The efficiency and effectiveness of an activity or program are the focus of these principles.

### **Budget implementation**

Local governments are granted wide autonomy to execute their budgets. The central government only provides principles, not detailed rules, in implementing budgets. Local governments are free to design the organisational structure pertaining to budget execution. To meet their local characteristics and situation, local governments are also granted the right to establish regulations for the systems and procedures of budget implementation, to develop accounting policies and to develop other necessary policies in local financial management (Government Regulation No. 58/2005). Therefore, the strength of a local government's internal control system depends on the policies of the local government leadership.

### **Accounting system**

Practically, local governments in Indonesia have been implementing double-entry and cash basis towards accrual accounting since 2003. Such an accounting basis means that the recognition of revenues, expenditures, transfers and financing is cash-based, while recognising assets, liabilities and equities uses an accrual basis. However, the central government issued government accounting standards in 2005 under Government Regulation No. 24/2005. In 2010, this regulation was amended by Government Regulation No. 71/2010.

Comprehensive local government financial statements consist of statements of financial position; statements of budget realisation; cash flow statements; and notes to the financial statements (Government Regulation No. 24/2005; Government

Regulation No. 71/2010). Each head of the local government's working unit has to prepare the financial statements of their working unit. Based on the financial statements of the local government's working unit, the chief financial officer prepares consolidated financial statements. The consolidated statements are then sent to the Inspectorate Office to be reviewed. The inspector will review whether the statements are in compliance with the government accounting standards and whether the internal control system is reliable. Next, the governor/regent/mayor submits the financial statements to the Supreme Audit Board no later than three months after the end of the financial year (Government Regulation No. 8/2006).

### **1.10 Definition of key terms**

**Local government** is the unity of the legal communities that has territorial area and has authority to regulate and administer governmental affairs and public interest on its own initiative based on the aspirations of the people within the system of Unitary State of Republic of Indonesia (Act No. 32/2004). There are two levels of local government in Indonesia: provincial local government; and district and city local government. The object researched in this study is at the level of district and municipal local governments.

This study uses the term of "local government" in a plural meaning to refer group of local government.

**Financial condition** of local government refers to the financial ability of a local government to fulfil its obligations (short-term obligations, long-term obligations, operational obligations and obligations to provide services to the public), to anticipate unexpected events and to execute financial rights efficiently and effectively.

**Financial condition index** is a scale to measure the financial condition of local government ranging between 0 and 1. The index is a composite index of the short-term solvency index, long-term solvency index, budgetary solvency index, service-level solvency index, financial flexibility index and financial independence index. The best financial condition is indicated by 1, while 0 indicates the worst condition.

**Dimension** is aspect of a concept (De Vaus, 2002).

**Indicator** is specific measure of a more abstract concept (De Vaus, 2002).

**Short-term solvency** indicates the capability of a local government to repay its liabilities that mature within 12 months (Wang et al., 2007).

**Long-term solvency** is the capacity of a local government to satisfy its long-term liabilities (CICA 1997; Nollenberger et al., 2003).

**Budgetary solvency** is the ability of a local government to generate revenue to cover its operations during the period of the financial budget (Nollenberger et al., 2004).

**Service-level solvency** is the capability of a local government to supply and maintain the quality of public services needed and desired by the community (Wang et al., 2007).

**Financial flexibility** is a condition in which a local government can increase its financial resources to respond to increased commitments, through either increased revenues or increased debt capacity (CICA, 1997).

**Financial independence** is a condition in which a local government is not vulnerable to sources of funding beyond its control or influence, from both national and international sources (CICA, 1997).

## **1.11 Organisation of the thesis**

This thesis examines two main topics: developing a measure to assess the financial condition of local government; and examining the factors affecting the financial condition of local government. The thesis consists of eight chapters as follows.

**Chapter 1** describes an outline of the contents of the thesis. It discusses the background of the research, research gap, research problem, research questions, research objectives, research contribution, scope of the research, context of the research, definition of the terms and the organisation of the thesis.

**Chapter 2** reviews previous studies related to the assessment of the financial condition of local government for the purpose of establishing a definition of financial condition. Based on the definition developed, the dimensions and indicators of the financial condition are formulated. The chapter consists of five main sections, which are: definition of the financial condition of local government; the difference between financial performance and financial condition; previous research related to the methods of assessing the financial condition of local government; criteria for financial distress; and the conclusion.

**Chapter 3** reviews previous research examining the factors affecting the financial condition of local government. The chapter also discusses the supply and demand framework as a basis to determine the factors affecting the financial condition of local government. The chapter concludes with a discussion about the factors affecting the financial condition of local government.

**Chapter 4** focuses on the development of the research framework in order to guide the researcher to achieve the research objectives. The chapter discusses the research questions, research approach, research framework, hypothesis development, operational definition of the key constructs and procedures in model testing.

**Chapter 5** discusses and justifies the research methods to examine the research objectives. There are four main sections in the chapter. The first section discusses the sampling process. Data sources are outlined in the second section, followed by a description of the data-collection method in the third section. Next, the development of the questionnaire is discussed. The last section explains the statistical tools used to analyse the data.

**Chapter 6** examines the steps in developing a measure to assess the financial conditions of local government. There are four main sections in the chapter: assessing the reliability of the measure; determining the weight of each dimension forming the measure; developing the composite index of the financial condition of local government; and assessing the validity of the measure.

**Chapter 7** analyses the factors affecting the financial condition of local government. The chapter focuses on discussing the results of the multivariate regression analysis. In addition, the chapter discusses tests on the assumptions of regression.

**Chapter 8** discusses, concludes and delivers suggestions regarding the issues discussed in Chapter 6 and Chapter 7. The chapter is divided into three main parts: discussions pertaining to the results of Chapter 6 and Chapter 7; conclusions; and suggestions for future research relating to assessing the financial condition of local government.

## **CHAPTER 2**

### **LITERATURE REVIEW:**

### **DIMENSIONS AND INDICATORS OF THE FINANCIAL CONDITION OF LOCAL GOVERNMENT**

#### **2.1 Introduction**

Research on the assessment of the financial condition of local government received attention after the occurrence of financial problems experienced by local governments around the world. In the United States, the cities of New York and Cleveland experienced financial distress in the 1980s, followed by the cities of Miami, Pittsburgh and Philadelphia (Kloha et al., 2005a). The same situation also existed in European countries, such as financial distress in Norwegian local governments in 2001, British local governments in 1985 and Netherlands local governments in the 1980s (Carmeli, 2008). In Japan, such conditions occurred as well in their local governments in the second half of the 1990s (Takahashi, 1999). Between the 1970s and the 2000s, Australian local governments faced financial austerity as indicated by the falling local government revenue as a proportion of national income (Dollery et al., 2006). This phenomenon motivated researchers to conduct research to create an instrument to evaluate the financial condition of local governments in order to detect the symptoms of financial distress before it occurred.

This chapter will review previous studies related to the assessment of the financial condition of local government with the aim of developing a definition of financial condition. By referring to the definition developed, the dimensions and indicators of the financial condition will be formulated. This chapter consists of five main sections, which are: definition of the financial condition of local government; the difference

between financial performance and financial condition; previous research related to the method of assessing the financial condition of local government; criteria for financial distress; and the conclusion.

## **2.2 Reviewing the definition of the financial condition of local government**

Many scholars and professional organisations have attempted to define local government financial condition during the last few decades. Berne and Schramm (1986) define local government financial condition as the possibility that a local government to fulfil its financial obligations to its stakeholders as these obligations mature. Groves et al. (1981) and Nollenberger et al. (2003) delineate the financial condition of local government as the capacity of a local government to fund its services on an ongoing basis. They distinguish between cash solvency, budgetary solvency, long-term solvency and service-level solvency. Cash solvency is the ability of a local government to yield sufficient cash within one month to three months to settle its liabilities. Budgetary solvency refers to the capability of local government to raise adequate revenues to finance its recent or desirable service standards. Long-term solvency shows the capacity of local government to fulfil all of its expenditure activities, including regular expenditures and other expenditures that will take place only in the times when they must be settled. Furthermore, service-level solvency is local government's capability to supply services in the quantity and quality that are needed and requested by its people. The definition proposed by Groves et al. (1981) and Nollenberger et al. (2003) above is adopted by Wang et al. (2007). Wang et al. (2007) define the financial condition of local government as the degree of local government financial solvency, consisting of the factors of cash solvency, budgetary solvency, long-term solvency and service-level solvency.

The Canadian Institute of Chartered Accountants (CICA, 1997) defines government financial condition as financial health, which is measured from the aspects of sustainability, vulnerability and flexibility within the overall context of the economic and financial environment. Financial sustainability is a condition in which a local government is able to maintain the programs that already exist and meet the requirements of creditors without incurring a debt burden on the economy. Financial flexibility is a condition in which the government can increase its financial resources to respond to increased commitments, through either increased revenues or increasing its debt capacity. Financial vulnerability is a condition in which a local government becomes dependent, resulting in vulnerability, to sources of funding beyond its control or influence, from both domestic and international sources.

Kloha et al. (2005a) and Jones and Walker (2007) define the financial condition of local government in the context of financial distress. Kloha et al. (2005a) define it as a condition in which local governments cannot meet standards in operations, debt and the needs of society for several consecutive years, whereas Jones and Walker (2007) interpret financial distress as a lack of ability to preserve the pre-existing qualities of services to the people. On the other hand, Hendrick (2004) defines the financial condition of local government in terms of financial health. The author defines it as a local government's ability to meet financial obligations as well as services to the community.

Kamnikar et al. (2006) build a definition of the financial condition of local government based on definitions offered by the International City/County Management Association (ICMA) (2003), Mead (2001) and CICA (1997). Those professional organisations define the financial condition of local government as a local government's capacity to fulfil its obligations as they become due and the ability to continue to provide the services its constituency requires. Maher and Deller (2011) provide a definition of the financial condition of local government as the

capability of a local government to preserve recent service levels, survive economic distortions and satisfy the requirements of growth as well as decline.

Rivenbark et al. (2009, 2010) and Rivenbark and Roenigk (2011) define the financial condition of local government as the capacity of a local government to satisfy its current financial obligations, services and capital, referring to resource flows and resource stocks that are obtained from annual financial statements. Their definition is developed based on two reasons as to why financial statements are prepared and on the objectives of financial reporting. Berne and Schramm (1986) state that the reasons for preparing financial statements are to inform the movement of assets throughout a certain moment in time (i.e. as shown in operating statements) and to provide information about available assets at a certain given time (i.e. as shown in balance sheets), whereas the financial reporting objective is to provide information necessary to determine whether an entity's financial situation is improving or worsening as an effect of resource flow (GASB, 1987).

From the various definitions that have been developed by the researchers and institutions mentioned above, the most widely accepted definition of local government financial condition refers to the capability of a local government to fulfil its financial liabilities in a timely manner and its ability to maintain the services provided to the community. Unfortunately, those researchers did not develop a definition of the financial condition of local government relating to the objectives of a nation. Previous researchers have paid less attention to the environmental aspects of local government, especially the objectives of a nation, in developing the definition of the financial condition of local government. This current study argues that in developing a definition of the financial condition of local government, one should derive it from the objectives of the nation.

### **2.3 Conceptualising the definition of the financial condition of local government**

This current study argues that in defining local government financial condition it should be derived from the national objectives, because the financial condition of local government is a financial effect resulting from local government activities to achieve the national objectives. In the context of Indonesia, there are four national objectives as stated in the preamble of the Constitution: to protect all the people of Indonesia and the entire country of Indonesia; to promote the welfare of the people; to intellectualise the life of the people; and to establish a world order based on freedom, eternal peace and social justice (Constitution, 1945).

To achieve those objectives, they must be implemented together by the central government and local governments. To achieve the national objectives, local governments implement programs and activities to serve the community in all areas of public services including health, infrastructure, education and so forth. In the framework of local government autonomy, as stated in Act 32/2004 regarding regional autonomy, each local government is granted the rights to design its own policies to achieve the national objectives as long as they are in congruence with the central government's strategic plan. As a result, each local government has its own programs and activities based on its people's perceptions, both economic and political. The implementation of programs and activities is financed by the local government budget. Because each local government has different programs and activities, this will impact on its financial condition. The central government only provides local government with the principles for managing local finance rather than the detailed rules it provided previously (Act 32/2004; Act 33/2004; Government Regulation 58/2005). As a result, the financial condition of each local government varies. Therefore it can be concluded that the financial condition of local government

is a financial effect resulting from local government activities to achieve the national objectives.

During the process of implementing its own programs and activities, local government interacts with its stakeholders and environments. The interaction among local government, stakeholders and environments will create certain rights and obligations to the local government. The obligations to the community can be ordinary obligations, such as the fulfilment of minimum service standards in the areas of health, education and infrastructure, or extraordinary obligations that are caused by extraordinary events such as natural disasters, riots and other matters. Article 21 of Act 32/2004 details the rights of local government to organise and manage their own affairs and administration; select regional leaders; manage local officials; manage the wealth of region; raise taxes and levies; obtain the results of the management of natural resources and other resources that are in the area; find sources of legitimate income, and other rights stipulated in legislation. In addition, article 22 of Act 32/2004 describes the obligations of local government to its stakeholders. The obligations are to protect the people, maintain unity and national harmony, as well as the integrity of the Unitary Republic of Indonesia; improve the quality of life of society; develop democracy; provide justice and equity; improve basic educational services; provide health care facilities; provide appropriate social facilities and public facilities; develop a system of social security; prepare spatial planning; develop productive resources in the area; preserve the environment; manage the administration of residence; preserve social and cultural values; establish and implement regulations according to its authority; and other obligations set out in the legislation.

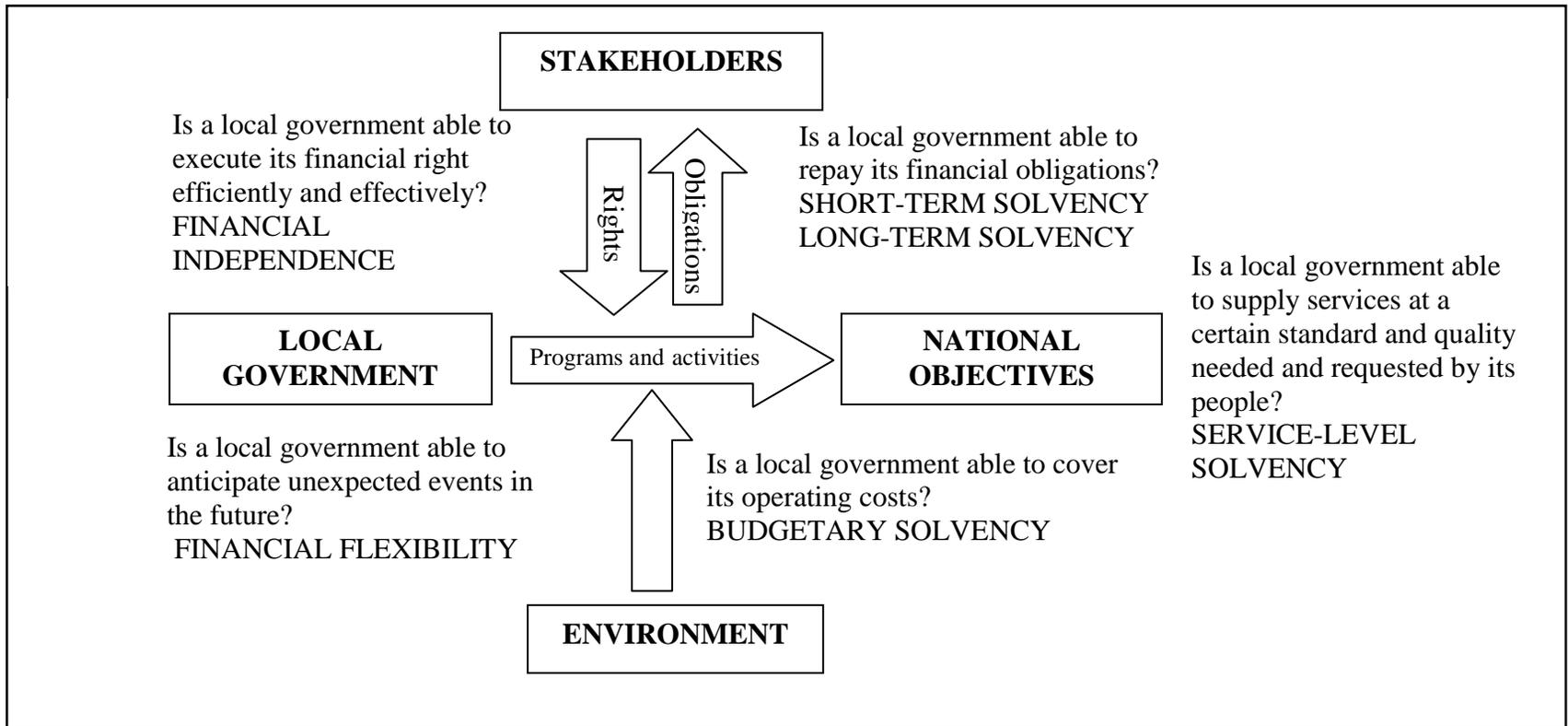
However, local government efforts to achieve the national objectives are constrained by resource availability, including human, financial, equipment, time resources and so on. Therefore, local government has to optimise limited resources to achieve the

national objectives. Local government must ensure that its obligations to stakeholders are satisfied. In addition, local government must be able to execute its rights effectively and efficiently. Thus, a good local government is a local government that can meet all of its obligations and can execute its rights efficiently and effectively in order to achieve national objectives.

Bringing the argument above into the financial context, a sound financial condition of a local government occurs when a local government is able to execute its financial rights (i.e. collecting revenue) efficiently and effectively and is able to meet all financial obligations to its stakeholders in order to achieve national objectives. The ability to execute financial rights efficiently and effectively is shown by an increase in a local government's own revenues. In turn, this condition will lead to an increase in the financial independence of local governments.

The ability to meet financial obligations is shown by the capability of a local government to repay its short-term and long-term liabilities (i.e. short-term solvency and long-term solvency), the ability to cover its operating expenses (i.e. budgetary solvency) and the capacity to supply services at the standards and quality needed and requested by its people (i.e. service-level solvency). In addition, a sound financial condition of local government occurs when a local government is able to anticipate events that are unexpected in the impending future (i.e. financial flexibility), such as natural disasters or social disasters. The following figure shows the process of conceptualisation of the definition of local government financial condition.

**Figure 2.1: Conceptualising the definition of financial condition of local government**



Based on the argument stated above, there are six dimensions forming the financial condition of local government. The dimensions are:

1. the capability to fulfil short-term obligations, hereafter called **short-term solvency**
2. the capability to fulfil operational obligations, hereafter called **budgetary solvency**
3. the capability to fulfil long term obligations, hereafter called **long-term solvency**
4. the capability to overcome unexpected events in the future, hereafter called **financial flexibility**
5. the capability to execute financial rights in an effective and efficient manner, hereafter called **financial independence**
6. the capability to supply services to the community, hereafter called **service-level solvency**.

Thus, this study defines the financial condition of a local government as its financial ability to fulfil its obligations (short-term obligations, long-term obligations, operational obligations and obligations to provide services to the public), to anticipate unexpected events and to execute financial rights efficiently and effectively. As shown in the previous paragraphs, the step of conceptualisation of the definition of financial condition is used as guidance in determining the elements or dimensions of local government financial condition. This important step was not taken in previous studies (see Brown, 1993, 1996; Casal & Gomez, 2011; Chaney et al., 2002; Dennis, 2004; Kamnikar et al., 2006; Kloha et al., 2005a; Mercer & Gilber, 1996; Wang et al., 2005; Zafra-Gomez et al., 2009a).

## **2.4 Financial condition versus financial performance**

Wang et al. (2007) differentiate between the financial condition of local government and the financial performance of local government. They argue that financial performance refers to the difference between a local government's revenues and its

expenses, which is a short term concept. On the other hand, financial condition encompasses both the short run and the long run. However, constantly unfavourable financial performances probably worsen the financial condition, such as insolvency and finally bankruptcy (Carmeli, 2002; Wang et al., 2007). Therefore, to determine financial condition needs to use information of financial performance as well as financial position of local government.

Carmeli (2002) argues that performance measurement refers to the activity of evaluating and reporting data associated with the quality, efficiency and effectiveness of an organisation. Based on their arguments, it can be deduced that the financial performance is related to past time periods, whereas the financial condition is related to the ability to fulfil obligations in the future, in both the short run and the long run. In addition,

## **2.5 Previous research related to the method of assessing the financial condition of local government**

The following subsections will summarise and then discuss previous research from various countries (i.e. the United States, Canada and Spain) related to the methods of assessing the financial condition of local governments. The discussion will be chronological.

### **2.5.1 ICMA's Fiscal Trend Monitoring System (FTMS)**

In 1980 the Fiscal Trend Monitoring System (FTMS) was established by the International City/County Management Association (ICMA). The FTMS is an early-warning system to predict the financial situation of local government by analysing the trends of indicators of the financial condition. The FTMS has been revised twice, in 1994 and 2003. The FTMS measures the financial condition of local governments using 11 indicators, which are broken down into 45 sub-indicators. The indicators are

claimed to be the main factors reflecting local government financial condition. The eleven indicators in the FTMS consist of:

- (1) revenue indicators
- (2) expenditure indicators
- (3) operating position indicators
- (4) debt indicators
- (5) unfunded liability indicators
- (6) capital plant indicators
- (7) community needs and resources indicators
- (8) intergovernmental constraints
- (9) disaster risk
- (10) political culture; and
- (11) external economic conditions.

Indicators 1 to 6 are called financial factors, while indicators 7 to 11 are deemed environmental factors. Table 2.1 shows the factors, indicators, sub-indicators and formula used in the FTMS. To analyse each of the indicators, the steps taken are as follows.

1. Collect data for several years (usually five years), then calculate the ratios in the table above for each of the indicators respectively.<sup>6</sup>
2. Draw a graph of each ratio by plotting the values of ratios over time to present the trend.
3. Evaluate the results by identifying whether the trend is unexpected (unfavourable trend).
4. Analyse the unfavourable trends. The analysis involves several activities, such as finding out when the unfavourable trend began; considering alleviating conditions; recognising the reasons for the unfavourable trend; contrasting the tendency with other local governments; contrasting the economic situation of the

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<sup>6</sup> In this thesis data used were for four years from 2007-2010.

local government to national or regional trends; and contrasting the tendency with the equivalent local governments.

**Table 2.1: The fiscal trend monitoring system indicators**

Factors	Indicators	Sub-indicators	Formula	Early warning trends
Financial factors	1. Revenues	Revenues per capita	$\frac{\text{Net operating revenues (constant dollars)}}{\text{Population size}}$	↓↑
		Restricted revenues	$\frac{\text{Restricted operating revenues}}{\text{Net operating revenues}}$	↑
		Intergovernmental revenues	$\frac{\text{Intergovernmental operating revenues}}{\text{Gross operating revenues}}$	↑
		Elastic revenues	$\frac{\text{Elastic operating revenues}}{\text{Net operating revenues}}$	↓
		One-time revenues	$\frac{\text{One time operating revenues}}{\text{Net operating revenues}}$	↑
		Tax revenues	Tax revenues (constant dollars)	↓
		Uncollected property taxes	$\frac{\text{Uncollected property taxes}}{\text{Net property tax levy}}$	↑
		User charges coverage	$\frac{\text{Revenues from fees and user charges}}{\text{Expenditures for related services}}$	↓
		Revenue shortfalls or surpluses	$\frac{\text{Revenues shortfalls or surpluses}}{\text{Net operating revenues}}$	↑
	2. Expenditures	Expenditures per capita	$\frac{\text{Net operating expenditures (constant dollars)}}{\text{Population size}}$	↑
		Expenditures by function	$\frac{\text{Operating expenditures for one function}}{\text{Total net operating expenditures}}$	↑
		Employees per capita	$\frac{\text{Number of municipal employees}}{\text{Population size}}$	↑
		Fixed costs	$\frac{\text{Fixed costs}}{\text{Net operating expenditures}}$	↑
		Fringe benefits	$\frac{\text{Fringe benefit expenditures}}{\text{Salaries and wages}}$	↑
	3. Operating position	Operating deficit or surplus	$\frac{\text{General fund operating deficit or surplus}}{\text{Net operating revenues}}$	↑
		Enterprise operating position	Enterprise working capital or operating income (constant dollars)	↓
		Fund balances	$\frac{\text{Unreserved fund balances}}{\text{Net operating revenues}}$	↓
		Liquidity	$\frac{\text{Cash and short-term investments}}{\text{Current liabilities}}$	↓
	4. Debt structure	Current liabilities	$\frac{\text{Current liabilities}}{\text{Net operating revenues}}$	↑
		Long-term debt	$\frac{\text{Net direct bonded long-term debt}}{\text{Assessed valuation, population or personal income}}$	↑
		Debt service	$\frac{\text{Net direct debt service}}{\text{Net operating revenues}}$	↑
		Overlapping debt	$\frac{\text{Long-term overlapping bonded debt}}{\text{Assessed valuation}}$	↑
	5. Unfunded liabilities	Pension obligations	$\frac{\text{Pension obligations}}{\text{Salaries and wages}}$	↑
		Pension assets	$\frac{\text{Pension plan assets}}{\text{Annual pension benefits paid}}$	↓
		Post employment benefits	$\frac{\text{Total liability for post employment benefits}}{\text{Number of municipal employees}}$	↑

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<b>Factors</b>	<b>Indicators</b>	<b>Sub-indicators</b>	<b>Formula</b>	<b>Early warning trends</b>	
Financial factors	6. Condition of capital plant	Maintenance efforts	$\frac{\text{Expenditures for repair and maintenance of general fixed assets (constant dollars)}}{\text{Quantity of assets}}$	↓	
		Capital outlay	$\frac{\text{Capital outlay from operating funds}}{\text{Net operating expenditures}}$	↓	
Environmental factors	7. Community needs and resources	Population size	Population number	↑↓	
		Population density	$\frac{\text{Population size}}{\text{Jurisdiction area in square miles}}$	↓	
		Age (population under 18 and over 64)	$\frac{\text{Population under 18 or over 64}}{\text{Population size}}$	↑	
		Personal income per capita	$\frac{\text{Personal income (constant dollars)}}{\text{Population size}}$	↓	
		Poverty household or public assistance recipients	$\frac{\text{Poverty households or public assistance recipients}}{\text{Households in thousands}}$	↑	
		Property value	$\frac{\text{Change in property value (constant dollars)}}{\text{Property value in prior year (constant dollars)}}$	↓	
		Property of top 5 taxpayers	$\frac{\text{Assessed value for top 5 taxpayers}}{\text{Total assessed valuation}}$	↑	
		Home ownership	Home ownership rate	↓	
		Vacancy rates	Vacancy rates	↑	
		Crime rate	Crime rate	↑	
		Unemployment		↑	
		Number of jobs in the community		↓	
		Business activity	. retail sales (constant dollars) . number of business units . gross business receipts (constant dollars)	↓	
		8. Intergovernmental constraints	Mandated expenditure	$\frac{\text{Mandated expenditures}}{\text{Total operating expenditures}}$	↑
			Restriction on fiscal powers	See trend worksheet	
9. Disaster risk	Potential for natural disasters and local preparedness	See trend worksheet			
10. Political culture	Attitudes toward taxes, services, and political processes	n.a	n.a		
11. External economic conditions	National and regional inflation, employment, markets	n.a	n.a		

**Notes:** ↓ = decreasing trend; ↑ = increasing trend; ↓↑ = up and down trend  
Adapted from Nollenberger et al. (2003)

5. Implement professional judgement to develop policy statements. The results of the analysis are heavily dependent on the financial decision-makers' professional judgement.

The strength of the FTMS is that it conceptualises the definition of local government financial condition before determining the indicators to measure financial condition. This procedure satisfies the attribute of face validity. In addition, the main advantage of the FTMS is that it offers a complete description of the factors comprising the financial situation of a local government (Jung, 2008; Rivenbark, et al. 2009, 2010; Wang et al., 2007) and the model is more aligned with a bond rating approach used by rating agencies in United States (Rivenbark et al., 2009, 2010).

However, there are several weaknesses in the FTMS model. Brown (1993), Kloha et al. (2005a) and Rivenbark et al. (2009, 2010) state that the FTMS involves too many variables to interpret the variables comprising financial condition, so that the instrument is suitable for only large local governments and takes a long time for a local government to prepare. As a result, too many variables result in complexity in the aspects of practice, interpretation and presentation (Rivenbark & Roenigk, 2011). Brown (1993) also criticises it as too many variables require substantial time and it is costly for a local government and inconvenient to communicate the outcomes to a local government's stakeholders. Rivenbark et al. (2009, 2010) also criticise the FTMS as it does not provide a government-wide statement. In addition, the FTMS does not explain which ratios are more important than the others (Brown, 1993).

From the methodological point of view, a good instrument should have the characteristics of being valid, reliable and practical (Cooper & Schindler, 2011). However, the FTMS does not match such criteria, because the ICMA does not analyse the reliability and validity of the indicators comprising it. Furthermore, the

FTMS is not practical or easily understood because it does not offer a composite index of the financial condition of local government.

### 2.5.2 Brown's 10-point test of financial condition

Brown (1993, 1996) introduced 10 key ratios to assess the financial condition of local governments with populations of less than 100,000 people. The 10 key ratios are comprised of four basic factors of local government finance, which are: revenues; expenditures; operating position; and debt structure. Table 2.2 below presents those ratios.

**Table 2.2: Brown's 10-point ratios**

<b>Financial factors</b>	<b>Ratios</b>	<b>Interpretations</b>
Revenues	Total revenues / population	<b>A high ratio</b> suggests a greater ability to acquire additional revenue <sup>7</sup>
	Total general fund revenues from own sources / total general fund revenues	<b>A high ratio</b> suggests the local government is not reliant on external governmental organisations
	General fund sources from other funds / total general fund sources	<b>A low ratio</b> suggests the local government does not have to rely on operating transfers to finance general government operations in the general fund
Expenditures	Operating expenditures / total expenditures	<b>A low ratio</b> suggests the infrastructure is being maintained adequately
Operating position	Total revenues / total expenditures	<b>A high ratio</b> suggests the local government has experienced a positive interperiod equity
	Unreserved general fund balance / total general fund revenues	<b>A high ratio</b> suggests the presence of resources that can be used to overcome a temporary shortfall of revenue
	Total general fund cash and investments / total general fund liabilities	<b>A high ratio</b> suggests sufficient cash with which can be used to pay short-term obligations
Debt structure	Total general fund liabilities / total general fund revenues	<b>A low ratio</b> suggests short-term obligations that can be easily serviced by the normal flow of annual revenues
	Direct long-term debt / population	<b>A low ratio</b> suggests that the local government has the ability to repay its general long-term debt
	Debt service / total revenues	<b>A low ratio</b> suggests the local government is able to pay its debt service requirements when due

Adapted from Brown (1993, 1996).

<sup>7</sup> In 1996, Brown revised the favourable condition for this ratio with **a high ratio**, rather than **a low ratio**.

The steps to test financial condition are as follows.

1. Calculate the 10 key financial ratios of all local governments based on existing databases of financial statements.
2. Compare the ratios of a particular local government resulting from the first step with ratios from other local governments. If the ratio of the local government falls in quartile 1 (25% of local governments at the worst level) it will get a score of -1. If its score falls in the second quartile, it will be given a score of 0. If it lies in the third quartile, it scores 1 and if it is in quartile 4 (25% of local government at the best level) it will get a score of 2. If all the ratios of local government lie in quartile 3, then the local government will get a total score of 10. If all ratios are in quartile 2, it will get a total score of 0, and if all ratios are in quartile 1, it will get a total score of -10. Thus, this rating system only gives a positive value if the ratio of a local government is at least in the third quartile. If the ratio of an indicator lies in quartile 3, it means that for the ratio the local government has a better position compared with 50% of local governments that exist in the database. If the ratio of a local government lies in quartile 2, it means that the local government is better than 25% of local governments in the database.
3. Provide a financial condition score based on the results of the comparison in step 2. To determine a comprehensive assesment of a local government financial condition, then the scores of all ratios are added together. If most of the ratios are in quartile 3 or quartile 4, then the total score will be positive.

Brown (1993, 1996) concludes that the financial condition of a local government is described according to the following grading scale.

- a. Local governments with a total score of 10 or more have among the best financial condition.
- b. Local governments with a total score of 5 to 9 are better than most others.
- c. Local governments with a total score of 1 to 4 are about average.
- d. Local governments with a total score of 0 to -4 are worse than most others.

- e. Local governments with a total score of -5 or less have among the worst financial condition.

The strength of Brown's 10-point test is its ability to evaluate the financial condition of local government with only 10 indicators and the utilisation of data from equivalent local governments for analysing each financial indicator, although it also has a weakness, which is the narrow examination of the entire main funds (Maher & Nollenberger, 2012; Rivenbark et al., 2009, 2010). In addition, Brown's model has the characteristic of being practical as it offers a composite index of the financial condition. The composite index helps a local government's stakeholders to assess the financial condition of local government quickly and effectively, because the composite index provides a comprehensive portrait of a local government. In addition, Brown demonstrates an attempt to categorise local governments into four different levels of financial condition.

Brown acknowledges that there are several limitations of his model. The first limitation is that the total score generated by the 10-point test gives a relative interpretation: better or worse. The total score does not provide an absolute interpretation: financially healthy or financially distress. Thus, if a local government receives a low score, or even a negative score, it does not mean that the local government has a problematic financial condition. Another limitation is that this model assumes that each ratio has equal weight, although Brown realises that there are some ratios that are more important than others.

The main drawback of Brown's model is that Brown does not explain the definitions of financial condition or financial health of local government. This results in a fundamental weakness in the model because the indicators are not developed based on a clear definition. This condition does not meet the criterion of face validity. Maher and Nollenberger (2012) argue that several indicators included in assessing

financial condition might not be significant in assessing financial condition. The indicators include general fund sources from other funds divided by total general fund revenues, total general fund liabilities divided by total general fund revenues, and operating expenditures divided by total expenditures.

Furthermore, another weakness of Brown's model is that the author does not establish key attributes or criteria as guidance in developing the measure, as in case of the models developed by Kloha et al. (2005a) and Wang et al. (2007). Brown does not provide an argument or explanation when determining the four basic factors and financial ratios for each financial factor. As a consequence, the determination of the four financial factors and the ratio seems arbitrary.

In addition, another weakness is that Brown does not explain the method to grade local governments into five conditions: among the best financial condition; better than most others; about average; worse than most others; and among the worst financial condition. Brown also does not test the accuracy of the cut-off developed to grade local government financial condition. Thus, the grading seems arbitrary and faces the risk of type I or type II errors<sup>8</sup>. Moreover, Brown does not test the validity (i.e. predictive, convergent and concurrent validities) and reliability of the 10 ratios to assure that the all ratios together measure the same concept of the financial condition of local government.

### **2.5.3 Mercer and Gilbert's method for assessing financial condition**

Mercer and Gilbert (1996) developed a model to assess the financial condition of Nova Scotia municipalities in Canada. They created an all-inclusive index that is able to evaluate the financial condition of a range of local governments and scrutinise the

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<sup>8</sup> Type I errors occur when a local government is concluded as financially health although in reality it is not healthy, whereas type II errors take place when a local government is declared financially poor when in fact it is not poor.

situation of the local government from time to time. The steps to develop such a model are as follows.

1. Identify the potential indicators of the financial condition of local governments. The numbers of potential indicators included should be as many as feasible, but simultaneously avoid unnecessary complication. They selected 17 potential indicators from over 100 indicators of financial condition.
2. Categorise the potential indicators into five dimensions or factors of financial condition. Mercer and Gilbert's indicators and dimensions are presented in the Table 2.3.

**Table 2.3: Mercer and Gilbert's initial indicators and dimensions of financial condition of local government**

<b>Revenue and expenditure</b>	<b>Taxation</b>	<b>Debt burden</b>	<b>Economic</b>
Own-source revenue per dwelling unit	Commercial – residential tax rate spread	Per capita debt	Average household income
Intergovernmental revenues	Percentage commercial assessment	Debt per taxable assessment	Rate of unemployment
Property tax revenues	Taxes per dwelling unit	Debt service burden <sup>1</sup>	Percentage exempt assessment
Total expenditures per dwelling unit	Fiscal capacity <sup>2</sup>		
General government expenditures <sup>4</sup>	Fiscal effort <sup>3</sup>		
	Percentage taxes collected		
<p><b>Notes</b></p> <p>1. Debt service burden refers to a municipality's annual debt servicing charges divided by its annual own source revenues.</p> <p>2. Fiscal capacity refers to a municipality's per capita assessment divided by the provincial average per capita assessment.</p> <p>3. Fiscal effort refers to a municipality's residential tax rate divided by the provincial average residential tax rate.</p> <p>4. In Nova Scotia, general government expenditures refer to the administrative, physical and legal costs of government as opposed to operating or capital expenditures related to specific programs or departments.</p>			

**Source:** Mercer & Gilbert (1996)

3. Apply factor analysis to assess whether the selected indicators measure the preconceived dimensions. The factor analysis will conclude the amount and character of the dimensions or factors. The factor analysis will create dissimilar groups of elements with no specific labels. To name the elements one has to use professional judgement. The Table 2.4 below shows the result of Mercer and Gilbert's work on identifying the names of the factors. There are three factors (i.e. fiscal condition, debt burden, revenue base) instead of five factors (i.e. revenue, expenditure, taxation, debt burden, economic) as in the initial criteria developed.

**Table 2.4: Mercer and Gilbert's final indicators and dimensions of financial condition of local government**

<b>Factor 1: fiscal condition</b>	<b>Factor 2: debt burden</b>	<b>Factor 3: revenue base</b>
Intergovernmental revenues	Debt per assessment	Taxes per dwelling unit
Rate of unemployment	Per capita debt	Own-source revenue per dwelling unit
Fiscal capacity	Debt service burden	Percentage commercial assessment
Percentage taxes collected		
Fiscal effort		Average household income

**Source:** Mercer & Gilbert (1996)

4. Assign weight to each factor based on relative capability to identify a specific local government financial condition. This step was done with statistical software as well.
5. Calculate financial composite index.

There are several strengths of Mercer and Gilbert's work. First, they build a composite index of the financial condition so that it is a practical instrument for the user. Second, they test the reliability of the measure using the factor analysis method. Third, they give a different weight for each dimension based on its importance.

However, their method also has several weaknesses. They do not define the financial condition of local government, so the indicators and dimensions tend to be arbitrary. They also do not test the validity of their model. Furthermore, they heavily rely on the statistical tool (i.e. called factor analysis) rather than the underlying criteria developed. If the results of the factor analysis are not consistent with the established criteria, the results of the factor analysis override the criteria. Finally, although they build a composite index of financial condition, they do not show cut-off points to differentiate the soundness of the financial condition of local government.

#### **2.5.4 Chaney, Mead and Schermann's ratios for assessing financial condition**

Chaney et al. (2002) argue that the financial condition of local government includes four aspects, namely: financial position; financial performance; liquidity; and solvency. Indicators to measure financial position are focused on measuring the ability of local government to maintain services. It is measured by comparing unrestricted net assets to total expenses. They argue that unrestricted net assets are an appropriate indicator because they show the accumulation of net assets available to provide services to the community.

The indicator of the difference in net assets to total net assets and the indicator of the total of general revenue and transfers divided by total expenses are used to measure financial performance. The first indicator is intended to appreciate the effect of the surplus or deficit that occurred in the current year on total net assets. The second indicator shows a measure of successful or unsuccessful operations.

They suggest using the quick ratio, which is cash, current investment and receivables, scaled by the current assets; and current ratio, which is the proportion of current assets to current liabilities, as an indicator of liquidity. Solvency is measured by

leverage and coverage ratios. The leverage ratio indicates the debt-funded assets, which is measured by the ratio of long-term liabilities to total assets, whereas the coverage ratio shows the ability of local government to pay interest on its loans, which is measured by  $(\text{change in net assets} + \text{interest expense}) / \text{interest expense}$ .

Table 2.5 shows the dimensions and indicators used by Chaney et al. (2002) to evaluate the financial condition of local government.

**Table 2.5: Chaney, Mead and Schermann's ratios for assessing financial condition**

<b>Aspect of financial condition</b>	<b>Indicator</b>	<b>Interpretation</b>
Financial position	$(\text{Unrestricted net assets} / \text{Expenses})$	Indicates the local government's ability to maintain the provision of basic government services
Financial performance	$(\text{Change in net assets} / \text{Total net assets})$	Indicates the effect of current year surplus or deficit on total net assets
	$[(\text{General revenues} + \text{transfers}) / \text{Expenses}]$	Indicates the extent to which management has chosen to support the cost of services with general revenues
Liquidity	$[(\text{Cash} + \text{current investments} + \text{receivables}) / \text{Current liabilities}]$	Self-explanatory
	$(\text{Current assets} / \text{Current liabilities})$	Self-explanatory
Solvency	$(\text{Long-term debt} / \text{Assets})$	Indicates the leverage: how much assets are financed by liabilities
	$[(\text{Change in net assets} + \text{interest expense}) / \text{Interest expense}]$	Indicates the interest coverage ratio

Adapted from Chaney et al. (2002)

Chaney et al. (2002) do not define the financial condition of local government. As a result, they do not develop indicators based on a strong foundation. Therefore, the indicators they used seem arbitrary. They also do not test the reliability and validity of the indicators. Further, they do not demonstrate how to develop the composite index of the financial condition as a comprehensive conclusion about the financial condition of local government. Moreover, they assume that each indicator of financial

condition has similar importance, although in reality they are different (Brown, 1993).

Besides that, there are flaws in determining the indicators. The use of the indicator  $\text{Unrestricted net assets} / \text{Expenses}$  might not be appropriate to show a local government's capability to preserve the pre-existing fundamental government services because it is the total assets, not only the unrestricted assets, that are used by local government to provide services to the community in the future. In addition, the denominator should be population size, instead of expenses, so that the indicator indicates how much resources are available to serve one citizen.

### **2.5.5 Kloha, Weissert and Kleine's 10-point scale of financial distress**

Kleine et al. (2003) developed a model to assess the financial health of local government and the model was refined by Kloha et al. (2005a). Conceptually, their models are similar. Kleine et al. (2003) and Kloha et al. (2005a) use 10 indicators to describe the financial condition of local government. To build the model, they studied 150 local authorities in Michigan State consisting of 97 cities and 53 townships. The period of observations for cities' local government was 1991— 2001 and for the townships' local government from 1994 to 2001. The model is intended to scale the likelihood of a local government to suffer financial stress. The indicators used are: (1) population growth; (2) real taxable value growth of assets; (3) large real taxable value decrease; (4) general fund expenditures as a percentage of taxable value; (5) general fund operating deficit; (6) prior general fund operating deficits; (7) size of general fund balance; (8) fund deficit in current or previous year; and (9) general long-term debt as a percentage of taxable value. The indicators and techniques to calculate the indicators are shown in the following Table 2.6.

**Table 2.6: Kloha, Weissert and Kleine’s 10-point scale of financial distress**

<b>Indicator</b>	<b>Description</b>	<b>Standard used</b>
Indicator 1: Population growth	Two-year growth	If < 0, then 1
Indicator 2: Real taxable value growth	Two-year growth	If < 0, then 1
Indicator 3: Large real taxable value decrease	Looks for large drop over a two-year period	If < -0.04, then 1
Indicator 4: General fund expenditures as a percentage of taxable value	Current general fund expenses divided by current taxable value	Townships: if > 0.01, then 1; cities: if > 0.05, then 1
Indicator 5: General fund operating deficit	(current general fund revenues - current general expenditures) divided by general fund revenues	If < -0.01, then 1
Indicator 6: Prior general fund operating deficit	Checks indicator 5 for two previous years	A unit is assigned one point for each year that an operating deficit is found. Score may range from 0 to 2
Indicator 7: Size of general fund balance	General fund balance as a percentage of general fund revenues	If < 0.13, then 1
Indicator 8: Fund deficit in current or previous year	Current or previous year deficit in major fund	If fund deficit is found, then unit scores a 1
Indicator 9: General long-term debt as a percentage of taxable value	Current general long-term debt divided by current taxable value	If > 0.06, then 1

**Source:** Kloha et al. (2005a)

In general, if an indicator shows a good financial condition, then it will receive a score of 0. When an indicator shows a worsening financial condition, then it will receive a score of 1. Especially for the ratio of operating deficits, if there is a deficit of two years in a row, it will be given a value of 2.

To distinguish between a good and bad condition for a ratio, Kloha et al. (2005a) use the standard deviation of the sample as the threshold. For example, see indicator 9, general long-term debt as a percentage of taxable value in the table above. For this indicator, a greater value of the ratio means a worsening financial condition. Based on the sample used, the average ratio of the indicator 9 was 2.47% with a standard deviation of 3.5%. Thus, the ratio of the average plus one standard deviation is around 6%. Therefore, if a local government has a ratio greater than 6% (i.e. 2.47% +

3.5%) it will be given a value of 1 (poor) and if it has a value of less than 6%, then it will be assigned a value of 0 (good).

Regarding the indicators that are clearly good or bad, for example fund balance, then the standard deviation is no longer used. If a local government has a deficit fund balance, then it will be given a score of 1.

After each ratio is given a value, all values are summed to obtain the total value that indicates the overall financial condition. The final conclusion of the financial condition of local government is shown in the following table.

**Table 2.7: Kloha, Weissert and Kleine’s early-warning system**

Points from scale	Category	State action
0 – 4 points	Health condition	No action
5 points	Watch condition	Local government notified of relatively high score
6 – 7 points	Warning condition	Local government notified and placed on published list for current and following year
8 – 10 points	Emergency condition	Local government notified, placed on published list for current and following year, automatic consideration of review team

**Source:** Kloha et al. (2005a)

One advantage of Kloha et al.’s work is that they provide a definition of local government financial condition (i.e. in terms of the level of financial distress) before developing indicators of local government financial condition. This situation satisfies the criterion of face validity. Another advantage is that they create a composite index to conclude the soundness of the financial condition of a local government. The composite index makes the instrument practical (i.e. easy to use and easy to understand) because it provides complete information about a local government’s financial condition. Furthermore, based on the composite index, they create an early-warning system by categorising local government financial condition into four

groups: health condition; watch condition; warning condition; and emergency condition. They test the accuracy of the model by comparing the results of the model and the actual condition of local governments observed. The results show that the model developed can capture the gradations of local government financial condition. Thus, the model satisfies the criterion of concurrent validity. They claim that the system will put a local government in a strong position to detect and avoid an undesirable financial condition before it occurs.

In addition, the strength of Kloha et al.'s model is that it establishes key attributes or criteria as guidance in developing the measure. The criteria are: theoretical validity; predictive ability; accordance with the interests of states; using data that are available to the public; uniform and collected regularly; being accessible and easily understood; being resistant to manipulation or gaming; and distinguishing well among the local governments evaluated.

However, several weaknesses still exist in their model. The main drawback of Kloha et al.'s model is that the determination of the cut-off point is somewhat arbitrary (Jung, 2009). For a certain indicator, for example indicator 3, which is large real taxable value, they use one standard deviation, but for other indicators, for example indicator 4, general fund expenditure as a percentage of taxable value, and indicator 7, size of general fund balance, they use one-half of standard deviation. Another weakness is that they do not explain the concept used to create a cut-off of scale to categorise local governments as health condition, watch condition, warning condition and emergency condition. For example the interval scale of category of health condition is four (i.e. between 0 to 4 points), but interval scale for category of watch condition is only one (i.e. 5 points). Thus, the grouping system they offer as an early-warning system seems arbitrary. Furthermore, Jung (2009) states that they overlook other revenue bases, as they only use property tax as a proxy for taxable value.

Wang et al. (2007) argues that the method used by Kloha et al. (2005a) has a flaw, which is the involvement of non-financial socioeconomic variables, for example the variable of population growth, in assessing financial condition. Socioeconomic variables could influence financial condition. However, these variables are not the component comprising the financial condition. Furthermore, the process of economic variables influencing the financial condition of local government cannot be determined exactly. For example, Kloha et al. (2005a) state that population growth positively affects the financial condition of local government. However, population growth also demands more public expenditure, which will worsen the financial condition of local government if not accompanied by a proportional revenue growth. Another example is that the previous study stated that higher people's income, will improve the financial condition of local government because local government will have a bigger revenue base (Berne & Schramm, 1986). However, people with high incomes will also demand increasingly high levels of services that require increasingly large public expenditure. In turn, local government financial condition will worsen. Thus, Kloha et al. confuse the variables affecting local government financial condition, for example indicator 1 (population growth), and the variables comprising local government financial condition, for example indicator 7 (the size of general fund balances), in assessing local government financial condition. As a result, the model developed does not measure what it intends to measure.

In addition, Kloha et al. do not test the validity and reliability of the measure. They should test whether the indicators created measure the same concept – financial distress. According to Cooper and Schindler (2011), a good measure has three characteristics, namely validity, reliability and practicality. Thus, Kloha et al.'s model only meets one characteristic, which is practicality.

### 2.5.6 Dennis’ model for assessing financial condition

Dennis (2004) used the dimensions and indicators of the FTMS to assess the financial condition of local government. However, the author developed her own indicators for each dimension. To assure the face validity of the identified dimensions and indicators, several local government chief financial officers were asked about the appropriateness of the dimensions and indicators. Then, the Cronbach alpha was used to test the internal reliability of all indicators representing the dimensions of financial condition. The dimensions and indicators are shown in Table 2.8.

**Table 2.8: Dennis’s dimensions and indicators of the financial condition of local government**

Dimensions	Indicators
Cash solvency	Cash ratio
	Liabilities ratio
Budgetary solvency	Operating ratio
	Property tax revenue ratio
	Intergovernmental revenue ratio
Long-run solvency	Fund balance ratio
	Outstanding general long-term debt ratio
	Governmental debt service ratio
	Unfunded pension liability ratio
Service-level solvency	Outstanding general long-term debt per resident
	General fund operating revenues per resident
	General fund expenditures per resident
	Debt service fund expenditures per resident
	Capital projects fund expenditures per resident

**Source:** Dennis (2004)

A scale from 1 to 5 was used to assess the strength of the financial condition. 1 is for a weak financial condition, 2 indicates a below-average financial condition, 3 shows an average financial condition, 4 reflects an above-average financial condition and 5 is for a strong financial condition. To create the financial condition index, Dennis uses the following steps:

1. Calculate the ratios of all indicators as presented in Table 2.8 above for all local governments.
2. Assign a score (i.e. scaled from 1 to 5) for each indicator to form indicator

indexes. If a ratio of an indicator lies in the best 5% it will be assigned a score of 5; if its position is in the worst 5% it will get a score of 1. If the ratio of an indicator lies in the next top 20% it will be assigned a score of 4, and if its position is in the next bottom 20% it will score get a score of 2. A ratio of an indicator that has a position in the middle 50% will get a score of 3.

3. Create a dimension index by averaging the indicator indices forming it.
4. Create a financial condition index by averaging the four dimension indices. In creating the financial condition index, it is assumed that all dimensions have similar weight.

The main advantage of Dennis's model is that she does test reliability using the Cronbach alpha test to determine whether all indicators measure the same concept: financial condition. However, the value of the Cronbach alpha is relatively low, only 0.2967. This condition indicates that the indicators developed measure something different from the concept of financial condition. In spite of this, the author retains all the indicators to measure financial condition because of the exploratory nature of the study.

The strength of Dennis's work is that the author also tests the face validity of the instrument. Lastly, the author develops a composite financial condition index so that the instrument fulfils the criterion of practicality. Although Dennis tests the face validity of the instrument, she does not test other types of validity, such as predictive validity and concurrent validity. As a result, we do not know the predictive ability or distinctive validity of the instrument. Although Dennis assesses local government financial condition strength by using a five-point scale, the author does not provide a reason for separating the condition into five categories. Therefore, it seems arbitrary. This situation increases the risk of type I or type II errors faced by the model. In addition, Dennis assigns equal weights to each dimension when developing the composite financial condition, although in reality each dimension could have a different contribution to local government financial condition.

### 2.5.7 Kamnikar, Kamnikar and Deal's ratios for assessing financial condition

Kamnikar et al. (2006) identify financial analysis tools commonly used in the business sector that can be used in the analysis of local government finances. The tools are intended as a first-level measure of a government's financial condition.

Based on their definition of the financial condition of local government, they determine ratios to assess financial condition. These ratios are liquidity, leverage and continuing services ratios. These ratios were selected because of their high degree of neutrality. Liquidity ratios assess a local government's capacity to repay its very imminent liabilities (Mead, 2001). The leverage ratio focuses on the amount of assets financed with debt. The leverage measures to what extent a local government's assets are sourced from loans and other long-term liabilities (Mead, 2001). The continuing services ratio is intended to evaluate the capacity of local government to supply ongoing general services. This ratio indicates that the level of unrestricted net assets is capable of maintaining the sustainability of local government services to the public. These ratios and formulas are shown in the following table.

**Table 2.9: Kamnikar, Kamnikar and Deal's ratios for assessing the financial condition of local government**

Criterion	Ratio	Formula
Liquidity	Cash quick ratio	Cash quick assets / Current liabilities
Leverage	Debt to asset ratio	Total liabilities / Total assets
Ability to provide basic services	Continuing services ratio	Unrestricted net assets / Expenses

Adapted from Kamnikar et al. (2006).

The strength of Kamnikar et al.'s model is that it provides a good definition of financial condition, which is derived from previous studies. Therefore, their model meets the criterion of face validity. Besides that, they use financial information from

financial statements to measure financial condition. Wang et al. (2007) argue that to measure financial condition, one should use financial information, as financial information is the financial condition itself.

Kamnikar et al. acknowledge that their measure is limited to demonstrating a process and, as such, does not provide complete information to assess the financial condition of each state. They also assume that each criterion of the financial condition has equal weight when in fact one criterion would likely be more important than others (Brown, 1993). Besides that, they do not test the reliability of the measure, whether the criteria measure the same concept: financial condition. Moreover, they do not create a composite financial index as a comprehensive conclusion about the financial condition of local government. Finally, the formula for the criterion of continuing service ratio (i.e. unrestricted net assets divided by expenses) does not correspond to what it intends to indicate: to what extent unrestricted net assets are able to contribute to sustainable government services to the public. The denominator should be population size, instead of expenses, so that the ratio will show how unrestricted net assets are used to serve every single citizen.

### **2.5.8 Wang, Dennis and Tu's indicators**

Wang et al. (2007) developed an instrument to examine the financial condition of state governments in the United States based on financial data provided in the financial statements of states. They assess the financial condition of local government using four dimensions, which are: cash solvency; budgetary solvency; long-term solvency; and service-level solvency. Cash solvency relates to the capacity of local governments to manage liquidity and the effectiveness of cash management to settle short-term liabilities. Budgetary solvency refers to the capability of local government to explore revenues to fund services delivered to the community in the current year. Long-term solvency is the capability of local government to repay its long-term liabilities in the years to come. Service-level solvency is the capacity of local

government to supply and maintain the level of services it provides to the community. The four dimensions of financial condition are measured using 11 indicators. The dimensions and indicators are shown in the Table 2.10.

After completing the calculation of each indicator, they test measurement reliability and validity. Testing measurement reliability is intended to evaluate if all the indicated dimensions and indicators are able to be aggregated simultaneously to measure a similar construct of the financial condition. The indicators and dimensions should be correlated to ensure that they assess a similar construct of the financial condition. On the other hand, testing measurement validity is intended to ensure that the measure developed assesses financial condition. They claim that the dimensions and indicators measuring the financial condition of local government are reliable and valid.

They argue that their model meets the criteria of face validity and predictive validity. Face validity is achieved when dimensions and indicators are developed by referring to previous research. To test predictive validity, first the authors generated the composite index of financial condition by summing and averaging the standardised scores of all indicators. Then, they tested the association between the index created and socioeconomic factors such as number of people, individual income per capita, gross state product, population growth and economic momentum index. A measure is valid if there is a relationship between the financial condition index and the socioeconomic factors.

**Table 2.10: Wang, Dennis and Tu's 11 indicators to measure the financial condition of local government**

<b>Indicator</b>	<b>Definition</b>	<b>Dimension</b>	<b>Notes</b>
Cash ratio	$[(\text{Cash} + \text{cash equivalents} + \text{investments}) / \text{Current liabilities}]$	Cash solvency	Only the amount of "cash, cash equivalents, and investment in current assets" is included
Quick ratio	$[(\text{Cash} + \text{cash equivalents} + \text{receivables}) / \text{Current liabilities}]$	Cash solvency	Only the amount of "cash, cash equivalents, investments, and receivables" in current assets is included
Current ratio	$(\text{Current assets} / \text{Current liabilities})$	Cash solvency	Most popular liquidity ratio
Operating ratio	$(\text{Total revenues} / \text{Total expenses})$	Budgetary solvency	Total revenues = total program revenues + total general revenues
Surplus (deficit) per capita	Total surplus (deficits) / Population	Budgetary solvency	Total surpluses (deficits) represent the change in net assets
Net asset ratio	Restricted and unrestricted net assets / Total assets	Long-term solvency	A higher ratio indicates a better position to pay off long-term obligations
Long-term liability ratio	Long-term (non-current) liabilities / Total assets	Long-term solvency	Long-term (non-current) liabilities are the liabilities due in more than one year
Long-term liability per capita	Long-term (non-current) liabilities / Population	Long-term solvency	Long-term (non-current) liabilities are the liabilities due in more than one year
Tax per capita	Total taxes / Population	Service-level solvency	Higher tax per capita indicates a higher tax burden for residents and a lower service-level solvency
Revenue per capita	Total revenues / Population	Service-level solvency	Higher revenue per capita indicates a higher revenue burden for a resident to pay and lower service level solvency
Expenses per capita	Total expenses / Population	Service-level solvency	Higher expenses per capita indicate a more expensive government and lower service-level solvency to sustain that expense level

Source: Wang et al. (2007)

The reliability of the model is shown by the correlation between the indicators in the dimensions and the correlation between dimensions. The authors also use the Cronbach alpha to test if all indicators are able to be aggregated individually to measure the construct of financial condition. The coefficients of the Cronbach alpha, both raw and standardised, are above 0.67, which indicates a reliable measure.

The predictive validity of the measure is evaluated by analysing the relationship between the financial condition of local government and socioeconomic factors that influence it, such as population size, population growth, income per capita and gross domestic product (GDP) per capita.

The strength of Wang et al.'s model is that they establish criteria as guidance in developing the measure. The criteria are theoretically robust, valid and reliable, and evaluate local government financial condition as a whole. Thus, their model is developed through a structured and systematic process. Using the criteria set, they evaluate the validity and reliability of the model to conclude whether the model is good or not. Rivenbark and Roenigk (2011) state that the advantage of Wang et al.'s work is that their model utilises financial information generated from government-wide financial statements in computing the dimensions and indicators of financial condition. Further, they develop a composite financial condition index as a comprehensive conclusion about the financial condition of local government. The index is developed by summing and averaging the standardised scores of all financial indicators.

The main weakness of Wang et al.'s model is that it assumes that each dimension creating the measure has equal weight. However, in fact it is likely that there is a dimension that is more important than other dimensions (Brown, 1993).

The use of indicators of total surplus (deficits) divided by population size to reflect the dimension of local government's budget solvency is not appropriate because it uses population size as the denominator. Using population size as the denominator would indicate the surplus or deficit that is enjoyed or suffered by each citizen, instead of a local government's capability to raise adequate revenues to finance its recent or desired service standards.

Furthermore, the use of the indicator of long-term (non-current) liabilities per population size to reflect the dimension of long-run solvency is not appropriate because it uses population size as the denominator. Using population size as the denominator would indicate the amount of long-term debt incurred by each citizen, instead of local government's capability to fulfil its long-run financial obligations.

The use of the ratios of total taxes to population and total revenues to population is not appropriate to reflect the dimension of service-level solvency (i.e. the capability of local governments to supply and to maintain service quality at certain standards that the community needs and requests) because the resources used by local governments to provide services and goods to the community in the future are the total assets, instead of total taxes or total revenues. In addition, the authors also acknowledge that two weaknesses exist in their study. Firstly, the observation only utilises data from one year of financial statements. Secondly, at the time of the study, GASB Statement No. 34 had just been implemented.

### **2.5.9 Zafra-Gomez, Lopez-Hernandez and Hernandez-Bastida's model**

Zafra-Gomez et al. (2009a, 2009b, 2009c) measure the financial condition of local government by developing dimensions and indicators based on the definition of financial condition as stated by Groves et al. (1980) and CICA (1997). They propose three main steps in developing their model:

1. Specify elements of the social and economic circumstances influencing the

financial condition.

2. Develop groups of local governments with the same socioeconomic characteristics.
3. Evaluate the financial indicators.

The dimensions used by Zafra-Gomez et al. are short-term solvency, budgetary solvency, service-level solvency and long-run solvency. The first three are known as financial factors. Budgetary solvency is divided into three sub-dimensions, namely flexibility, independence and sustainability. The dimensions, indicators and measures they use are shown in the Table 2.11.

The authors design the dimensions and indicators, as in the Table 2.11, with the intention to see whether the local governments that have good indicators on the dimensions of short-term, budgetary or long-term solvency also have a good indicator for the quality of services supplied by the local government.

To measure short-term solvency and budgetary solvency (flexibility, independence and sustainability), each indicator is divided into 10th-order percentiles (Zafra-Gomez et al., 2009a). Thus, the value of each indicator ranges from 1 to 10. The minimum value of 1 will be given to an indicator that is below the 10th percentile and the highest value of 10 is for an indicator that is above the 90th percentile.

To measure service-level solvency, they use indicators of the quality of services supplied by local government, rather than financial indicators sourced from local government financial reports. The types of services are basic services in every local government, which are roads and highways, public parks, street lighting and waste collection. Table 2.12 shows how Zafra-Gomez et al. measure the quality index of service-level solvency.

**Table 2.11: Zafra-Gomez, Lopez-Hernandez and Hernandez-Bastida's model dimensions and indicators to assess the financial condition of local government**

<b>Dimensions</b>	<b>Indicators and measures</b>
<b>Short-term solvency</b>	Cash Surplus Index (CSI) = Difference between net short-term receivables, liquidity and net short-term liabilities Liquidity Index (LI) = Liquidity divided by net short-term liabilities
<b>Budgetary solvency – flexibility</b>	Net Savings Index (NSI) = Difference between the receivables from current budget resources and the budget obligations from non-financial current expenditures, reduced by annual amortisation payment, including interest and principal Financial Charge per Inhabitant Index (FCII) = Annual amortisation payment interest and principal per inhabitant Net Debt Index (NDI) = Annual accumulation variation in long-term credit operations per inhabitant
<b>Budgetary solvency – independence</b>	Current Financial Independence Index (CFII) = Current budgetary payables divided by current budgetary receivables except current grants Financial Independence Index (FII) = Budgetary payables divided by budgetary receivables except grants Fiscal Revenues Index (FRI) = Fiscal receivables divided by net current budgetary receivables
<b>Budgetary solvency – sustainability</b>	Nonfinancial Budgetary Result Index (NFBRI) = Current budgetary payables divided by non-financial current budgetary receivables + non-financial capital budgetary receivables Expenditures Execution Index (EEI) = Actual to budgetary expenditures Revenues Execution Index (REI) = Actual to budgetary revenue Payment Index (PI) = Expenditures paid over total expenditures Collected Revenues Index (CRI) = Revenues collected over total revenues
<b>Service-level solvency</b>	Quality index = Index reflecting quality weighted by the quantity of output weighted by services: number of lampposts, surface area of public parks, surface area of roads and highways and tons of waste collected Current Expenditures per Inhabitant (CEI) = Current budgetary payables per inhabitant Capital Expenditures per Inhabitant (KEI) = Capital budgetary payables per inhabitant

Source: Zafra-Gomez et al. (2009a, 2009b, 2009c)

**Table 2.12: Zafra-Gomez et al.'s model measuring index of quality**

Types of services	Output	Index of quality
Roads and highways	Surface area of road infrastructure	State of conservation or surfacing, rated on a quality scale of (1) <i>poor</i> , (2) <i>below average</i> and (3) <i>good</i> . The quality rating takes into account the number of bumps, crack and potholes on the road surface.
Surface area of public parks	Surface area in m <sup>2</sup> / Number of inhabitants	State of conservation of parks, rated on a quality scale of (1) <i>poor</i> , (2) <i>below average</i> and (3) <i>good</i> . The quality rating takes into account the quantity of damaged facilities (grass, paving, equipment).
Street lighting	Number of lights / Total street length	State of conservation of street lights, rated on a quality scale of (1) <i>poor</i> , (2) <i>below average</i> and (3) <i>good</i> . The quality rating takes into account damage and/or deterioration to the infrastructure (lampposts, wiring, junction boxes, lighting elements) and lighting deficiencies (i.e. lack of light during the night or failure to extinguish at the end of the night).
Waste collection	Waste collected (tons)	Effectiveness or otherwise of the service, rated as (1) <i>unsatisfactory</i> or (2) <i>satisfactory</i> . The quality rating takes into account the following aspects: availability of waste bins, their cleanliness, frequency of waste collection and condition of the waste bins.

Adapted from Zafra-Gomez et al. (2009a)

Each service is evaluated and divided into 10th-order percentiles. Then, the average of the four values of the indicators is used to derive a denotation of the whole grade of services supplied for every local government.

Long-term solvency is measured based on the refinement or impairment in the scores of the indicators composing financial factors. If a local government experiences an improvement in two consecutive years, it will get a score of +1; on the other hand, if there is impairment, the local government will score -1. Then all the scores for all local governments are summed and divided into 10th-order percentiles.

Similar to Brown’s work (1993), Zafra-Gomez et al. also propose a method to combine all financial factor indices as the financial condition index. If there are 7 indicators, a local government will have a maximum value of 7 if all indicators are below 25% of the lowest values in the sample; and will have a minimum value of 0 if all indicators exceed the 75% limit. The Table 2.13 below shows the values system in composing the financial condition index.

**Table 2.13: Zafra-Gomez et al.’s values for the creation of the financial condition index**

<b>Position</b>	<b>Score</b>
Below percentile 25	1 point
Between percentile 25 and percentile 50	0.5 point
Between percentile 50 and percentile 75	0.25 point
Above percentile 75	0 point

Adapted from Zafra-Gomez et al. (2009b)

Using a 7-point scale for the financial condition index, the interpretation of the local government financial condition is shown in Table 2.14.

**Table 2.14: Zafra-Gomez et al.’s assessment scale of the Financial Condition Index (FCI)**

<b>FCI score</b>	<b>Interpretation</b>
0.0–1.5 points	Local authority’s financial health is excellent and no action is required.
1.6–2.5 points	The situation is good, although open to improvement.
2.6–3.5 points	Local authority requires monitoring.
3.6–5.0 points	Local authority has some financial tensions and it should start to take corrective measures.
5.1–7.0 points	The local authority is in a situation of financial crisis and should undertake remedial action as a matter of urgency.

Adapted from Zafra-Gomez et al. (2009b).

The advantage of Zafra-Gomez et al.’s model is that they offer an innovative method to measure service-level solvency by using the quality of services provided by local government. However, there is the potential problem of subjectivity in evaluating the quality of services. Another advantage of their work is that they introduce a method to detect and minimise the influence of socioeconomic variables on financial condition, so that comparability is maximised.

Zafra-Gomez et al. also do not examine the validity or reliability of the indicators used, as in the model developed by Wang et al. (2007). Furthermore, they put equal weight for each dimension when developing the composite financial condition, although in reality the weights may be different. In addition, although they combine indicator indices to form a composite index to give a conclusion for the overall financial condition of local government, they do not explain how they develop cut-off points to differentiate local governments’ financial condition into five categories (see Table 2.13 above). As a result, the model seems arbitrary.

### **2.5.10 Rivenbark, Roenigk and Allison's model**

Rivenbark et al. (2009, 2010) developed an instrument for assessing the financial condition of local government referring to the position of resource flow and resource stock. Information about resource flow is reported in operating statements that show the revenues and expenditures of an organisation, whereas information about the resource stock is reported in the balance sheets that show the stocks of assets, liabilities and net assets.

They select financial dimensions and indicators based on five criteria: (1) the dimensions and indicators should closely align with resource flow and stock; (2) the dimensions and indicators should report on financial condition – not on environmental condition, because they argue that environmental condition does not represent actual financial condition; (3) limiting the number of indicators used for analysing financial condition; (4) the dimensions and indicators should lend themselves to specific interpretation; (5) the dimensions and indicators should be utilised to interpret financial statements prepared on an accrual basis (government-wide statements and enterprise fund statements) and on a modified accrual basis (governmental funds). Based on these criteria, they develop dimensions and indicators for assessing governmental-wide level and enterprise funds (i.e. economic resources and accrual basis) and for assessing governmental funds (i.e. financial resources and modified accrual basis). As in the case of Wang et al.'s (2007) model, they exclude environmental factors in determining dimensions and indicators because these factors are not the reflection of a factual financial condition. The dimensions, indicators and their interpretations are shown in the following tables.

**Table 2.15: Rivenbark, Roenigk and Allison’s indicators of financial condition for government-wide level and enterprise funds (economic resources and accrual basis accounting)**

<b>Resource flow</b>				
<b>Dimension</b>	<b>Description</b>	<b>Indicator</b>	<b>Calculation</b>	<b>Interpretation</b>
Interperiod equity	Addresses whether or not a government lived within its financial means during the fiscal year	Total margin ratio	Total revenues divided by total expenses	A ratio of one or higher indicates that a government lived within its financial means
Financial performance	Provides the magnitude of how a government’s financial position improved or deteriorated as a result of resource flow	Percent change to net assets	Change in net assets divided by net assets, beginning	A positive percent change indicates that a government’s financial position improved
Self-sufficiency	Addresses the extent to which service charges and fees covered total expenses	Charge to expense ratio	Charge for service divided by total expenses	A ratio of one or higher indicates that the service is self-supporting
Financing obligation	Provides feedback on service flexibility with the amount of resources committed to annual debt service	Debt service ratio	Debt service (principal and interest payments on long-term debt) divided by total expenses plus principal	Service flexibility decreases as more resources are committed to annual debt service
Liquidity	Government’s ability to address short term obligations	Quick ratio	Cash and investments divided by current liabilities (minus deferred revenue)	A high ratio suggests a government is able to meet its short-term obligations
Solvency	Government’s ability to address long-term obligations	Net assets ratio	Unrestricted net assets divided by total liabilities	A high ratio suggests a government is able to meet its long-term obligations
Leverage	Extent to which total assets are financed with long-term debt	Debt to assets ratio	Long-term debt divided by total assets	A high ratio suggests a government is overly reliant on debt for financing assets
Capital	Condition of capital assets defined as remaining useful life	Capital assets condition ratio	1 - (accumulated depreciation divided by capital assets being depreciated)	A high ratio suggests a government is investing in its capital assets

Source: Rivenbark et al. (2009, 2010)

**Table 2.16: Rivenbark, Roenigk and Allison’s indicators of financial condition for financial resources (modified accrual basis)**

<b>Resource flow</b>				
<b>Dimension</b>	<b>Description</b>	<b>Indicator</b>	<b>Calculation</b>	<b>Interpretation</b>
Service obligation	Addresses whether or not a government’s annual revenues were sufficient to pay for annual operations	Operations ratio	Total revenues divided by total expenditures (plus transfers to the debt service fund and less proceeds from capital leases)	A ratio of one or higher indicates that a government lived within its annual revenues
Dependence	Provides the extent to which a government is reliant on other governments for resources	Intergovernmental ratio	Intergovernmental revenue divided by total revenue	A high ratio may indicate that a government is too reliant on other governments
Financing obligation	Provides feedback on service flexibility with the amount of expenditures committed to annual debt service	Debt service ratio	Debt service (principal and interest payments on long-term debt, including transfers to the debt service fund) divided by total expenditures plus transfers	Service flexibility decreases as more expenditures are committed to annual debt service
Liquidity	Government’s ability to address short term obligations	Quick ratio	Cash and investments divided by current liabilities (minus deferred revenue)	A high ratio suggests a government can meet its short-term obligations
Solvency	Government’s ability to continue service provision	Fund balance as a percentage of expenditures	Available fund balance percentage of total expenditures plus transfer out	A high ratio suggests a government can continue to provide uninterrupted service
Leverage	Extent to which a government relies on tax supported debt	Debt as percent of assessed value	Tax-supported long-term debt divided by assessed value	A high ratio suggests a government is overly reliant on debt

Adapted from Rivenbark et al. (2009, 2010)

To implement this method, the first step is to recognise equivalent counterparts in order to do comparative analysis based on the criteria set by the local government. The criteria could be population, service provision, financial policies, tax base, proximity and socioeconomic factors (Rivenbark et al. 2009, 2010; Rivenbark & Roenigk, 2011). The next step is to create a trend of five years for each flow indicator and stock indicator. In this step, the average value of the equivalent counterparts is also calculated. Furthermore, the value of each indicator is shown in a dashboard format to make it more informative for users (i.e. local government stakeholders).

The advantage of the model developed by Rivenbark et al. (2009, 2010) is that the measure is based on a good definition of financial condition. They also present a dashboard to communicate financial indicators to individuals with or without backgrounds in governmental accounting and financial reporting. In addition, they analyse financial condition by differentiating dimensions and indicators for government-wide statements and for government-fund statements. Furthermore, they provide detailed arguments for every ratio they develop. Thus, the ratios come from logical thinking.

The weaknesses of the model are that the model assumes that each dimension has similar importance. The model also does not provide a composite index to give a conclusion about the overall financial condition of local government. Kloha et al. (2005a) argue that a composite index leads to a more usable and easily understood measure. In addition, the effectiveness of the model is strongly influenced by the determination of criteria in the benchmarking stage. If the local government chose improper criteria in determining the benchmark, then the resulting conclusions will be wrong. Thus, these models face the risk of type I and type II errors.

Furthermore, Rivenbark et al. (2009, 2010) do not test the reliability and validity of the indicators. As Coopers and Schinlder (2011) state, two important characteristics of a good instrument are validity and reliability.

### **2.5.11 Casal and Gomez's model**

Casal and Gomez (2011) developed an instrument to assess the financial condition of local government in the context of Spanish municipalities. The steps they took are as follows.

1. Data collection. Data must be homogeneous, which means that the data are common to all entities.
2. Indicator development. The indicators of financial condition are developed based on the literature and data availability. They developed 34 indicators. The indicators are provided in the Table 2.17.
3. Value calculation. Based on data available, the values of all indicators are calculated.
4. Dimensions identification. Using cluster analysis, the Ward method, to search financial condition dimensions leads to the identification of indicators that reflect similar variability. In their study, the authors determine five dimensions of financial condition, which are: financial flexibility; financial sustainability; short-term solvency; financial vulnerability; and service-level solvency.

**Table 2.17: Casal and Gomez's indicators of financial condition**

	<b>Indicator</b>	<b>Explanation</b>
R1	$\frac{\text{CCE} + \text{AR} - \text{DAR} - \text{EF}}{\text{OO}}$	Refined short-term solvency: cash and cash equivalents (CCE) plus accounts receivable (AR), less doubtful accounts receivable (DAR) and excess funds to finance expenditures earmarked funding (EF), divided by the outstanding obligations (OO) at year end
R2	$\frac{\text{CCE} + \text{AR} - \text{DAR}}{\text{OO}}$	Gross short-term solvency: cash and cash equivalents (CCE) plus accounts receivable (AR), less doubtful accounts receivable (DAR), divided by the outstanding obligations (OO) at year end
R3	$\frac{\text{CCE}}{\text{OO}}$	Quick Ratio: cash and cash equivalents (CCE) divided by outstanding obligations (OO) at year end
R4	$\frac{\text{Long-term debt}}{\text{TNBR}}$	Long-term debt in relation to total net budgetary revenues (TNBR)
R5	$\frac{\text{Long-term debt}}{\text{NBR Ch. *1 to 8}}$	Long-term debt divided by net budgetary revenues (NBR) from non-financial operations
R6	$\frac{\text{Long-term debt}}{\text{NBR Ch. *1 to 5}}$	Ratio between long-term debt and budgetary revenues from current operations
R7	$\frac{\text{Long-term debt}}{\text{Population}}$	Long-term debt per inhabitant (population)
R8	$\frac{\text{NBR Ch. 1 to 5}}{\text{NBO Ch. 1 to 4}}$	Net current budgetary revenues divided by net budget obligations (NBO) from current expenditures
R9	$\frac{\text{NBR Ch. 1 a 5}}{\text{NBO Ch. 1 to 4 and 9}}$	Net current budgetary revenues divided by net budget obligations from non-financial current expenditures, minus debt service
R10	$\frac{\text{Net savings}}{\text{Population}}$	Difference between receivables from current budget resources and budget obligations from non-financial current expenditures, minus debt service per inhabitant
R11	$\frac{\text{NBO Ch. 3 and 9}}{\text{NBR Ch. 1 to 5}}$	Debt service (interest and principal) divided by net current budgetary revenues
R12	$\frac{\text{NBO Ch. 3 and 9}}{\text{Population}}$	Debt service per inhabitant
R13	$\frac{\text{NBO Ch. 3}}{\text{Population}}$	Debt interest per inhabitant
R14	$\frac{\text{Result of the budget settlement}}{\text{Population}}$	Result of budget settlement per inhabitant
R15	$\frac{\text{Total NBR}}{\text{Population}}$	Total net budgetary revenues per inhabitant
R16	$\frac{\text{NBR Ch. 1 to 5}}{\text{NBR Ch. 4}}$	Ratio between net current budgetary revenues and current grants received
R17	$\frac{\text{NBR Ch. 1 to 3}}{\text{NBO Ch. 1 to 3}}$	Direct and indirect taxes and fees divided by obligations from net expenditure of personnel, services and debt interest
R18	$\frac{\text{NBR Ch. 1 to 3}}{\text{NBO Ch. 1 to 4}}$	Direct and indirect taxes and fees divided by net budget obligations from current expenditure
R19	$\frac{\text{NBR Ch. 1 to 3}}{\text{Population}}$	Direct and indirect taxes and fees per inhabitant
R20	$\frac{\text{NBR Ch. 1 and 3 to 5}}{\text{NBO Ch. 1 to 4}}$	Net current budgetary revenues less current grants received, divided by net budget obligations (NBO) from current expenditures

continued to page 66

continued from page 65

	<b>Indicator</b>	<b>Explanation</b>
R21	$\frac{\text{Total NBR} - \text{NBR Ch. 4 to 7}}{\text{Total NBO}}$	Difference between total net budgetary revenues and budgetary current and capital transfers received, divided by total net budget obligations
R22	$\frac{\text{NBR Ch. 7}}{\text{Pop.}}$	Capital transfer received per inhabitant
R23	$\frac{\text{NBR Ch. 4 and 7}}{\text{Population}}$	Current and capital transfers received per inhabitant
R24	$\frac{\text{Expenditures CP and PS}}{\text{Population}}$	Expenditures on civil protection (CP) and public safety (PS) per inhabitant.
R25	$\frac{\text{Expenditures SS, SP and SPR}}{\text{Population}}$	Expenditures on social security (SS), social protection (SP) and social promotion (SPR) per inhabitant
R26	$\frac{\text{Expenditures E}}{\text{Population}}$	Expenditure on education (E) per inhabitant
R27	$\frac{\text{Expenditures H and UD}}{\text{Population}}$	Expenditures on housing (H) and urban development (UD) per inhabitant
R28	$\frac{\text{Expenditures CW}}{\text{Population}}$	Community welfare spending (CW) per inhabitant
R29	$\frac{\text{Expenditures C}}{\text{Population}}$	Expenditure on culture (C) per inhabitant
R30	$\frac{\text{Expenditures OCS and OSS}}{\text{Population}}$	Expenditure on other community and social services (OCS and OSS) per inhabitant
R31	$\frac{\text{Expenditures BI and T}}{\text{Population}}$	Expenditure on basic infrastructure and transport (BI and T) per inhabitant
R32	$\frac{\text{Total NBO}}{\text{Population}}$	Total net budget obligations per inhabitant
R33	$\frac{\text{NBO Ch. 6 and 7}}{\text{Population}}$	Investments per inhabitant: Net budget obligations from capital expenditures, capital transfers and capital grants per inhabitant
R34	$\frac{\text{NBO Ch. 6 and 7}}{\text{Total NBO}}$	Investments effort: Net budget obligations from capital expenditures, capital transfers and capital grants divided by total net budget obligations

\*Ch.: Budgetary chapter of the economic classification in Spain.

Source: Casal & Gomez (2011)

5. Function development. Build a function for each dimension in order to get a single score for each dimension. They use the statistical technique of principal component analysis, the rule of Kaiser, to build the function. The formula of the function is as follows:

$$\text{Function of dimension} = w_1.R_1 + w_2.R_2 + \dots + w_n.R_n \dots\dots\dots (2.1)$$

where  $R_n$  = indicator n;  $w_n$  = weight of  $R_n$

The number of indicators in a dimension is based on the cluster analysis done in point 4 above, whereas the weighting determination is based on the percentage explained.

6. Obtain a value for each dimension for every local government.

Casal and Gomez's work has two important advantages. First, they test the reliability of the indicators forming a dimension. Another advantage is that they determine a weight for each indicator forming a dimension index. This condition addresses Brown's (1993, 1996) suggestion.

The main weakness of Casal and Gomez's method is that they do not conceptualise the definition of the financial condition of local government. Thus, the indicators developed tend to be arbitrary. This weakness is compounded by the number of indicators, which amount to 34. Furthermore, the identification of dimension is purely based on the results of the statistical tool used (i.e. cluster analysis) instead of a theoretical framework. They also do not test the validity of the measure. In addition, they do not composite the values of dimension indices to create a financial condition index.

Table 2.18 summarises all models discussed above. The summary provides a comparison of the previous models measuring the financial condition of local government, looking for the characteristics of a good measure. The table shows that there is no model that satisfies all the attributes of a good measure. From the 11 models reviewed in this present study, the best model is that with 6 attributes out of 9 attributes. The model belongs to Wang et al. The rest of the models only include 2 to 5 attributes of a good measure.

The attribute that is absent from all the models reviewed is convergent validity. The attributes of face validity and concurrent validity were only once examined among

the models. On the other hand, the attributes of economy and convenience are present in all the models. Therefore it can be summed up that the attributes of validity are frequently “forgotten” in developing a measure of local government financial condition; and the attribute of practicality is always considered in developing such a measure.

**Table 2.18: Comparison of various models developing measures of financial condition**

Model:		FTMS	Brown	Mercer & Gilbert	Chaney et al.	Dennis	Kloha et al.	Kamnikar et al.	Wang et al.	Zafra-Gomez et al.	Rivenbark et al.	Casal & Gomez
Reliability	Testing reliability of indicators forming a dimension	n.a.	n.a.	√	n.a.	n.a.	n.a.	n.a.	√	n.a.	n.a.	√
	Testing reliability of all indicators forming composite index of financial condition	n.a.	n.a.	n.a.	n.a.	√	n.a.	n.a.	√	n.a.	n.a.	n.a.
Validity	Face validity (i.e. conceptualising definition)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	√	n.a.
	Predictive validity (i.e. testing the relationship with factors believed to be associated)	n.a.	n.a.	n.a.	n.a.	√	n.a.	n.a.	√	√	n.a.	n.a.
	Convergent validity (i.e. testing interrelatedness with existing factors that are theoretically related)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Concurrent validity (i.e. testing distinctive capability)	n.a.	n.a.	n.a.	n.a.	n.a.	√	n.a.	n.a.	n.a.	n.a.	n.a.
Practicality	Interpretability (i.e. compositing financial index)	n.a.	√	√	n.a.	√	√	n.a.	√	√	n.a.	n.a.
	Economy (i.e. using publicly available data)	√	√	√	√	√	√	√	√	√	√	√
	Convenience (i.e. using periodically released data)	√	√	√	√	√	√	√	√	√	√	√

## **2.6 Criteria for assessing financial distress**

Criteria for financial hardship in the business sector are well developed. In this sector, financial distress is defined as the situation when a company fails to meet its financial commitments (Jones & Walker, 2007). Measures of the financial distress of a company are well established, such as failure to pay listing fees, share issues to meet sufficient working capital, loan default, debt conversion to equity (Jones & Hensher, 2004), bankruptcy (Foster, 1986), omitting or reducing dividend payments, default on loan payment, bankruptcy and liquidation (Lau, 1987), reduction in dividend per share and loan default (Ward, 1994).

However, due to differences in the business environment of the private sector and government sector, the criteria for financial distress between the private sector and government sector are also different. Despite intensive research on the measurement of local government financial condition, which has been conducted since the 1980s by many researchers, until now there has been no agreement about the criteria for local governments experiencing financial distress.

Badu and Li (1998), Bradbury (1982), Carmeli (2003, 2007), Chapman et al. (2003) and Inman (1992, 1995) define financial distress as a negative difference between revenue and expenditure. Kloha et al. (2005a) develop a definition of financial distress as the situation where the local government fails to satisfy criteria in the sectors of operational status, debt status and people desires and wealth for more than one consecutive year. Jones and Walker (2007) define that financial distress of a local government occurs when it cannot preserve pre-existing qualities of services to the people. Based on the criteria stated by Kloha et al. (2005a) and Jones and Walker (2007), it can be concluded that financial distress occurs when the local government cannot maintain services and meet community needs.

Local governments experiencing financial distress have the attributes of small incomes either per inhabitant or per family, large percentages of needy people, soaring unemployment levels, high expenditure rates and loss of population (Adams & Nathan, 1989). Other characteristics are high tax rates, budget crisis and difficulty maintaining existing public services (Badu & Li, 1994). To measure levels of local government financial distress, Jones and Walker (2007) use financial information about the amount of cost to maintain the function of infrastructure. They measure the level of financial distress as a proportion of estimated total maintenance costs to preserve local government infrastructure assets to total revenues. Furthermore, they interpret a decline in the ratio as a proxy for financial distress.

## **2.7 Conclusion**

The literature review shows that, although scholars have attempted to build instruments to assess the financial condition of local government, there is no common understanding about the definition, dimensions and indicators to measure it. In general, there are two approaches in measuring the financial condition of local government. The first approach is to use non-financial factors, such as population growth, real taxable value and the like (see Hendrick, 2004; Kloha et al., 2005a; Ladd & Yinger, 2004; Mercer & Gilbert, 1996). The second approach is to use financial statement information (see Brown 1993;1996; Casal & Gomez, 2011; Chaney et al. 2002; Dennis, 2004; Kamnikar et al. 2006; Nollenberger et al., 2004; Rivenbark et al., 2009, 2010; Wang et al., 2005; Zafra-Gomez et al., 2009a, 2009b, 2009c). However, it is agreed that local governments need to have an instrument to measure financial condition. This instrument will act as an-early warning system for local governments in order to detect financial distress so that local government can prevent financial distress from occurring.

Despite intensive efforts to develop a measurement by researchers have been made, weaknesses still occur in their models. Several common weaknesses of the previous methods in measuring financial condition are as follows.

1. Involving too many variables in measuring the financial condition of local government (see the FTMS model and Casal & Gomez, 2011), creating a method that is very time-consuming and costly for a local government and difficult to communicate the results to local government stakeholders.
2. Assuming that all dimensions or indicators have equal importance (see Brown, 1993, 1996; Chaney et al., 2002; Kamnikar et al., 2006; Zafra-Gomez et al., 2009a, 2009b, 2009c). In fact, certain dimensions or indicators are probably more important than others.
3. Utilising non-financial indicators (for example population growth), instead of financial indicators, to assess the financial condition of local government (see Kloha et al., 2005a; Zafra-Gomez et al.; 2009a, 2009b, 2009c).
4. Dimensions and indicators are not based on a clear definition of the financial condition of local government (see Brown 1993, 1996; Chaney et al., 2002).
5. Not testing the reliability of the measure (see Brown 1993, 1996; Carmeli, 2002; Chaney et al., 2002; the FTMS model; Kloha et al., 2005a; Rivenbark et al., 2009, 2010; Zafra-Gomez et al., 2009a, 2009b, 2009c.)
6. Not creating a composite index to indicate the overall financial condition of local government (see Carmeli, 2002; the FTMS model; Kamnikar et al., 2006; Rivenbark et al., 2009, 2010).
7. Most of the research does not establish key attributes or criteria as guidance in developing the measure. Only a few of them provide attributes as guidance (see Kloha et al., 2005a; Rivenbark et al., 2009,2010; Wang et al., 2007).
8. Indicators do not appropriately measure what they are intended to measure (see Brown, 1993, 1996; Chaney et al., 2002; Wang et al., 2007).
9. Little agreement about the criteria for local government experiencing financial distress.

10. The measure is developed only based on one year of financial data (see Wang et al., 2007), and
11. The criteria for financial distress are not well established yet.

Therefore, this thesis attempts to develop a new and a better instrument for measuring the financial condition of local government by focussing on the strengths of the previous models and by addressing weaknesses of previous research. To overcome those weaknesses, this study sets up the criteria for a good measure as stated by Cooper and Schindler (2011). The criteria and the ways to meet them are as follows.

**Table 2.19: Criteria of a good measure**

<b>Criteria of a good measure</b>	<b>Achieved by:</b>
Reliability – dimension-level reliability	Testing reliability of indicators forming a dimension
– composite-level reliability	Testing reliability of all indicators forming composite index of financial condition
Validity – face validity	Conceptualising definition of local government financial condition
– predictive validity	Testing the relationship with factors believed to be associated
– convergent validity	Testing interrelatedness with existing factors that are theoretically related
– concurrent validity	Testing distinctive capability
Practicality – interpretability	Compositing local government financial Index
– economy	Using publicly available data
– convenience	Using periodically released data

Adapted from Cooper & Schindler (2011).

Chapter 7 of this study will discuss in detail the process of developing an instrument for measuring local government financial condition. In addition, the composite financial condition index developed in Chapter 7 will act as the dependent variable in the multivariate regression model to analyse the factors affecting local government financial condition as discussed in Chapter 8.

# **CHAPTER 3**

## **LITERATURE REVIEW:**

### **FACTORS AFFECTING THE FINANCIAL CONDITION OF LOCAL GOVERNMENT**

#### **3.1 Introduction**

In the previous chapter, various definitions and methods related to measures of the financial condition of local government were reviewed. This chapter will discuss the factors affecting the financial condition of local government and the framework of supply and demand. The first section of this chapter will focus on reviewing previous research examining the factors affecting the financial condition of local governments. The second section will discuss the supply and demand framework as a basis to determine and explain the factors affecting the financial condition. This section will be followed by a discussion about the implementation of the framework of supply and demand in the context of local government in Indonesia.

#### **3.2 Previous research investigating factors affecting the financial condition of local government**

Researchers have attempted to explain the factors affecting the financial condition of local government. Berne and Schramm (1986) argue that the major determinants of governments' financial condition are: (1) community tastes and needs (poverty, education, unemployment, etc.); (2) local conditions affecting production and distribution of public goods and services (population density, size, climate, etc.); (3) the costs of labour, capital and other productive resources (wage rates, interest rates, etc.); (4) the wealth of the community (income, property values, retail sales, etc.); (5) the political and governmental structure in the locality and surrounding area (dominance of local government, city manager form, etc.); (6) federal and state

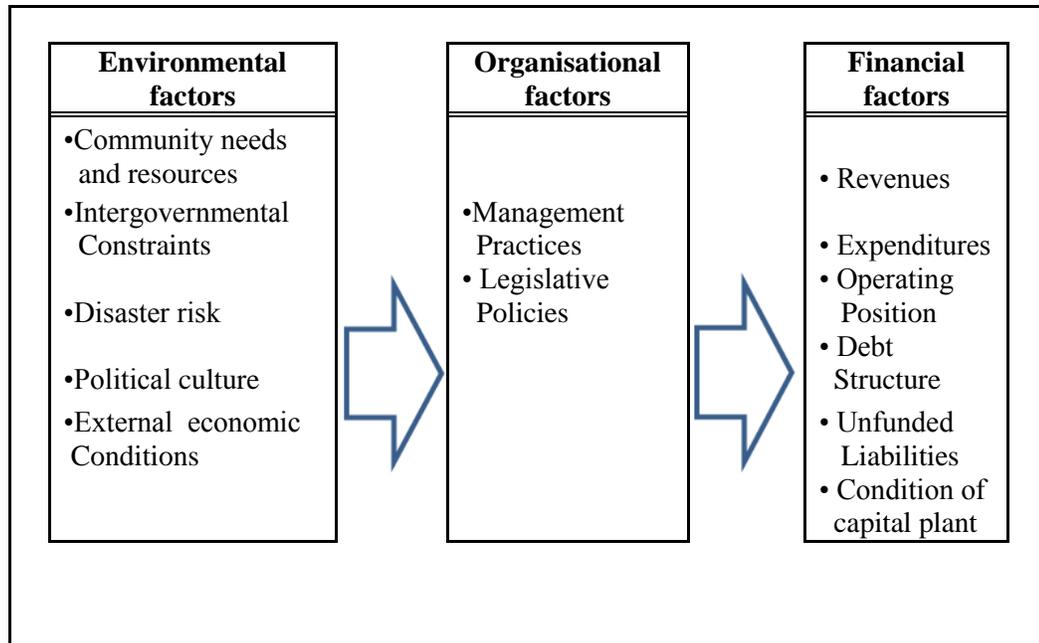
policies affecting local resources, constraints and responsibilities; and (7) government financial policies and practices (tax rates, debt, etc.).

Ladd (1992) reports a U-shaped relationship between local government expenditures and population density. The author finds that, except in sparsely populated areas, higher density tends to increase local government expenditure. Furthermore, the author shows that population growth deteriorates local government financial condition in the form of lower service levels.

Based on his survey in 62 cities in the United States, Clark (1994) argues that there are several factors that cause financial strain. These factors are: population size and economic base; political leadership; unions; ethnic groups and disadvantage; and grant legal structure. However, the city leaders of New York argued that they experienced financial strain because of the loss of jobs and population (Clark, 1994).

Nollenberger et al. (2004) argue that there are three factors that affect the financial condition of local government. According to them, these factors are environmental factors, organisational factors and financial factors. Environmental factors consist of community needs and resources, intergovernmental constraints, disaster risk, political culture and external economic conditions. Organisational factors are comprised of the responses of management and legislative policy. Financial factors consist of revenues, expenditures, operating position, debt structure, unfunded liabilities and the condition of capital plant. The relationships among these factors are shown in the following Figure 3.1 below.

**Figure 3.1: Factors affecting the financial condition of local government**



Adapted and modified from Nollenberger et al. (2004).

Nollenberger et al. (2004) explain that organisational factors are external influences on local government financial condition. External factors affect local government financial condition in two ways: by creating demand; and by providing sources of funding. For example, population growth will generate increased demand for services to local governments, such as the provision of more health workers, provision of educational facilities for more and so forth. On the other hand, population growth will also expand the revenue base of local government, such as increased tax revenue (Nollenberger et al., 2004).

In addition, Nollenberger et al. (2004) explain that organisational factors are the responses of management (executive) and legislative policy to changes in environmental factors. Every local government will maintain its position of good financial condition when the legislative policy and the executive respond to changes in environmental factors. Examples of executive responses and legislative policies are

increasing efficiency, increasing taxes, reducing services and so forth. This assumes that the executive and legislature have an adequate understanding of changes in environmental factors, understand how to anticipate them and are willing to respond to changes. Furthermore, Nollenberger et al. (2004) state that financial factors reveal the financial condition of the local government as a result of the influence of environmental factors and organisational factors. If the demand created by environmental factors is greater than the sources of fund they create, and if the organisation cannot balance the demand and sources of funding, the financial factors will show signs of cash, budgetary or long-run insolvency (Nollenberger et al., 2004).

Honadle et al. (2004) argue that there are a myriad of factors influencing local government financial health. They provide selected examples of the kinds of factors affecting financial health (see Honadle et al. 2004, pp. 5–10). These factors are: the frequency and severity of occurrence of natural disasters in a local government area; condition of the national economy; composition of the local economic base; tax bases of a local government; applicable tax rates in a local government; population changes; labour costs; pressure from the voting public for public services; and what to finance and how to finance projects and programs.

According to Rubin (1982) and Pammer (1990), cited in Kloha et al. (2005a), local government financial distress is caused by four factors, namely: population and job market shifts; governmental growth; interest-group demands; and poor management. They find that decreasing population (e.g. in the case of Detroit) and loss of jobs caused by migration of residents to suburban areas are the major causes of financial distress. These conditions result in the displacement and erosion of the local government revenue base.

Kloha et al. (2005a) explain that governmental growth is a situation when local government spending increases faster than the inflation rate and population growth.

Interest-group demands is a condition where overspending occurs when executives are vulnerable to a particular interest group. This vulnerability occurs because the executive does not have enough power to be re-elected. As a result, the executive overspends to get the support from special-interest groups. Poor management includes the application of inadequate accounting methods, poor budgeting practices or inadequate management.

Dennis (2004) examines the relationship between state governments' financial condition and state governments' financial management capacity in the United States. The author measured the financial condition – the dependent variable – as a composite index of the cash solvency index, budgeting solvency index, long-run solvency index and service-level solvency index. The financial management capacity – as the independent variable – was measured as a composite index of the budgeting system index, strategic-planning system index, fallback system index,<sup>9</sup> accounting and reporting system index, internal-control system index and financial leadership index. In addition, environmental factors and demographic factors were used as control variables. Using multivariate regression analysis, the author found that there was no significant relationship between state governments' financial condition and their financial capacity management.

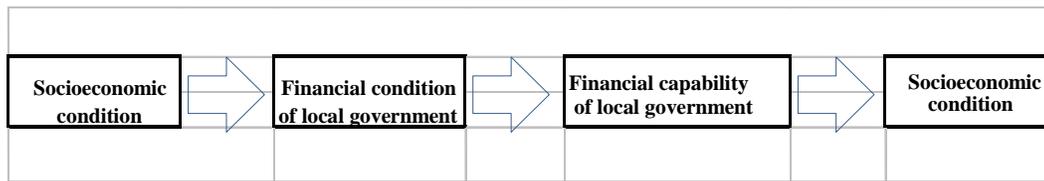
According to Wang et al. (2007), financial conditions are associated with socioeconomic factors, such as the number of people, individual revenue per capita, gross state product per capita, population growth rate, percentage change in employment, percentage change in personal income, economic momentum index and momentum rank change. In general, strong economic conditions will strengthen local government financial condition. As a result of a strong financial condition of local

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<sup>9</sup> Fallback system is indicated by rainy day funds, use of fund equity, delay of capital projects or reducing/eliminating services (Dennis, 2004).

government, the financial capability of local government will be strengthened. This is reflected in the increased amount of the local government revenue base. Increased capacity of local government finance will further improve the socioeconomic condition of the community. The relationship between socioeconomic conditions, financial condition and financial capability of local government is represented in the Figure 3.2 below.

**Figure 3.2: The association among socioeconomic condition, financial condition and financial capability of local government**



Source: Wang et al. (2007)

Furthermore, Wang et al. (2007) state that the financial condition of local governments could be used as either the independent or the dependent variable in a model. Financial condition is used as the dependent variable in studies examining what factors influence it. Financial condition, as the independent variable, is used in research that tests the influence of the level of financial condition on dependent variables, such as local government capability and achievements of the organisation. For example, Khovanova (2008) studied the influence of city governments' financial condition on the degree of innovation. The author reports that a healthy city government is relatively more innovative than a city government experiencing financial stress. Another example is provided by the research conducted by Carmeli (2008). This author examines the effects of the financial condition of local governments in Israel on two major areas, education and employment. The author finds that relatively financially healthy local governments have better education and employment systems.

The first criticism of Wang et al.'s model is that they assumed that the local government's financial condition is affected by socioeconomic variables only, while many researchers believe that local government's financial condition is influenced by many factors such as political factors, demographics, vulnerability to natural disasters and so forth (Groves et al., 2004; Kloha et al., 2005a). The second criticism is that the relationship between local government financial condition and socioeconomic variables developed in Wang et al. (2007) does not explain the process of how socioeconomic variables may have an effect on the financial condition of local government. There was a jump in conclusion from socioeconomic conditions (i.e. environmental factors) to the financial condition of local government. How the process of environmental factors affect the financial condition of local government is well described by a model built by Groves et al. (2004). Groves et al. (2004) argue that environmental factors affect the financial condition of local government through the presence of an organisational factor: executive response and legislative policy. However, the model developed by Wang et al. provides an explanation that is not described by Groves et al. (2004), namely, that the local government financial condition affects local government financial capability. Khovanova (2008) also reports that the financial condition of local government is related to the ability of local governments to innovate.

In their investigation relating variables explaining the level of financial distress of local governments in the state of New South Wales, Australia, Jones and Walker (2007) found that population size, size of municipalities, road maintenance costs and carrying values of infrastructure assets were positively related with financial distress. On the other hand, revenue-generating capacity and the number of full-time staff were negatively associated with the level of financial distress. They conceptualised an increase in the level of financial distress as a decrease in maintenance costs of infrastructure assets followed by a subsequent rise in the money needed to rehabilitate the usefulness of infrastructure assets. The proxy to measure such a concept is

represented by the proportion of the total cost of restoring infrastructure to total revenues.

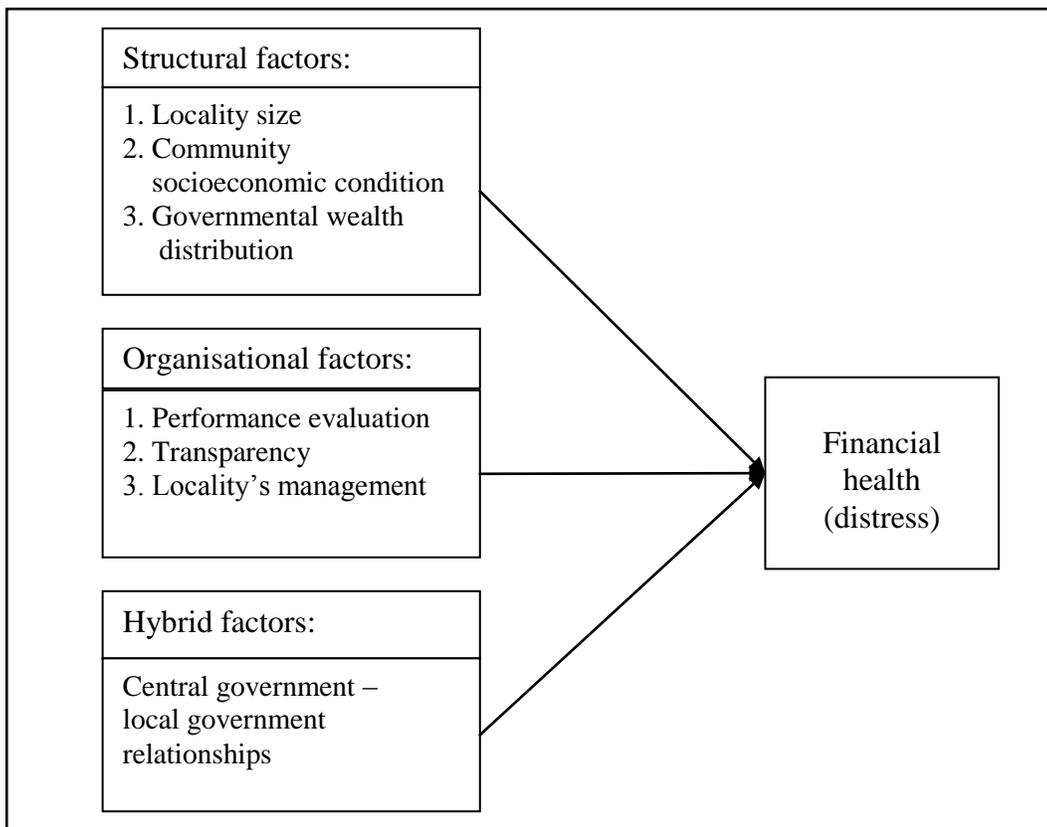
Carmeli (2002b) researched the relationship between local government financial health (as the dependent variable) and three independent variables: the demographic characteristics of age of local government, size of local government and sector of local government; residents' socioeconomic status; and the perceived organisational reputation of local government. The dependent variable was comprised of 10 ratios: liquidity ratio, budgetary balance ratio, financial efficiency ratio, self-income ratio, non-regular budget income to load ratio, efficiency of collection ratio, per-resident collection ratio, per-resident surplus (deficit) ratio, current ratio and income-to-expenditure ratio in the regular budget. Unfortunately, the author did not explain procedures to measure the dependent variable based on the 10 ratios.

Using multivariate regression analysis, the author found that residents' socioeconomic status and perceived organisational reputation are positively associated with local government financial health. However, among three aspects of demographic characteristics, age and size of local government did not show significant influence towards local government financial health. Only variable of sector of local government, which was Arab-Druze local authorities, showed a negative association.

In 2008, Carmeli extended the model he developed in 2002. Carmeli (2008) states that there are three major factors affecting the financial condition of local governments in Israel. These factors are: structural factors; organisational factors; and hybrid factors. The structural factors consist of local government size, community socioeconomic condition and governmental wealth distribution. The organisational factors consist of performance assessment, transparency and a locality's management. The hybrid factors consist of the connection between the central government and

local governments. The influence of these variables on the local government's financial condition is shown in the following Figure 3.3.

**Figure 3.3: The influence of structural, organisational and hybrid factors on local government financial condition**



Adapted from Carmeli (2008).

Carmeli (2008) found a positive correlation between local authorities' size and financial distress. This finding indicates that larger local governments enjoy better financial health than smaller local governments. There is also positive correlation between residents' socioeconomic status and financial health, which indicates that local governments with an inferior socioeconomic resident status are limited in their ability to raise satisfactory revenues, be fiscally independent and provide the expected level of municipal services.

Unfortunately, Carmeli (2008) does not test all the proposed variables that cause local government financial distress in Israel. The researcher only analyses the correlation between financial distress and two variables: local authorities' size and residents' socioeconomic status. In addition, the researcher only used one indicator (i.e. deficit to surplus ratio or self-income ratio) to measure financial distress, which did not result in a comprehensive picture of financial health.

Similar to Wang et al.'s argument, Zafra-Gomez et al. (2009a; 2009b; 2009c) also assume that socioeconomic factors affect the financial condition of local government. The socioeconomic factors and their definitions are shown in the following table.

**Table 3.1: Zafra-Gomez et al.'s factors affecting financial condition**

Variable	Definition
Domestic income per capita (INC)	Level of domestic income per capita
Registered unemployment (UNP)	(Registered unemployed adults / Population aged 15 or more) x 100
Industry (IND)	Index based on the (local) Tax on Economic Activity (IAE) with respect to industrial activity in the municipality
Commerce (COM)	Index based on the (local) IAE with respect to wholesale and retail activity in the municipality
Tourism (TOU)	Index based on the (local) IAE with respect to tourism-oriented activities
Population aged less than 14 years (P-14)	Number of persons aged less than 14 years in the municipality
Population aged more than 65 years (P+65)	Number of persons aged more than 65 years in the municipality
Net migration rate (MIG)	Calculated by subtracting internal migration from total migration (i.e. internal + external) and dividing by the total population of the municipality
Dwelling per capita ( DW)	Number of dwellings in the municipality divided by the population

**Source:** Zafra-Gomez et al. (2009a, 2009b, 2009c)

The selection of socioeconomic factors is based on correlation tests of the factors with the indicators of financial condition, similarity with previous research and historically having been practised by the central and local governments to predict

spending requirements and distribute financial transfer. The results show that all socioeconomic factors influence the indicators of financial factors except the variable of net migration rate.

Casal and Gomez (2011) analyse the impact of size and geographic location on the financial condition of Spanish municipalities. The size of municipalities was measured using population size, while geographic location was measured by including the whole array of socioeconomic elements that can influence local government's financial condition. They adopt the work of ICMA (1993) and CICA (1997) to develop a framework of financial condition. They found that population size and geographic location of local government influence some dimensions of the financial condition of municipalities.

### **3.3 Deficiencies in past literature**

In general, the research mentioned above does not state what theories were used to determine the factors affecting the financial condition of local government. According to Rubinfeld (2000), causation cannot be obtained solely by analysing data. A researcher must conclude the existence of cause and effect based on a theory that explains the causal relationship between the two factors under study. Moreover, when a proper theory has been recognised, a cause and effect relationship cannot be derived directly, because researchers also have to seek empirical evidence proving that there is a cause and effect relationship (Rubinfeld, 2000).

In addition, the previous research has not analysed extensively the factors influencing local government financial condition, how these factors influence financial condition and why one local government is healthier than another. Carmeli (2003) states that researchers know little about the dynamics that create fiscal and financial crises; researchers have limited knowledge about sources of fiscal and financial crises

between countries; and researchers are still far from a complete theoretical framework supported by valid empirical evidence to explain why local government faces financial crises. Why such situations occur? Carmeli (2003) argues that those situations are due to the complexity of the factors driving the financial condition of local government. There are no easy or immediate ways, at least not in the near future, to understand the variation of local government financial condition. Accumulative knowledge is the only way to ensure that researchers will understand the phenomenon properly (Carmeli, 2003).

The current study attempts to remedy the weaknesses of previous studies explained above. The framework used in this study to answer the research question as to what factors affect the financial condition of local government are supply and demand framework related to public finance. To the researcher's knowledge, there is no prior research using the framework of supply and demand to explain the variation in local government financial condition.

This study offers direct analysis of the process of supply and demand for services and goods supplied by local government. This framework indicates that demand for services and products provided by local government depends on many factors, such as income, price, population size, prices of other products, quality, tastes of the community and expectations about the future. On the supply side, the revenue base and the cost to produce and deliver services and products are the determinants of the supply of services and products by local government. As applied to this study, this framework holds that it is expected that the independent variables (population size; age profile; population density; revenue base of a local government; community wealth; financial efficiency; costs of production of services and goods) significantly influence the dependent variable, the financial condition of local government.

The discussion of the framework of supply and demand that will serve as a fundamental basis to explain the relationship between financial condition and factors affecting it can be seen in Appendix A. The following section will discuss the implementation of the framework of supply and demand in the context of local government environment.

### **3.4 Implementation of the framework of supply and demand in the context of local government**

Deacon (1978) argues that supply and demand framework applies to public sector spending because public budgets are allocated among services in much the same manner that households allocate income to private commodities. Ohls and Wales (1972) use demand and supply framework to explain the differences among per capita expenditures across countries. Their arguments are supported by Hyman (1990), who states that variation in per capita expenditure among state and local governments reflects regional variation in both the demand and the supply for government-supplied services.

In the economic context, demand for services and products provided by a firm depends on income, price, number of buyers, prices of other products, quality, tastes and preferences and expectations about the future (Mankiw et al., 1999). In the local government context, demand for services and goods provided by a local government depends on population size, population density, population growth, age composition, the proportion of population living in urbanised areas, community needs and tastes, and income per capita of the community (Berne & Schramm, 1986; Deacon, 1978; Hyman, 1990; Ohls & Wales, 1972;).

Among these factors, the relevant factors for the local government environment are the cost of services and goods, and cost of delivering services and goods (Ohls &

Wales, 1972; Hyman, 1990). These costs are related to the costs of capital, labour and other resources, population size, population density and financial efficiency (see Berne & Schramm, 1986; Deacon, 1978; Hyman, 1990; Ohls & Wales, 1972).

### **3.5 Factors determining the financial condition of local government**

Based on the factors affecting the demand and supply of products generally, the following sections will review the factors that influence the quantity of services and goods demanded and supplied by local government that have been discussed in previous studies.

#### **3.5.1 Wealth of the community**

Changes in the level of wealth of a community can increase or decrease demand for services and goods. Assuming that services and goods provided by local government are normal goods and services (Hyman, 1990), an increase in the level of income will increase demand for services or goods. As a community's wealth increases, demand for better services and goods also increases. Generally, in this case a community will switch from inferior to superior services and goods. "Inferior" here does not mean "bad" but indicates a product that is perceived to have less quality and to be less distinctive, and therefore has a lower price. For example, in the health care sector, a more prosperous society will ask for better services such as specialist physician services (rather than general doctor services) and brand-name drugs (rather than generic) and the like.

In addition, a community with relatively high wealth is likely to buy relatively large amounts of both state-produced and private goods, and hence one would expect the demand curve to move to the right with a rise in income (Borcherding, 1985; Ohls & Wales, 1972). As a result, local government's total expenditure will increase. This situation worsens local government financial condition. Douglas and Gaddie (2002)

and Wolkoff (1987) also found a positive association between general fund expenditures and community wealth. Those results are in line with those of Wang et al. (2007), who empirically found that the relationship between the financial condition index and personal income per capita is negative. They argue that a wealthier community will demand more public expenditures in certain fields that are adjusted to their increase incomes. This situation will worsen the financial condition of local governments. However, Hou (2003) found a negative relationship between personal income and state general fund expenditure, indicating that high personal income reduces demand for social services (i.e. favourable financial condition).

On the other hand, increasing wealth of a community provides resources for local government. Nollenberger et al. (2003) argue that the wealth of a community is one of the measures of a society's capability to pay duties, levies and excises. The more prosperous a society, the higher will be the duties, levies and excises the local government can generate. As wealth increases, the revenue base increases as well. In turn, local government revenues will increase. As a result, local government's capacity to supply additional services and goods to the people will increase. This situation will improve local government financial condition. Therefore, increasing wealth per capita will improve the financial condition of local government (Berne & Schramm, 1986, p.80). In another study, Carmeli (2008) argues that a local government with a poorer socioeconomic community experiences difficulty in generating revenue needed for supplying suitable local government services, resulting in limited ability to be fiscally independent. He found a close association between community socioeconomic condition and the local government's own revenues ratio.

### **3.5.2 Population size**

Population size creates demand for services and goods that a local government has to provide. As population increases, the amount of services and goods demanded

increases as well (Nollenberger et al., 2003). As a result, local government expenditure will increase. This condition will worsen the local government financial condition through the expenditure side.

On the other hand, population size also provides resources for local government. As population increases, the revenue base increases as well (Nollenberger et al., 2003). This condition affects local government financial condition on the revenue side. However, Hyman (1990) argues that, assuming elastic demand exists in the local government environment, increases in population size cause an increase in per capita expenditure. This condition happens because the effect of a shift on the demand side is greater than the effect of shift on the supply side. Dennis (2004), Ladd (1992), Pammer (1990), Rubin (1989), Wang et al. (2007) and Jones and Walker (2007) all found that population size is negatively associated with financial condition indices in local councils. They argue that greater population size would require more public spending. This situation will lead to deterioration in local government financial condition if not followed by a proportional increase in local government revenues to finance such increase in service demand.

### **3.5.3 Population density**

Nollenberger et al. (2003) argue that population density affects the financial condition of local government through the cost of delivering services and goods. If local government has a compact boundary and a dense population, provision of public services such as schools and health centres, maintenance of roads and bridges will be cheaper per resident. If the identical population is scattered in an area that is twice as large, the cost of providing services will be higher for each resident. Borchering and Deacon (1972) and Downing (1973) found that population density is inversely related to per capita expenditure. In addition, Ladd (1992), cited in Carmeli (2008), discovered that growing population concentration reduces local government

expenses. Furthermore, Carmeli (2008) argues that small local governments experience difficulties in attaining the best possible tier of economic efficiency due to their inadequate wealth and multifaceted challenges. Carmeli (2008) also discovered that large local governments benefit from better financial strength than small local governments. Thus, it can be concluded that population density will affect local government financial condition on the expenditure side, both operating and capital expenditure.

#### **3.5.4 Age profile of the community**

Nollenberger et al. (2003) argue that young and aged population groups need services and goods that differ from those of the working group population. On one side, these groups are non-productive groups. On the other side, these population groups require extra services and goods compared to the productive population group. They argue that the age profile can be used to estimate the quantity of existing and upcoming needs and the number of liabilities in a society. This situation affects local government financial condition on the expenditure side. In China, Jin and Zhang (2011) found that an increasing number of elderly people will increase social security expenditure. Berne and Schramm (1986) and Zafra-Gomez et al. (2009c) argue that community tastes and needs are inversely related to financial condition.

#### **3.5.5 Cost of goods and services**

Berne and Schramm (1986) argue that capital, labour and other resource markets affect local government financial condition through the cost of providing services and products. In providing services and products, local government involves third parties in many occasions. For example, to finance a project, local government needs to raise capital by issuing municipal bonds or borrowing money from banks. As a consequence, local government has to pay interest to the bond holders or banks. To pay labour for its projects, a local government has to pay at least at the minimum

regional wage. Baumol (1967) and Bradford et al. (1969) found that the average costs of government-provided services are the major determinant of local government total expenditure. In addition, Bradford et al. (1969) state that wages and salaries of local government employees are the major determinant of costs of services and goods. Furthermore, Baumol (1967) argues that, unlike the private sector in which increases in wage levels are offset by increases in productivity, in local government such a condition is not found. Beck (1982) found that excessive municipal salary and benefits expenditures are a contributor to financial stress. Thus, the higher the cost of capital, labour and other resources in producing services and products, the lower will be the services and products local government can supply to the community.

### **3.5.6 Financial efficiency**

Hyman (1990) argues that local government bureaucrats do not face market tests of profit or loss as in the case of the business sector. They often have little incentive to seek and employ input combinations that lead to minimise costs or to seek innovations in technology (Hyman, 1990).

Local government financial efficiency affects financial condition through the cost to produce services and products. If the management of local government produces services and goods efficiently, the cost of services and goods per capita will be less at a certain desired quality. Therefore, local government can supply more services and goods to the community. However, if management of the local government fails to implement efficient financial management practices, the cost of services and goods per capita will be higher. As a result, local government can only supply fewer services and goods to the community. Pammer's 1990 study (Kloha, 2005a p.314) argues that poor management causes financial stress for local governments. In addition, Beck (1982) argues that bureaucratic inefficiency is a contributor to financial stress, as in the case of Cleveland. Jin and Zhang (2011) found that

expenditures on administration management of local government, which should provide more and better public goods for the community and be conducive to economic growth, has a statistically negative effect on the ratio of output to capital. They argue that it is well-known that the administration expenditure of local government is too high, wasteful and much of which is not used in public service.

In the private sector, the level of financial efficiency is depicted by the cost of its product. The lesser the cost of the product at a certain quality level, the more efficient will be the management in running the business. In the context of local government, financial efficiency is indicated by the operating expenditure per capita. Low operating expenditure per capita indicates a better financial condition.

### **3.5.7 Revenue base of a local government**

The revenue base of a local government refers to the resources from which a local government draws its revenues. It shows the level of economic resources to estimate the basic financial strength of a local government. Berne and Schramm (1996) argue that the revenue base is the resources base that most affects local government financial condition because most revenues stem from it.

Berne and Schramm (1996), Carmeli (2008) and Honadle et al. (2004) state that the revenue base affects the ability of local government to raise revenue. Thus, the revenue base affects financial condition through the local government's capacity to supply services and products. The larger the revenue base, the stronger the capacity of a local government. As a result, the local government can supply more services and goods to the community. In addition, Rubin (1982) and Pammer (1990) found that there is a negative association between the local government revenue base and financial distress.

Wang et al. (2007) also support Berne and Schramm's argument. They argue that expanding revenue bases, followed by a growing amount of revenue collected by the local government, will strengthen its financial condition and financial capacity.

### **3.6 Conclusion**

Previous researchers have shown that many factors affect the financial condition of local governments. Those factors can be grouped into demographic factors, economic factors, organisational factors and political factors. However, previous research has not explained what theory they used to explain the relationship between financial condition (as the explained variable) and the factors influencing it (as the explanatory variables) (see Berne & Schramm 1986; Carmeli, 2008; Clark 1994; Honadle, 2004; Kloha et al., 2005a; Nollenberger et al., 2004; Wang et al., 2007; Zafra-Gomez et al., 2009a, 2009b, 2009c). As a result, currently there is no sound basis explaining the relationship between financial condition and the factors that influence it. This situation has created difficulties for local government executives and legislators in making effective policy responses whenever the financial conditions of local government worsen. Further, the quality of decision-making might improve if this information were available.

The current study attempts to remedy the weakness of previous studies explained above. The framework used in this study to answer the research question as to what factors affect the financial condition of local government are demand and supply framework. From the standpoint of the framework of supply and demand, the factors affecting financial condition of local government can be divided into three groups:

1. factors affecting financial condition through both the supply and demand sides of local government-provided services and goods; this factor is population size;

2. factors affecting financial condition through the demand side of local government-provided services and goods; these factors are the wealth of the community and age profile of the community; and
3. factors affecting financial condition through the supply side of local government-provided services and goods; these factors are population density, the revenue base of local government, financial efficiency and the costs of production of services and goods.

All the factors stated above will be examined in Chapter 7.

## **CHAPTER 4**

### **RESEARCH FRAMEWORK**

#### **4.1 Introduction**

The previous chapters have reviewed the literature relating to the concept of the financial condition of local government, methods to measure the financial condition and factors affecting the financial condition. In this chapter, the research framework is developed to guide the researcher to achieve the research objectives: to build an instrument to assess the financial condition of local government utilising information provided in the financial statements; and to determine the factors affecting the financial condition of local government. This chapter will discuss the research questions, research approach, research framework, hypothesis development, operational definition of the key constructs and steps in model testing.

#### **4.2 Research question**

The literature review in Chapters 2 and 3 show that there is little agreement about the definition, dimensions and indicators to measure the financial condition of local government. Furthermore, the literature review concludes that several common weaknesses in measuring financial condition include, to mention a few, too many variables involved in measuring the financial condition of local government, utilising non-financial indicators, dimensions and indicators built not based on a clear definition, methods that do not create a composite index to indicate the overall financial condition, assuming that all dimensions or indicators have equal importance, not testing the reliability of the measure, and not establishing key attributes or criteria as guidance in developing the measure.

In addition, there is little empirical evidence about the factors affecting the financial condition of local government. This situation has been creating difficulties for local government executives and legislators in making effective policy responses whenever the financial conditions of local government worsen. Without the knowledge of the factors affecting the financial conditions, local government executives have difficulty in maintaining the financial health of local government because they do not know exactly what factors should be controlled. The previous research also has not explained what theory was used to explain the relationship between financial condition and the factors influencing it.

Based on the research problem stated above, this study raises the following two main issues: (1) what are the effective dimensions and indicators for assessing the financial condition of local government? (2) what factors affect the financial condition of local government? In further detail, the sub-questions that are necessary to answer can be listed as follows.

1. What is an appropriate definition of the financial condition of local government?
2. What are the appropriate dimensions and indicators of the financial condition of local government?
3. What are the appropriate measures of the indicators comprising the financial condition of local government?
4. How to construct a composite index of the financial condition of local government as a comprehensive measure?
5. How to categorise local government as financially good or financially poor?
6. What are the factors that affect the financial condition of local government?
7. How do the indicated factors have an effect on the financial condition of local government?
8. Why is one local government healthier than another local government?

### **4.3 Research approach**

This study utilises a quantitative approach to address the above issues. Creswell (2009) argues that the quantitative approach is best to study the variables that affect a result, the utility of an intervention or to discover the best estimators of results. In addition, the quantitative approach is appropriate to examine a theory or argument. Based on Creswell's arguments above, it is argued that a quantitative approach is suited to the nature of this study's objectives.

### **4.4 Research framework**

#### **4.4.1 Research framework for research objective 1: criteria for developing a measure to assess the financial condition of local government**

It is argued that to develop a good measure, one must set criteria as guidance. Previous researchers have failed to construct a good instrument for measuring financial condition because they did not establish criteria as guidance in developing the measure (see Brown, 1993,1996; Casal & Gomez, 2011; Chaney et al., 2002; Kamnikar et al., 2006; Mercer & Gilbert, 1996; Zafra-Gomez et al., 2009a, 2009b, 2009c). Only a few studies have set criteria for such measures (see Kloha et al., 2005a; Rivenbark et al., 2009, 2010; Wang et al., 2007). Therefore, to build a good instrument for measuring the financial condition of local government, this study sets criteria or attributes that must be met by the measure. The criteria are listed below.

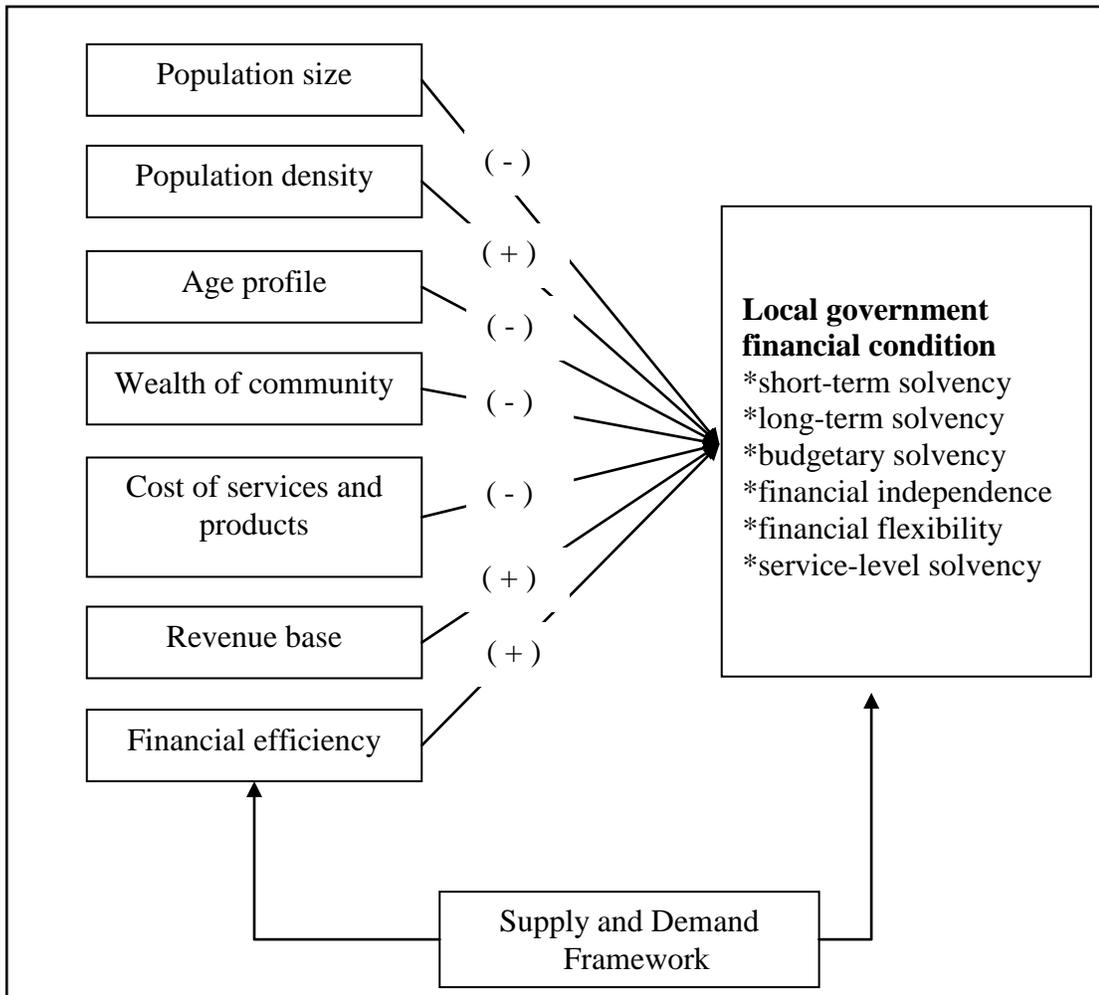
1. Be theoretically sound, which means that the dimensions and indicators developed are derived from theories on the financial condition of local government (Kloha et al., 2005a; Wang et al., 2007).
2. Possess the qualities of measurement validity and reliability (Cooper & Schindler, 2011; Wang et al., 2007). Validity is the degree to which a test assesses what it actually intends to assess, whereas reliability is related to the accuracy and precision of a measurement procedure (Cooper & Schindler, 2011).

3. Evaluate local government financial condition as a whole (Wang et al., 2007).
4. Provide predictive ability, which means that the information provided by the measure can be used to recognise financial distress before it becomes a financial emergency (Kloha et al., 2005a). Predictive ability also means that the information provided by the measure can be used to recognise the factors that are believed to be associated with it (Sekaran and Bougie, 2010).
5. Have the ability to differentiate among local governments evaluated (Kloha et al., 2005a). This criterion is proposed to avoid the risk of type I and type II errors. Type I errors occur when a local government is labelled financially healthy although in reality it is not healthy, whereas type II errors take place when a local government is declared financially poor when in fact it is not poor (Kloha et al., 2005a).
6. Be practical, which as Cooper and Schindler (2011) explain is related to various factors of economy, convenience and interpretability.
7. Utilise data that are available to the public, uniform and collected regularly. As a result, the measure will be objective and resistant to manipulation and gaming (Kloha et al., 2005a).
8. Be accessible and parsimonious, which means that the stakeholders of local government are able to understand the instrument easily (Kloha et al., 2005a).

#### **4.4.2 Research framework for research objective 2: determining the factors affecting the financial condition of local government**

Based on the framework of supply and demand in the context of local government as discussed in Chapter 3, the following figure presents an illustration of the conceptual framework for the relationship between the financial condition of local governments and the factors that influence it.

**Figure 4.1: Conceptual framework for factors affecting local government financial condition**



The conceptual framework above will serve as the foundation in developing the hypotheses. The next section will discuss the hypothesis development.

#### **4.5 Hypothesis development**

This study utilises the framework of supply and demand as a basis to develop hypotheses. The following sections discuss the hypothesis development.

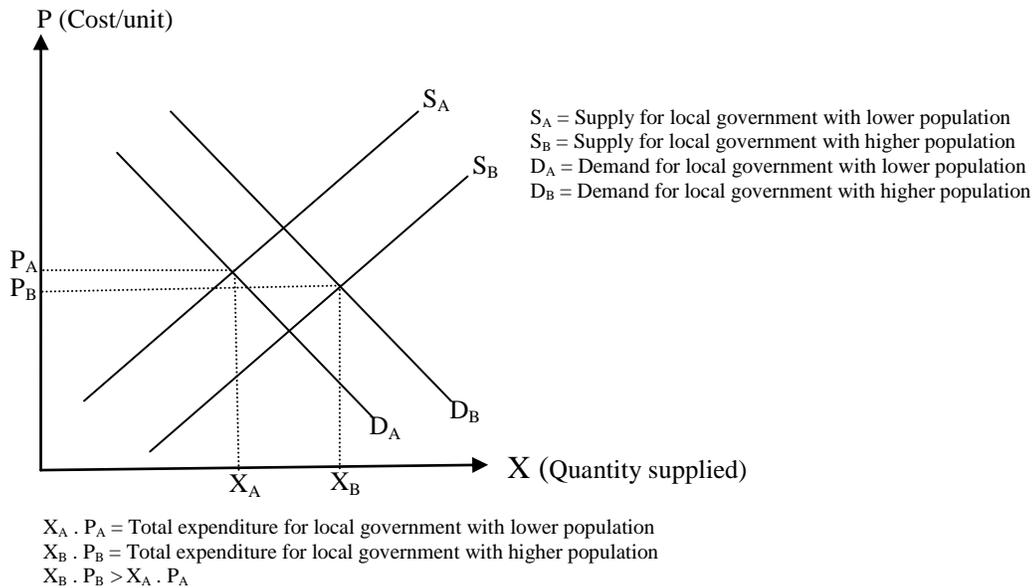
#### **4.5.1 Relationship between population size and financial condition of local government.**

Hyman (1990) argues that population size affects per capita local government expenditure on both the demand and the supply sides. Greater population means more public facilities must be provided by local government to the public. Furthermore, more social problems also occur if the number of people increases. This condition will lead the demand curve to move to the right. As a result, total government expenditure will increase. On the other hand, a larger population will lead to the achievement of economies of scale. These conditions cause the supply curve to move downward and to the right. In turn, the cost per unit of services and goods will decrease. Assuming that the services and goods provided by local government are normal goods and that the nature of demand of services and goods is elastic<sup>10</sup> (Hyman, 1990), the community will switch to use more services and goods provided by local governments. The following figure shows the effects of increasing population on total expenditures of local government. The figure shows that a local government with a higher population has larger total expenditure ( $X_B.P_B$ ) than a local government with a smaller population ( $X_A.P_A$ ).

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<sup>10</sup> Demand of a good/service is elastic when the amount of goods or services demanded changes significantly in response to changes in prices.

**Figure 4.2: Effect of increasing population on local government’s total expenditure**



As a result, local government expenditure per capita will increase because the effect of the demand side (i.e. increase in the quantity demanded) is larger than the effect of the supply side (i.e. decrease in the cost per unit of services and goods). Thus, the simultaneous shifts of the demand and supply curves will cause the total expenditure per capita of local government to increase. The increasing total expenditure per capita will decrease the budget surplus or increase the budget deficit. As a result, the dimension of budgetary solvency will decrease. Holding other factors constant, this condition will deteriorate the financial condition. The following exhibit shows the logical framework of the association between population size and local government financial condition.

**Exhibit 4.1: Relationship between population size and financial condition of local government**

**Population size increases → quantity of services and goods demanded increases faster than the decrease of cost per unit of services and goods demanded → expenditure per capita increases → budgetary solvency decreases → financial condition index decreases (other variables are held constant)**

Pammer (1990), Rubin (1982), Wang et al. (2007) and Jones and Walker (2007) found that population size is negatively associated with the financial condition index in local councils. Wang, et al. (2007) argue that larger populations may demand greater public spending, which can lead to deteriorating financial conditions if additional revenues are not generated proportionally to fund the increased service demand. Based on the explanation above, this study formulates the following hypothesis for the relationship between population size and the financial condition of local government.

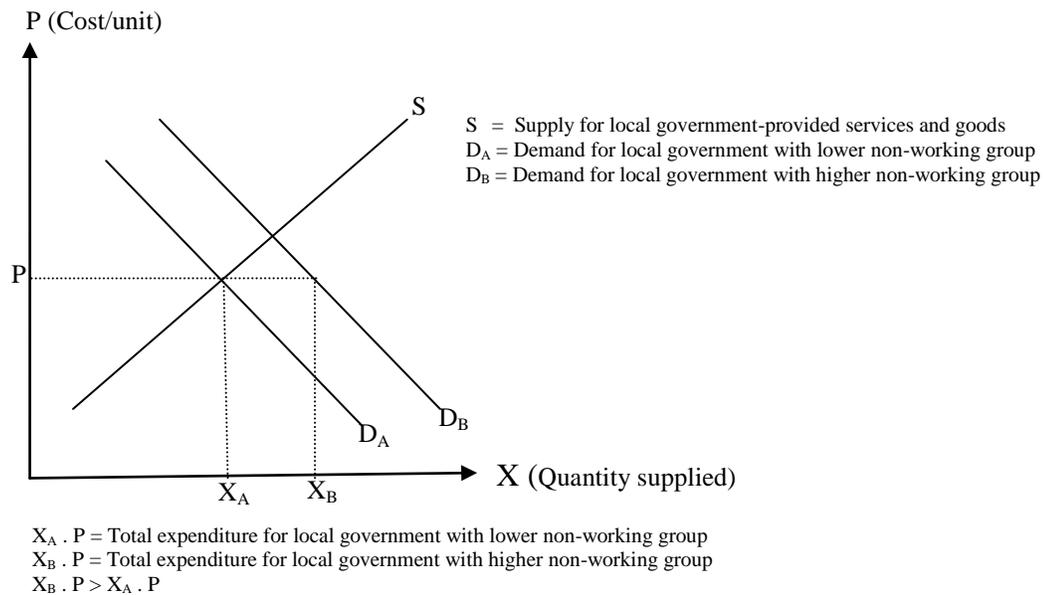
*Hypothesis 1: Population size is negatively associated with the financial condition of local government.*

**4.5.2 Relationship between age profile of community and financial condition of local government**

The age profile of the community will affect the taste and needs for services and goods provided by local governments. The age profile affects local government-provided services and goods on the demand side. Worker groups (a community with ages between 18 and 60 years old) have a different sense and need for services and goods compared to the non-working community groups, which are community groups under the age of 18 years and community groups over the age of 60 years. For

example, non-working community groups need more of certain types of facilities such as schools, parks and recreation, and nursing homes that are not needed by a group of workers. This condition will result in additional expenditures of local governments to provide these facilities. As a result, the demand curve will shift to the right. Thus, local governments that have a higher percentage composition of the community with the age profile of non-working groups will face higher demand for spending than local governments that have a community with a lower percentage composition of the age profile of non-workers. In turn, the total expenditure will increase and the per capita expenditure will increase, as well. The following figure shows the effect of age profile of community on the total expenditure of local government. The figure shows that a local government with a higher non-working group has larger total expenditure ( $X_B \cdot P$ ) than a local government with a lower non-working group ( $X_A \cdot P$ ).

**Figure 4.3: Effect of age profile of community on local government's total expenditure**



The increasing total expenditures per capita will decrease budget surplus or increase budget deficit. As a result, the dimension of budgetary solvency will decrease. Holding other factors constant, this condition will deteriorate the financial condition.

The following exhibit shows the logical framework of the relationship between the age profile of the community and the financial condition of local government.

**Exhibit 4.2: Relationship between age profile of community and financial condition of local government**

**Number of non-working groups increases → quantity of services and goods demanded increases → total expenditure increases → total expenditure per capita increases → budgetary solvency decreases → financial condition index decreases (other variables are held constant)**

Jin and Zhang (2001) and Zafra-Gomez et al. (2009c) found that increasing numbers of non-working groups in a community increase local government expenditure, which leads to deteriorating financial condition. Based on the explanation above, this study formulates the following hypothesis for the relationship between age profile and the financial condition of local government.

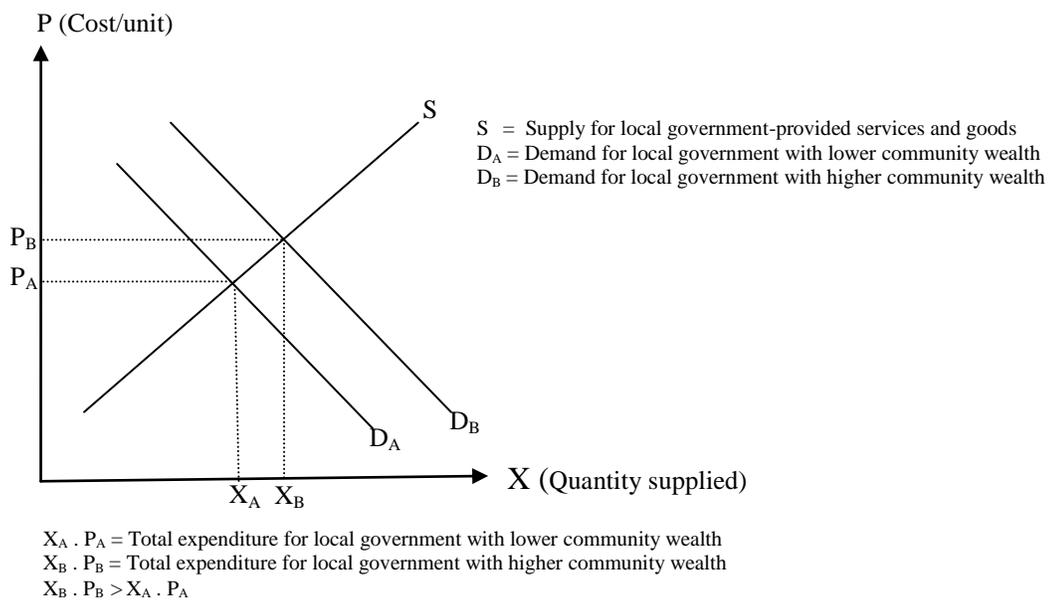
*Hypothesis 2: Age profile of community is negatively associated with the financial condition of local government.*

**4.5.3 Relationship between wealth of community and financial condition of local government**

The wealth of the community affects local government-provided services and goods on the demand side. It is believed that local government-provided services and goods

are normal goods (Hyman, 1990). Therefore, the more prosperous a society, the greater the quantity of services and goods that society wants. As a result, the total expenditures of local government will increase. In addition, not only does the quantity increase, but also the quality of the desired local government provided-services and goods will be higher. For instance, wealthier communities would ask for better quality education such as well better qualified teachers, modern school facilities and the like. This situation will cause the demand curve to move to the right. In turn, the total expenditure will increase and the per capita expenditure will increase, as well. The following figure shows the effect of community wealth on the total expenditure of local government. The figure shows that a local government with higher community wealth has a larger total expenditure ( $X_B \cdot P_B$ ) than a local government with a smaller community wealth ( $X_A \cdot P_A$ ).

**Figure 4.4: Effect of wealth of community on local government's total expenditure**



The increasing total expenditures per capita will decrease budget surplus or increase budget deficit. As a result, the dimension of budgetary solvency will decrease.

Holding other factors constant, this condition will deteriorate the financial condition. The following exhibit shows the logical framework of the relationship between the wealth of the community and the financial condition of local government.

**Exhibit 4.3: Relationship between wealth of community and financial condition of local government**

**Wealth of community increases → quantity and quality of services and goods demanded increase → total expenditure increases → total expenditure per capita increases → budgetary solvency decreases → financial condition index decreases (other variables are held constant)**

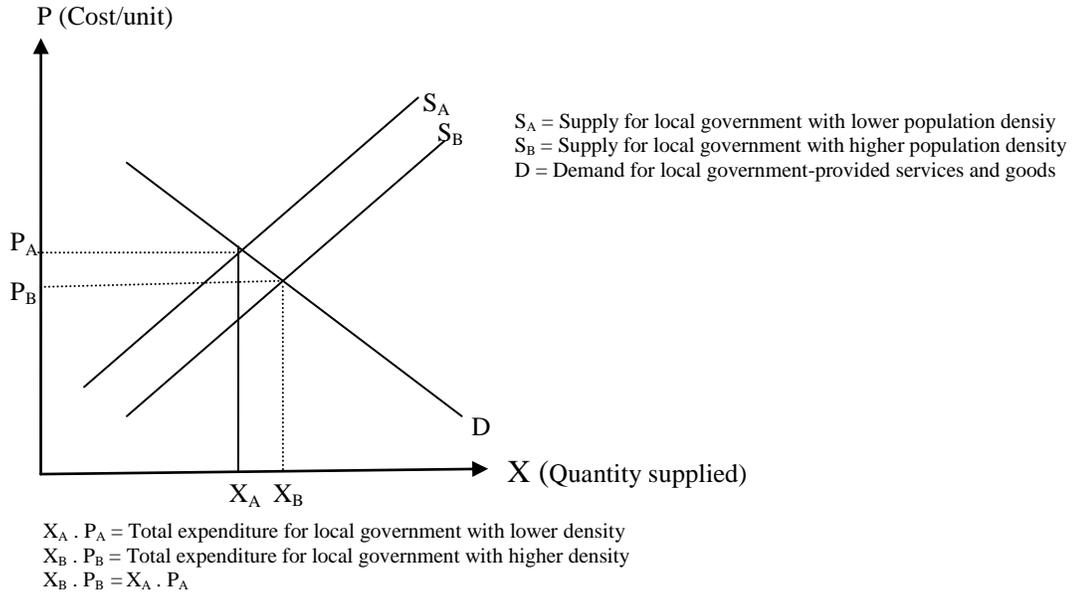
Borcherding (1985) and Ohls and Wales (1972) found that a community with relatively high wealth is likely to buy relatively large amounts of both state-produced and private goods, and hence one would expect the demand curve to shift to the right with an increase in income. As a result, local government's total expenditure will increase. This situation worsens the local government financial condition. Douglas and Gaddie (2002) and Wolkoff (1987) also found a positive relationship between state general fund expenditures and per capita personal income. In their study, Wang et al. (2007) found that the relationship between financial condition index and personal income per capita is negative. They argue that individuals with higher personal incomes may require increased public spending in certain areas tailored to higher income populations, which may eventually worsen the financial condition of local government. Based on the explanation above, this study formulates the following hypothesis for the relationship between community wealth and the financial condition of local government.

*Hypothesis 3: Wealth of community is negatively associated with the financial condition of local government.*

#### **4.5.4 Relationship between population density and financial condition of local government**

Population density affects local government-provided services and goods through the supply side. An increasing density of population (i.e. the closer the distance among households) is believed to reduce the cost per unit of goods and services produced by local government (Downing, 1973). Nollenberger et al. (2003) argue that if local government has a compact boundary with a dense population, the provision of public services such as schools and health centres, maintenance of roads and bridges will be cheaper per resident. If the identical population is scattered in an area that is twice as large, the cost of providing services will be higher for each resident. In addition, Hyman (1990) argues that the average cost per unit is analogous to its price per unit. Lower cost per unit leads the local government to supply more goods and services to the community. This situation causes the supply curve to move to the right. The following figure shows the effect of increasing population density on the quantity of services and goods supplied by local government. The figure shows that with the same size of total expenditure ( $X_B \cdot P_B = X_A \cdot P_A$ ), a local government with higher population density could provide more services and goods to its people compared to a local government with smaller population density.

**Figure 4.5: Effect of population density on services and goods provided by local government**



An increase in goods and services supply to the community will result in improved service-level solvency. Holding other factors constant, the overall financial condition of local government will be improved. The following exhibit shows the logical framework of the relationship between population density and the financial condition of local government.

**Exhibit 4.4: Relationship between population density and financial condition of local government**

**Population density increases → cost per unit of services and goods decreases → quantity of services and goods supplied increases → service-level solvency increases → financial condition index increases (other variables are held constant)**

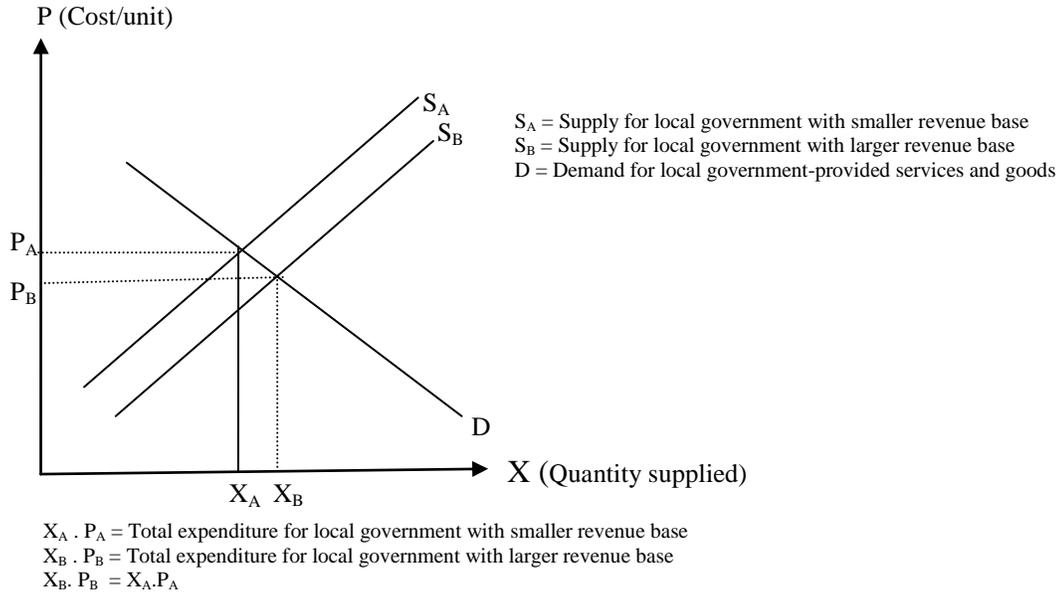
Borcherding and Deacon (1972) and Downing (1973) found that population density is inversely related to per capita expenditure. In addition, Ladd (1992), cited in Carmeli (2008), found that increasing population density decreases local government costs. Furthermore, Carmeli (2008) argues that smaller local authorities are unable to reach optimal levels of economic efficiency because of their limited resources and complex challenge. Carmeli (2008) also found that larger local authorities enjoy better financial health than smaller local authorities. Based on the explanation above, this study formulates the following hypothesis for the relationship between population density and the financial condition of local government.

*Hypothesis 4: Population density is positively associated with the financial condition of local government.*

#### **4.5.5 Relationship between local government revenue base and financial condition of local government**

The revenue base of local government refers to the resources from which a local government generates its revenue. The revenue base affects local government-provided services and goods on the supply side. A strong revenue base could supply more revenue to local government. As a result, local governments can provide more goods and services to the community. This situation causes the supply curve to move to the right. This condition will result in improved service-level solvency. The figure below shows the effect of revenue base on the quantity of services and goods supplied by local government. The figure shows that with the same size of total expenditure ( $X_B \cdot P_B = X_A \cdot P_A$ ), a local government with a larger revenue base could provide more services and goods to its people compared to a local government with a smaller revenue base.

**Figure 4.6: Effect of revenue base on services and goods provided by local government**



An increased goods and services supply to the community will result in improved service-level solvency. Holding other factors constant, overall the financial condition of local government will be improved. The following exhibit shows the logical framework for the relationship between population density and the financial condition of local government.

**Exhibit 4.5: Relationship between local government revenue base and financial condition of local government**

**Revenue base increases → total revenues increase → quantity of services and goods supplied increases → service-level solvency increases → financial condition index increases (other variables are held constant)**

Carmeli (2008), Pammer (1990), Rubin (1982) and Wang et al. (2007) found that there is a negative association between local government revenue base and level of

local government financial distress. Based on the explanation above, this study formulates the following hypothesis for the relationship between revenue base and the financial condition of local government.

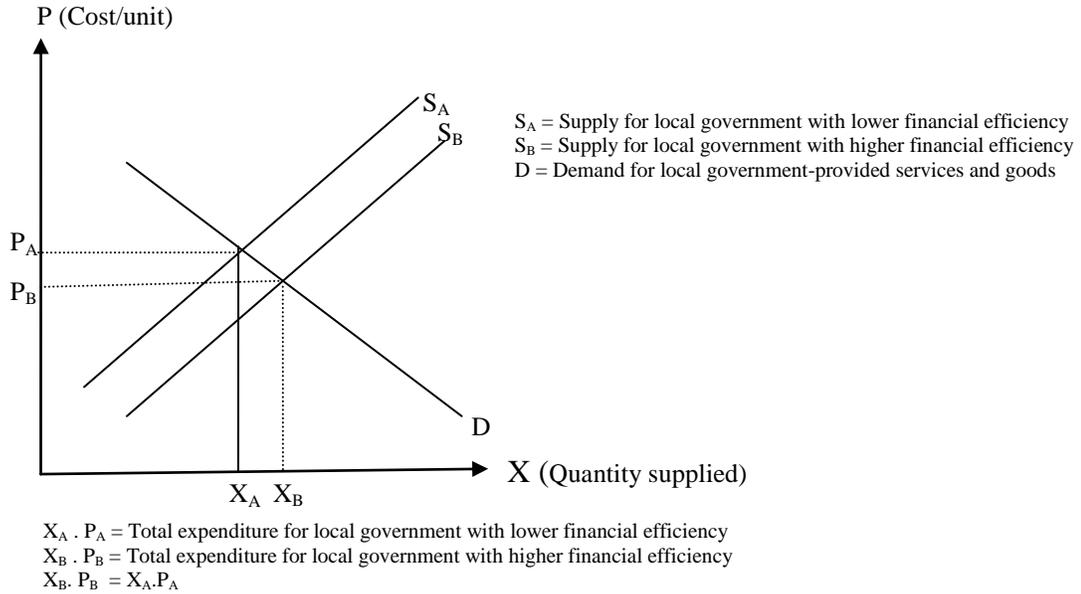
*Hypothesis 5: Revenue base is positively associated with the financial condition of local government.*

#### **4.5.6 Relationship between financial efficiency and financial condition of local government**

Financial efficiency refers to efficient practices undertaken by local governments. Examples of efficient practices include the use of technology and the use of resources (personnel and equipment) not in an excessive way. Financial efficiency affects local government-provided services and goods on the supply side. Good financial efficiency practices will lower the cost per unit of services and goods. As a result, local governments can provide more goods and services to the community. In turn, this situation causes the supply curve to move to the right.

The figure below shows the effect of financial efficiency on the quantity of services and goods supplied by local government. The figure shows that with the same total expenditure ( $X_B.P_B = X_A.P_A$ ), a local government with a higher level of financial efficiency could provide more services and goods to its people compared to a local government with a lower level of financial efficiency.

**Figure 4.7: Effect of financial efficiency on services and goods provided by local government**



An increase in goods and services supply to the community will result in improved service-level solvency. Holding other factors constant, overall the financial condition of local government will be improved. The following exhibit shows the logical framework for the relationship between financial efficiency and the financial condition of local government.

**Exhibit 4.6: Relationship between financial efficiency and financial condition of local government**

**Financial efficiency increases → cost per unit of services and goods decreases → quantity of services and goods supplied increases → service-level solvency increases → financial condition index increases (other variables are held constant)**

Pammer's 1990 study (Kloha et al., 2005a, p.314) argues that poor management causes financial stress in local governments. In addition, Beck (1982) argues that bureaucratic inefficiency is a contributor to financial stress, as in the case of Cleveland. Furthermore, Jin and Zhang (2011) found that poor management has a statistically negative effect on local government financial condition. Based on the explanation above, this study formulates the following hypothesis for the relationship between financial efficiency and the financial condition of local government.

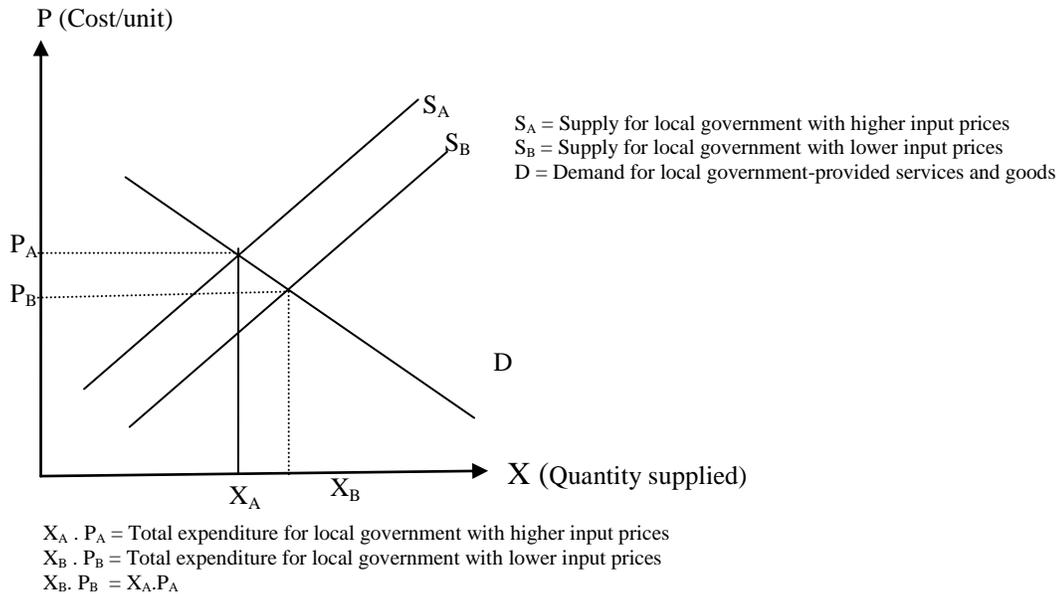
*Hypothesis 6: Financial efficiency is positively associated with the financial condition of local government.*

#### **4.5.7 Relationship between cost of services and goods and financial condition of local government**

To produce services and goods, local government uses relevant sources such as labour, raw materials and overheads. The input prices of relevant sources affect local government-provided services on the supply side. In general, the lower the prices of relevant sources, the lower the average price per unit of the services and goods will be. In turn, more goods and services can be supplied by the local government to the community. Therefore, local governments with cheaper prices of relevant sources will be able to supply more goods and services to the community. This situation causes the supply curve to move to the right.

The following figure shows the effect of input prices on the quantity of services and goods supplied by local government. The figure shows that with the same total expenditure ( $X_B \cdot P_B = X_A \cdot P_A$ ), a local government with lower input prices could provide more services and goods to its people compared to a local government with higher input prices.

**Figure 4.8: Effect of input prices on services and goods provided by local government**



An increase in goods and services supply to the community will result in improved service-level solvency. Holding other factors constant, overall the local government financial condition will be better.

Local governments with higher prices of relevant sources will supply fewer goods and services. If such a local government supplied the goods and services in the same amount as local governments which have lower input prices, then the local government is most likely to take loans from third parties (i.e. banks, other local governments or the central government). As a result, the local government will have weaker dimensions of short-term solvency, budgetary solvency, long-term solvency and financial flexibility. In turn, overall the local government's financial condition will worsen. The following exhibit shows the logical framework of the relationship between input prices and financial condition.

**Exhibit 4.7: Relationship between cost of services and goods and financial condition of local government**

**Input prices increase → cost per unit of services and goods increases → quantity of services and goods supplied decreases → service-level solvency decreases → financial condition decreases (other variables are held constant)**

Baumol (1967) and Bradford et al. (1969) found that wages and salaries of local government employees are the major determinant of costs of services and goods provided by local governments; and Beck (1982) found that exorbitant municipal wages and welfare expenditure are a contributor to financial stress. Based on the explanation above, this study formulates the following hypothesis for the relationship between cost of services and goods and the financial condition of local government.

*Hypothesis 7: Cost of services and goods is negatively associated with the financial condition of local government.*

The following table sums up the relationships between financial condition of local government and the factors affecting it.

**Table 4.1: Association between financial condition of local government and its determinants**

<b>Determinants</b>	<b>Probable effect on financial condition</b>	<b>Operates through</b>
Population size	Negative	Supply side and demand side
Age profile of community	Negative	Demand side
Wealth of community	Negative	Demand side
Population density	Positive	Supply side
Revenue base	Positive	Supply side
Financial efficiency	Positive	Supply side
Cost of services and goods	Negative	Supply side

## **4.6 Operational definitions of the key constructs**

After completing the research framework and the development of hypotheses, the next step is to operationalise the definition of the key constructs. Cooper and Schindler (2011) explain that an operational definition is a definition stated in terms of specific testing criteria or operations. The specifications and procedures must be so clear that any competent person using them would classify the objects in the same way. Development of measures for these key constructs is based on previous models or has been developed by the researcher based on the literature review.

### **4.6.1 Operational definition of dependent variable (i.e. local government financial condition)**

Based on the definition of financial condition conceptualised in Chapter 2, which refers to the financial capability of a local government to fulfil its financial obligations (short-term obligations, long-term obligations, operational obligations and obligations to provide services to the public), to anticipate unexpected events and to execute financial rights efficiently and effectively, it can be concluded that there are six dimensions forming local government financial condition: short-term solvency, long-term solvency, budgetary solvency, financial independence, financial flexibility and service-level solvency. Compared to Wang et al.'s (2007) and CICA's (1997) definitions, which have four dimensions and three dimensions respectively, the dimensions and indicators used in this thesis are more comprehensive to capture the aspects of the financial condition of local government.

Ratios are used to measure each dimension because ratios can eliminate the effect of size of the objects measured (Jones & Walker, 2007). The more indicators used to measure a dimension, the better the result will be, because they can measure the dimension comprehensively.

The ratios developed in this study are based on financial statements prepared by local governments in Indonesia. The financial statements are prepared based on the Government Accounting Standards (Government Regulation No. 24/2005; 71/2010), which must be followed by local governments in Indonesia. The six dimensions and their operational definitions are as follows.

**a. Short-term solvency**

Short-term solvency demonstrates the ability of local government to fulfil its obligations that mature within 30 to 60 days (Nollenberger et al., 2003). However, this study uses the duration of 12 months rather than 30 to 60 days because the disclosure in balance sheets is for current liabilities, which fall due within 12 months.

The financial information about local government obligations that will mature within 12 months is shown in the current liabilities segment in the statement of financial position, whereas local government resources that are available and are intended to be used within 12 months are depicted in the current assets segment of the balance sheet. Therefore, to show short-term solvency, the numerator of the ratio is local government current revenues and the denominator is local government current liabilities. The ratios to measure the short term solvency of a local government are as follows.

**Exhibit 4.8: Ratios of short-term solvency**

Ratio A = (Cash and cash equivalent + short-term investment) / Current liabilities
Ratio B = (Cash and cash equivalent + short-term investment + account receivables) / Current liabilities
Ratio C = Current assets / Current liabilities

Ratio A is the most conservative ratio in measuring short-term solvency, followed by Ratio B and Ratio C, respectively. In general, the higher the value of these three

indicators, the more current assets are available to guarantee the current liabilities. Thus, an increasing value of these indicators indicates an improving quality of short-term solvency. However, values that are too high in these ratios indicate that a local government has excessive current assets (i.e. idle capacity), which could be better used to deliver services to the community. Therefore, excessive current assets lead to sub-optimal delivery of services to the community.

### **b. Budgetary solvency**

Budgetary solvency demonstrates the ability of local government to generate revenue to cover its operations during the period of the financial budget (Nollenberger et al., 2003). Thus, the indicators of this dimension must show a balance between operating revenues (i.e. as the numerator) and operating expenditures (i.e. as the denominator) during the financial period. The ability is measured by the following ratios.

#### **Exhibit 4.9: Ratios of budgetary solvency**

Ratio A = (Total revenues – special allocation fund revenue) / (Total expenditures – capital expenditure)

Ratio B = (Total revenues – special allocation fund revenue) / Operational expenditure

Ratio C = (Total revenues – special allocation fund revenue) / Employee expenditure

Ratio D = Total revenue / Total expenditure

The elimination of special allocation fund revenue from total revenues is because it is not regular revenue and is beyond local government's control. In the first ratio, Ratio A, capital expenditure is deducted from total expenditures because it is not a part of the operating activities of a local government. In the case of Ratio C, the use of employee expenditure as the denominator is because it is the most important part of

operating expenditures. In general, a higher value of all ratios indicates a better ability of a local government to obtain revenue to cover its operating expenditure.

### **c. Long-term solvency**

Long-term solvency indicates the capacity of local government to repay its long-term liabilities (CICA, 1997; Nollenberger et al., 2003). The dimension indicates the sustainability of a local government. Long-term obligations can only be met by local governments if they have sufficient assets that are financed from their own resources. To reflect long-term solvency, the appropriate ratios are to place long-term liabilities as the denominator and total assets or investment equities as the numerator. Larger values of the ratio show a better ability of a local government to meet its long-term liabilities. Conversely, lower ratios indicate a lesser capability of a local government to meet its long term liabilities.

Another ratio that could be used to measure long-term solvency is the proportion of investment equity scaled to total assets or long-term liabilities. This ratio indicates what portion of local government's total assets or long-term liabilities is financed or covered by its own resources. Larger values of the ratio denote a better ability of a local government to meet its long-term liabilities. The formula for these abovementioned ratios are as follows.

#### **Exhibit 4.10: Ratios of long-term solvency**

Ratio A = Total assets / Long-term liabilities

Ratio B = Total assets / Total liabilities

Ratio C = Investment equities / Total assets

#### **d. Service-level solvency**

Service-level solvency is the capability of local government to supply and maintain the quality of public services needed and desired by the community (Wang et al., 2007). To meet that definition, the denominator in this dimension should be the number of people served by the local government. The numerator of this ratio is a number that reflects the facilities owned by local governments used to provide services to the people. Total assets indicate the accumulation and availability of resources owned by local governments in serving the community for the future (Chaney et al., 2002). Total equities are also appropriate as the numerator because they are the net assets, which are the difference between total assets and total liabilities, which are owned by a local government to serve its community. This can be thought of as assets not claimed by creditors. These assets are the net resources available to provide services in the future (Chase & Philips, 2004). Thus, the value of total assets or total equities is a suitable figure to represent the purpose. The higher the ratio of total asset value per population, the better the local government provides public services to its people.

Another ratio to measure service-level solvency is the ratio of total expenditure to population (Wang et al., 2007). This ratio indicates how much cost a local government incurs to serve each resident. The higher the values of this indicator, the more services and goods (either quantity or quality) local government is delivering to the community.

Therefore, growing values of those ratios show increasing quantity and quality of service level-solvency. The formulas for these abovementioned ratios are as follows.

#### **Exhibit 4.11: Ratios of service-level solvency**

Ratio A = Total equities / Population

Ratio B = Total assets / Population

Ratio C = Total expenditures / Population

#### **e. Financial flexibility**

Financial flexibility is a condition in which a local government can increase its financial resources to respond to increased commitments, through either increasing revenues or increasing its debt capacity (CICA, 1997). Thus, based on the definition, the indicators of this dimension must show a balance between revenue capacity and debt capacity during the financial period. The numerator of this dimension should be represented by revenue capacity after deducting mandatory expenses and/or restricted revenues, whereas the denominator is represented by the amount of obligations to other parties. This ratio should indicate local government's ability to cover its debt burden (Chase & Phillips, 2004). The condition is measured by debt-servicing capacity ratios as follows.

#### **Exhibit 4.12: Ratios of financial flexibility**

Ratio A = (Total revenues – special allocation fund revenue – employee expenditures) / (Repayments of loan principal + interest expenditures)

Ratio B = (Total revenues – special allocation fund revenue – employee expenditures) / Total liabilities

Ratio C = (Total revenues – special allocation fund revenue – employee expenditures) / Long term liabilities

Ratio D = (Total revenues – special allocation fund revenue) / Total liabilities

Higher values of these four ratios demonstrate a higher level of local government

flexibility to face extraordinary events, which could either come from internal sources or be external to the local government organisation. Therefore, increasing values of these ratios show an improving quality of financial flexibility.

#### **f. Financial independence**

Financial independence is a condition in which local government is not vulnerable to sources of funding beyond its control or influence, from both national and international sources (CICA, 1997). To fulfil the definition, the numerator of the ratio should be local government's own revenues and the denominator should be total revenues or total expenditures. As mentioned in Act 32/2004 and Act 33/2004 about fiscal balance between central and local government, local government's own revenues consist of local tax revenues, local retribution revenues, dividends from local government's investment and other local own revenues.

A higher value of these ratios shows the more that local government's own revenues contribute to its total revenues. Thus, the larger the result of the two ratios, the better is the financial independence of local government. This condition is measured by the following ratios.

#### **Exhibit 4.13: Ratios of financial independence**

Ratio A = Total own revenues / Total revenues

Ratio B = Total own revenues / Total expenditures

#### **4.6.2 Operational definition of independent variables**

The independent variables in this study are as follows.

##### **a. Population size**

Population size refers to the number of citizens who live in the territory of a local

government in a given time. This study utilised population size from the 2010 census.

#### **b. Age profile of community**

Nollenberger et al. (2003) argue that age profile is a surrogate for people's desires and tastes. Age profile refers to the number of people in a community who need particular services and products provided by local government. This variable is measured by using a ratio of the population under the age of 18 years and the age of over 60 years divided by the total population. The formula is: Age profile = (population under 18 years + population over 60 years) / Total population.

#### **c. Wealth of community**

The wealth of the community refers to the level of prosperity of a society. There have been many indicators developed by previous researchers to measure it. The indicators include median family income, percentage of families in the community with income greater than a certain level, assessed valuation per capita and mean wage or salary income of individuals (Hyman, 1990). Weicher (1970) uses other variables as indicators for community wealth: median value of dwelling units, proportion of households with incomes lower than the poverty line, proportion of city employment in manufacturing, per capita retail sales, employment rates and percentage of non-white population. This study uses a ratio of the number of people who live above the poverty line to the population as a measure of community wealth.

#### **d. Population density**

Population density refers to the number of people living in a square kilometre. It is a measure of the dispersion of the residential population within the legal boundaries of a community (Hyman, 1990). This variable is measured by the ratio of population size divided by jurisdiction area in square kilometres in a particular period.

#### **e. Cost of services and goods**

Cost of services and goods refers to the prices of relevant resources to produce services and goods provided by local government. The relevant resources consist of labour, direct materials, capital and land. The cost of wage and salaries is the major component of the costs of producing services and goods by local government (Bradford et al., 1969; Hyman 1990). Therefore, the variable of cost of services and goods provided by local government is measured by using the minimum regional wage.

#### **f. Local government financial efficiency**

Local government financial efficiency refers to the level of efficiency of local government in delivering services and goods to the community. This variable is measured by using a ratio of total expenditures to employee expenditures. The reason for using the ratio is based on arguments from Baumol (1967) and Beck (1982). Baumol (1967) argues that, unlike in the business sector in which increases in wage levels are offset by increases in productivity, in local government such a condition does not occur. Beck (1982) found that very high public servant salary and benefit expenditures<sup>11</sup> contribute to financial strain.

In addition, in the case of Indonesian local government, it is believed that the number of employees is too high. As a result, lots of light work is done by more than one employee (*Harian Jawa Pos*, 21 December 2011, p.1). This condition leads to inappropriate composition of employee expenditures and impairs the efficiency of public services provided by local government. The Minister of Home Affairs, Gamawan Fauzi, states that the composition of employee expenditures to total expenditures for the financial year 2011 was more than 50% in 294 local governments in Indonesia (*Harian Kompas*, 25 August 2011, p.1). This means that

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<sup>11</sup> In the context of Indonesia, benefit expenditures include allowances for renting houses, allowances for communication, allowances for utilities, allowances for insurance.

the amount of employee expenditures is greater than the amount of capital and maintenance expenditures for preserving public services. Based on this condition, on 24 August 2011, three ministers (the Minister of Finance, Minister of Home Affairs and Minister of Administrative and Bureaucratic Reform) signed a joint decree providing a moratorium on employee recruitment.

#### **g. Revenue base of local government**

The revenue base refers to the resources from which a local government generates its revenues. Berne and Schramm (1986) state that the performance of an economy is reflected in the magnitude and value of the goods and services it produces. The variable of revenue base is measured by using gross domestic product (GDP) at constant prices. GDP at constant prices is the total market value of all the goods and services produced within the borders of a local government during a specified period by eliminating the effect of inflation. Therefore GDP at constant price is in line with the concept of revenue base.

Although not all of the revenue base can be controlled by local government to raise revenue (for example, personal income tax and natural resources), local government can still obtain directly the outcome of such revenue base in its jurisdiction through revenue sharing fund from central government. The central government transfers the revenue sharing fund to local government at the same financial year as the revenues are realised (Act 33/2004; Government Regulation 55/2005).

### **4.7 Model testing**

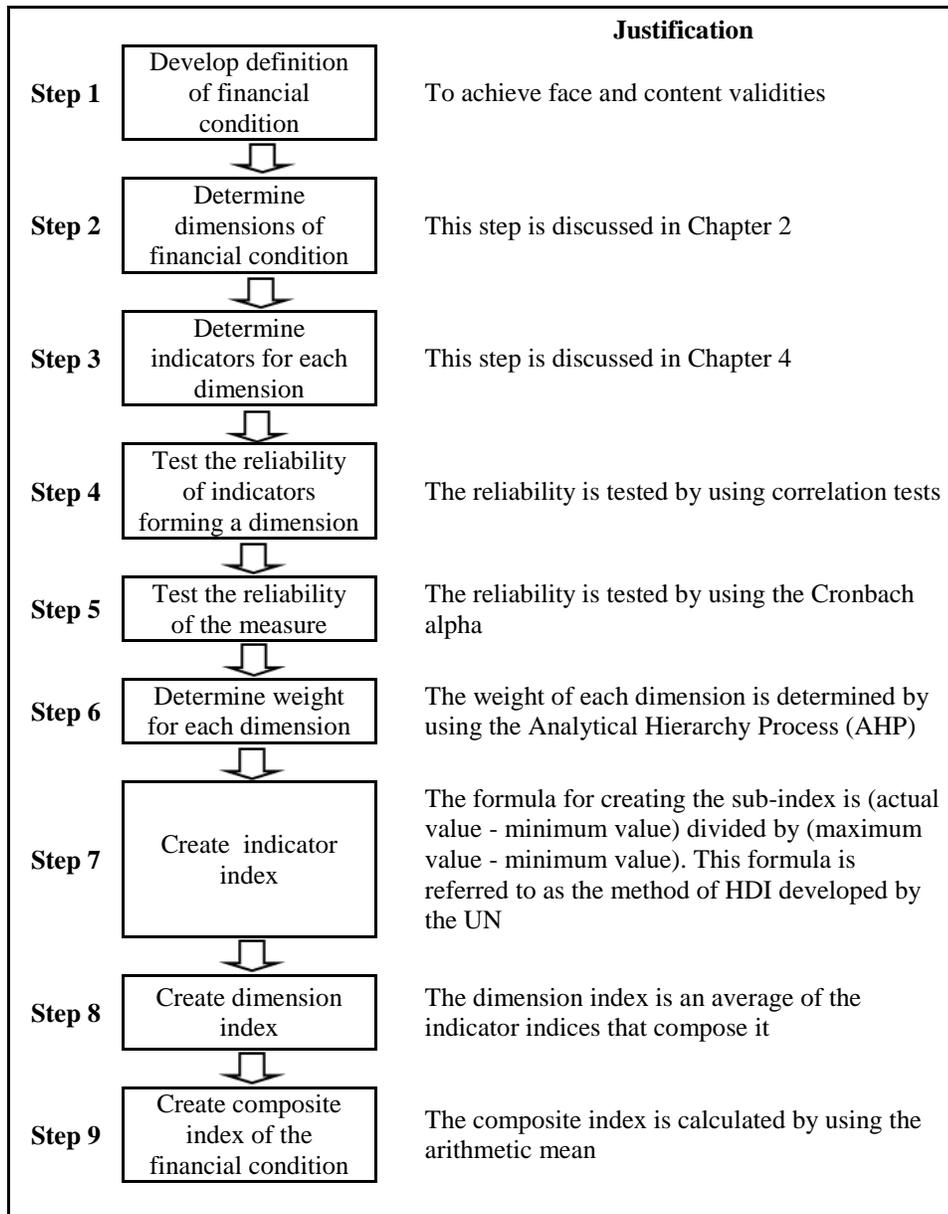
#### **4.7.1 Procedures to build an instrument for measuring the financial condition of local government based on information provided in financial statements**

Cooper and Schindler (2011) state that there are three characteristics for a good

measure, which are validity, reliability and practicality. Validity indicates the soundness of an instrument developed to assess a certain construct it is designated to assess (Sekaran & Bougie, 2010). Reliability of an instrument shows the constancy and consistency with which the instrument assesses the concept and helps to evaluate the quality of an instrument (Sekaran & Bougie, 2010). Practicality is associated with various variables of economy, convenience and interpretability (Cooper & Schindler, 2011). The instrument developed in this study is constructed based on the principle that the measurement of local government financial condition must be good in theory, have a high-quality measurement that is reliable and valid, and be able to show the financial condition of local government as a whole (i.e. all financial aspects can be represented).

The procedures taken in this study are inspired by Wang et al. (2007) study except for the steps in determining the weight of each dimension of financial condition and the approach to create a composite index for financial condition. Wang et al. (2007) do not include a process to determine the weight of each dimension and average the standard values of the indicators to form composite financial condition. The following figure depicts the steps taken in developing an instrument to assess the financial condition of local government.

**Figure 4.9: Steps in developing a measure of local government financial condition**



#### **4.7.1.1 Analysing the reliability of the measure**

After determining the dimensions and indicators comprising financial condition, the next procedure is to determine the reliability of the indicators and dimensions.

Reliability indicates consistency of measurement. Consistency occurs when the measurement is free from measurement error (Wang et al., 2007). Therefore, reliability is an essential characteristic of a good test because if a test does not measure consistently (i.e. is reliable), then its result cannot be relied on as an accurate measurement. However, there is no measure with perfect reliability because of random error from time to time (Trochim, 2006). Therefore, the main purpose of reliability testing is to reduce errors in measurement.

To estimate reliability, there are four common types of reliability estimators, namely inter-rater or inter-observer reliability; test-retest reliability; parallel-forms reliability; and internal consistency reliability (Trochim, 2006). This study utilises the internal consistency reliability estimator. To estimate the reliability of indicators forming a dimension, the inter-item correlation test will be used. The split-half reliability test (i.e. the Cronbach alpha test) is used to test the reliability of the entire instrument.

To have a reliable measure, the researcher used data from more than one year. This study involves a four-year observation from 2007 until 2010. One of the weaknesses of the model developed by Wang et al. (2007) is the use of only one year of data, which resulted in reduced reliability of measurement. Therefore this study addresses the limitation of Wang et al.'s (2007) work.

Testing the reliability of the indicators forming a dimension is done by looking at the correlation coefficient between them. This correlation coefficient indicates the intensity and direction of the relationship between two or more indicators (Wang et al., 2007). Furthermore, the reliability of the instrument is analysed using the Cronbach alpha test.

#### **4.7.1.2 Determining the weight of each dimension of financial condition of local government**

Unlike Brown's and Wang et al.'s models and also the UN's model in developing the Human Development Index, which all assume equal weights for each dimension, this study follows Brown's (1993) suggestion by assigning a different weight for each dimension, because there could be a dimension that is more important than other dimensions. This step will remedy the weakness of Brown's and Wang et al.'s models and also the UN's model. The Analytical Hierarchy Process (AHP)<sup>12</sup> will be used to find the weight of each dimension, because the Eigenvalue method in the AHP is one method for estimating the relative weights from a matrix of pairwise comparisons (Zahedi, 1986). Saaty (2008) states that the AHP is a tool to generate priorities in an organised way. To do so, the study asked qualified persons in local government financial management by using a questionnaire asking the importance of a dimension compared to other dimensions.

#### **4.7.1.3 Analysing the validity of the measure**

The validity of a measurement indicates whether a test or a model measures what that it is intended to measure. The clearer and easier the definition of a variable or construct, the easier to test its validity (De Vaus, 2002). Face validity and content validity are embedded when conceptualising the definition of financial condition. In Chapter 2, this study conceptualised the definition of financial condition of local government in order to ensure that all facets of local government financial condition are included in the measure developed, so that content validity is met. Sekaran and Bougie (2010) state that content validity is influenced by how well the dimensions and indicators of a construct have been described.

This study evaluates three types of criterion-related validity, which are predictive

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<sup>12</sup> The AHP is a structured technique for organising and analysing complex decisions (Saaty, 2008)

validity, concurrent validity and convergent validity (Troachim, 2006). Predictive validity refers to the ability of a measure to explain its relationship with other variables. Concurrent validity pertains to the distinctive ability to distinguish groups that should theoretically be different. Convergent validity refers to whether the test results from the instrument being built having the same variation as the other test instruments that theoretically should be similar.

Predictive validity is analysed by calculating the correlation coefficient between the tested variable and the other variables associated with it. Following Wang et al.'s (2007) methods of testing predictive validity, this study analyses the validity by looking at whether there is any correlation between the financial condition index and socioeconomic factors that are perceived to be affecting it. Based on the literature review in the previous chapters, the financial condition of local government is affected by environmental factors and organisational factors (Nollenberger et al., 2003; Wang, et al., 2007). Environmental factors include socioeconomic factors, politics, geography and demographics. Organisational factors include the response of management and legislative policy. This study will test the association between socioeconomic factors and the financial condition index. The socioeconomic factors include population size, population density and gross domestic product (GDP), either GDP at constant price, GDP at current price or GDP per capita. The measure will be declared valid if there are associations between the financial condition index and the socioeconomic variables.

The concurrent validity of the measure is tested by categorising local government into good, average and poor financial condition based on their financial condition index. The ANOVA test is used to test whether there is significant financial distress difference among those groups. If there is significant difference, it means that the measure developed has the capability to distinguish levels of local government financial condition.

In addition, the convergent validity is analysed by looking at the correlation between the financial condition index and level of financial distress of local governments. The level of financial distress is calculated using the following formula:

$$\text{Financial distress} = (\text{Total revenues} - \text{operating expenditures}) / \text{Total revenues} \dots (4.1)$$

A measure will be declared to have the characteristic of convergent validity if there is a negative correlation between the financial condition index and the level of financial distress. It means that the better the financial condition index, the less the financial distress.

#### **4.7.1.4 Building a composite index of local government financial condition**

After developing the dimensions and indicators of financial condition, the next step is to construct a composite index of local government financial condition. Unlike the method of Wang et al. (2007), which uses z values to build a composite index, the method of preparation of the composite index in this study adopts the method of the Human Development Index established by the United Nations (UNDP, 2011). This is because the unit value of the dimensions and indicators of financial conditions are different (Santos, 1999).

However, unlike the Human Development Index, which does not segregate nations into equivalent groups, this study groups local governments based on their similarity in characteristics before developing the composite index. This grouping is intended to increase fairness and comparability among local governments, because the index will show relative soundness of financial condition among cohort local governments. Procedures to build the composite index are detailed in the following steps.

*Step 1: Create homogeneous groups of local governments*

Local governments could be grouped based on the types of services provided, area, population size and population density in order to achieve homogeneity, so that comparability is maximised (Zafra-Gómez et al., 2009b, Rivenbark et al., 2009,2010). Brown (1993, 1994) and Chaney et al. (2002) argue that using ratios as indicators is only useful if the ratios are compared to an appropriate benchmark. Brown (1993) and Chaney et al. (2002) use population size as a basis to partition local government. This study uses the factors of similarity of services provided and similarity of demographics to group local governments.

This step could improve the UN’s model of the Human Development Index, which does not separate countries into their equivalents. Such methods could reduce fairness and comparability among countries. Therefore, it is argued that grouping local governments into their equivalents will increase the quality of the composite index created.

*Step 2: Calculate indicator index*

The formula of the indicator index is:

$$\text{Indicator index} = (\text{Actual value} - \text{minimum value}) / (\text{Maximum value} - \text{minimum value}) \dots\dots\dots (4.2)$$

The minimum value is the lowest value of all observation data during the period of observation. The maximum value is the highest actual value of all observation data during the period of observation. As a result, the index will have a highest value of 1 and a lowest value of 0.

*Step 3: Calculate dimension index*

The dimension index is the arithmetic mean of the indicator indexes that form it. The reason to use the arithmetic mean is that the arithmetic mean is more appropriate than

the geometric mean because it gives a fairer result than the geometric mean. For example, if a dimension consists of three indicators of which one has zero value, so the end result of the geometric mean is zero although the other two ratios have good values. This does not happen with the arithmetic mean.

In calculating the dimension index, this study assumes that the weight of each indicator index is equal. The formula of the dimension index is:

$$\text{Dimension index} = (I_{\text{Indicator-1}} + I_{\text{Indicator-2}} + \dots + I_{\text{Indicator-n}}) : n \dots\dots\dots (4.3)$$

where I is the indicator index and n is the number of indicators forming the dimension.

*Step 4: Calculate the composite financial condition index*

The financial condition index is the weighted average of the dimension indexes that form it. The formula is:

$$\text{FCI} = w_1 * \text{DI}_1 + w_2 * \text{DI}_2 + \dots + w_n * \text{DI}_n \dots\dots\dots (4.4)$$

where: FCI = financial condition index; w = weight of dimension index; DI = dimension index; n = number of dimensions forming the FCI.

The indicator index, dimension index and composite index are the result of transformation of the variable value into a value ranging from 0 to 1. A value of 0 indicates a minimum value and a value of 1 indicates the maximum value for the index.

After the index of each local government is known, the next step is to construct a ranking showing information about relative financial conditions among local governments.

#### **4.7.1.5 Categorising local government financial condition as good, average or poor**

This stage is the most challenge stage because it must properly distinguish between local governments which are financially healthy and those which are financially distressed. This stage also examines the concurrent validity of the measure. Sekaran and Bougie (2010) state that concurrent validity is met when the instrument differentiates things that are recognised to be dissimilar. The scores financial condition of financially healthy local governments should be different from those that are financially distressed.

At this stage, the risk of type I and type II errors has to be avoided. The risk of type I error is the risk that the financial condition of a local government is declared healthy but in fact is not healthy, while the risk of type II error is the risk that the financial condition of a local government is declared stressed but in fact it is not stressed.

The process of categorising local government financial condition involves three steps. Firstly, rank local governments based on financial condition index scores. Secondly, group local governments into three groups; group 1 consists of local governments that have financial condition index scores less than  $-1$  standard deviation; group 2 consists of local governments that have financial condition index scores between  $-1$  and  $1$  standard deviations; and group 3 consists of local governments that have financial condition index scores more than  $1$  standard deviation. This division is based on the area of normal distribution, which has a bell-shaped curve. Thirdly, analyse the mean difference of financial distress among the three groups utilising the one-way ANOVA test.

To measure the level of local government financial distress, the study uses a ratio as follows:

$$\text{Financial distress} = (\text{Total revenues} - \text{operating expenditures}) / \text{Total revenues} \dots (4.5)$$

The higher the value of the ratio means the less financial distress of local government because it indicates the more revenue available to cover operating expenditure.

#### **4.7.2 Procedures in determining the factors affecting the financial condition of local government**

To determine the factors affecting the financial condition of local government, the procedures taken are as follows.

##### **4.7.2.1 Determine the factors affecting financial condition**

This study uses multivariate regression analysis to test the hypothesis for district local government. Gujarati (2003) and Hair et al. (2006) explain that multivariate regression analysis is a statistical method suitable for studies predicting that multivariate variables may affect the dependent variable. Based on Gujarati's and Hair et al.'s explanations, this research objective is suited to the use of multivariate regression analysis. Recall from Chapter 1, one of the objectives of this thesis is to determine the factors influencing the financial condition of local government. The multivariate regression model is as follows.

$$\text{FCI} = \alpha + \beta_1\text{Pop} + \beta_2\text{AP} + \beta_3\text{CW} + \beta_4\text{PD} + \beta_5\text{CSG} + \beta_6\text{FE} + \beta_7\text{RB} + \varepsilon \dots (4.6)$$

where: FCI = financial condition index;  $\alpha$  = intercept term;  $\beta_1$  to  $\beta_7$  = regression coefficients; Pop = population size; AP = age profile; WC = community wealth; PD = population density; CSG = cost of services and goods; FE = financial efficiency; RB = revenue base.

#### **4.7.2.2 Test assumptions underlying multivariate regression analysis**

There are several assumptions that should be met in order to test that multivariate regression works well, ideally with unbiased and efficient estimates. The assumptions tested in this current study were linearity, homoscedasticity of error term, no autocorrelation, error terms are normally distributed, error terms have zero mean, no multicollinearity, and error terms and independent variables are not correlated.

### **4.8 Summary**

This chapter describes the research approach and elaborates the research questions. These research questions guide the development of research frameworks. Furthermore, the research frameworks become a reference for hypothesis development. Operational definitions of dependent and independent variables have been described in detail and measurement of each variable is defined as well. Finally, the steps in the testing of the model are described in the last section.

## **CHAPTER 5**

### **RESEARCH METHODOLOGY**

#### **5.1 Introduction**

The research questions, research approach, research framework, hypothesis development, operational definition of the key constructs and steps in model testing were discussed in Chapter 4. This chapter will discuss and justify research methods to achieve the research objectives. Creswell (2009) explains that research methods involve data collection, data analysis and data interpretation. There are five main topics discussed in this chapter. The topics are the data, sampling process, data collection methods, questionnaire development and data analysis.

#### **5.2 Research method**

As has been stated in Chapter 4, this current study utilises quantitative approaches to solve the research problems. Therefore, in order to collect, analyse and interpret data, this current study employs a survey design and uses secondary data analysis. Creswell (2009) explains that a survey design provides a quantitative or numeric description of trends, attitudes or opinions of a population by studying a sample of the population.

#### **5.3 Data and data sources**

To achieve the first objective (i.e. developing a measure of the financial condition of local government), this study uses both primary and secondary data. The secondary data were the local government audited financial statements (balance sheets, statements of cash flows and statements of actual performance compared to budget) audited by the Supreme Audit Board of the Republic of Indonesia during the financial years 2007-2010. The financial statements were obtained directly from the Supreme

Audit Board. The financial statements used were those that had an unqualified opinion or a qualified opinion. Financial statements that had disclaimer opinions or adverse opinions were not used because such financial statements would reduce the reliability of the data.

In addition, primary data were also used in order to achieve the first objective of this study, in order to determine the relative weight of each dimension forming the measure of the financial condition of local government. The data were collected by using questionnaires. The questionnaires were sent to competent individuals who worked at the Directorate of Fiscal Balance of the Ministry of Finance, the Directorate of Regional Finance of the Ministry of Home Affairs, the Supreme Audit Board, local governments and universities in Indonesia. Before collecting the primary data, the study needed ethics approval from Victoria University Human Research Ethics Committee.

To achieve the second objective (i.e. determining the factors affecting the financial condition of local government), the study uses secondary data, which are socioeconomic and demographic data about population numbers, population density, minimum regional wage, gross domestic product, jurisdiction area, number of people who live above the poverty line and age profile of the population. The data were collected from the Central Bureau of Statistics of the Republic of Indonesia, the Ministry of Home Affairs and the Ministry of Finance.

#### **5.4 Observation period**

Regarding the first objective of this study (i.e. developing a measure of the financial condition of local government), the length of observation was four years, from the financial year of 2007 until 2010. This study does not include the financial year 2006 because that was the first year of implementation of the Government Accounting

Standards in Indonesia. In that year, local governments experienced a year of transition in adopting the new accounting standards. Therefore, the financial year of 2007 was chosen as the starting year for observation for this study, as local governments had arguably become accustomed to the Government Accounting Standards in that year.

On the other hand, regarding the second objective of this study (i.e. determining the factors affecting the financial condition of local government), the observation period was one year, the financial year 2010, because all of the data needed to estimate the regression model were available only for 2010. This occurred because in that year the Central Bureau of Statistics conducted a census of the population. Thus, data on population number, population density and age profile of the population, three factors that are examined, were reliably available.

## **5.5 Unit analysis**

The unit analysis refers to the level of aggregation of the data collected during the subsequent data analysis stage (Sekaran & Bougie, 2010). Sekaran and Bougie (2010) argue that the research question determines the unit analysis. Recall that the research questions are “What are effective dimensions and indicators for assessing the financial condition of local government?” and “What factors affect the financial condition of local government?” so that it can be concluded that the unit analysis for this thesis is the entity of local government. However, in order to answer part of the first question (i.e. determining the relative weights of each dimension of financial condition), a survey of competent respondents in the field of local government financial management was undertaken. Competent respondents were selected from the Ministry of Finance, the Ministry of Home Affairs, the Supreme Audit Board, local governments and universities in Indonesia. Therefore, in this stage, the unit analysis is individuals.

## **5.6 Sampling**

Sampling is the process of selecting a sufficient number of the right elements from the population (Sekaran & Bougie, 2010). There are five major steps in the sampling process, which are: define the population; determine the sample frame; determine the sampling design; determine the appropriate sample size; and execute the sampling process (Sekaran & Bougie, 2010). The following sections will describe the steps taken in this thesis.

### **5.6.1 Population Definition**

A population is the total collection of elements about which we wish to make some inferences (Cooper & Schindler, 2011). The population of this study is all of the local governments in Indonesia. There are 530 local governments in Indonesia, which consist of 33 provincial local governments, 399 district local governments and 98 municipal local governments (Ministry of Home Affairs Regulation No 18/2013).

### **5.6.2 Determining sampling frame**

The sample frame is a representation of all the elements in the population from which the sample is drawn. The list of all local governments in Indonesia produced by the Ministry of Home Affairs served as the sample frame in this study.

### **5.6.3 Determining sampling design**

Sekaran and Bougie (2010) state that purposive sampling is suited to research that is confined to specific types of people who can provide the desired information, because either they are the only ones who have it or they conform to some criteria set by the researcher. This study utilises purposive sampling to choose elements in the population as the sample objects, because the required data obtained must fulfil set criteria. Thus, purposive sampling is suited to this study. The set criteria are explained in the following paragraphs.

Regarding the first objective of this thesis, in order to achieve homogeneity so that comparability was maximised, this study used local governments in Java as the sample. Local governments in Java are relatively homogeneous in environment, socioeconomic, culture and infrastructure compared to local governments on other islands in Indonesia. Not all local government financial statements could be used as samples. Only financial statements with an unqualified opinion or a qualified opinion were used in this study. Financial statements that had a disclaimer opinion or adverse opinion were not used, because such financial statements would reduce the reliability of data.

Pertaining to the determination of the relative weights of each dimension forming the financial condition of local government, questionnaires were sent to respondents who had sufficient knowledge about local government financial management. The Analytic Hierarchy Process (AHP) method requires that the respondent must understand well the object being studied (Saaty, 1994). In this stage, the respondents were scholars and practitioners who had expertise in the field of local government financial management. The respondents came from the Directorate of Fiscal Balance of the Ministry of Finance, the Directorate of Regional Finance of the Ministry of Home Affairs, the Supreme Audit Board, local governments and universities in Indonesia. To be considered an expert, a respondent must have had at least a qualification of echelon level 3 in the directorates or experience as an audit team leader in the Supreme Audit Board or as a lecturer with five years experience in teaching the local government financial management subject area or as a doctoral student in the field of local government financial management.

#### **5.6.4 Determining sampling size**

Because this study utilised purposive sampling to choose the elements in the population as sample objects, the number of samples was adjusted to the criteria set

by the researcher. The rationale for the sample size was based on the arguments of Sekaran and Bougie (2010) and Roscoe (1975). Sekaran and Bougie (2010) argue that too large or too small a sample size is detrimental to a research project. In addition, Roscoe (1975) argues that a sample size larger than 30 and less than 500 is appropriate for most research and if a research divides samples into sub-samples, the minimum number of each sub-sample is 30. Therefore, the number of samples in this study was designed to be at least as many as 30 for each sub-sample.

#### **5.6.4.1 Sample size for developing a measure of the financial condition of local government**

From 2007 to 2010, there were 509 local governments' financial statements in Java that should be observed. There were 506 financial statements of local governments available, but 46 and 40 of those were financial statements with adverse and disclaimer opinions consecutively. Therefore, regarding the first research objective, there were 420 local governments' financial statements from Java that satisfy the criterion of adequate reliability (i.e. financial statements with qualified opinions or unqualified opinions) from the financial years 2007 until 2010. Detailed information about the financial statement data is as follows.

**Table 5.1: Number of financial statements used and their opinions**

<b>Financial Year</b>	<b>Financial statements with unqualified opinion</b>	<b>Financial statements with qualified opinion</b>	<b>Total</b>
2007	2	70	72
2008	2	108	110
2009	3	115	118
2010	11	109	120
Total financial statements used as sample			420

#### 5.6.4.2 Sample size for weight determination

Furthermore, pertaining to the determination of the relative weights of each dimension forming the financial condition of local government, the number of respondents were 181 persons. However, 19 respondents answered questionnaires either incompletely or incorrectly. Thus, there were 162 responses eligible as samples. Detailed information regarding the sample is as follows.

**Table 5.2: Number of participants and their institutions**

<b>Participants' institutions</b>	<b>Number of participants</b>	<b>Number of incorrect or incomplete answers</b>	<b>Number of eligible respondents</b>
The Directorate of Fiscal Balance of the Ministry of Finance	38	5	33
The Directorate of Regional Finance of the Ministry of Home Affairs	34	4	30
The Supreme Audit Board	39	5	34
Local governments	36	4	32
Universities	34	1	33
Total	181	19	162

#### 5.6.4.3 Sample size for determining the factors affecting financial condition

In relation to the second objective, there were 83 district local governments in Java in the financial year 2010 used as samples out of 84 district local governments. The reason to use such a group is to have a homogeneous group of local governments in order to maximise comparability (Zafra-Gomez et al. 2009a; 2009b; 2009c). In addition, as explained in section 5.4 above, the reason to use the financial year 2010 is because in that year the Central Bureau of Statistics conducted a census of the population. Thus, the data on population size, population density and age profile of population, three factors that are examined, are reliably available. Besides that, the number of those local governments in Java was considered adequate from a statistical

perspective. The list of the district local governments is provided in the following table.

**Table 5.3: List of district local governments used as samples**

No.	District local governments	No.	District local governments	No.	District local governments
1	Kabupaten Bogor	31	Kabupaten Sragen	61	Kabupaten Bondowoso
2	Kabupaten Sukabumi	32	Kabupaten Grobogan	62	Kabupaten Situbondo
3	Kabupaten Cianjur	33	Kabupaten Blora	63	Kabupaten Probolinggo
4	Kabupaten Bandung	34	Kabupaten Rembang	64	Kabupaten Pasuruan
5	Kabupaten Garut	35	Kabupaten Pati	65	Kabupaten Sidoarjo
6	Kabupaten Tasikmalaya	36	Kabupaten Kudus	66	Kabupaten Mojokerto
7	Kabupaten Ciamis	37	Kabupaten Jepara	67	Kabupaten Jombang
8	Kabupaten Kuningan	38	Kabupaten Demak	68	Kabupaten Nganjuk
9	Kabupaten Cirebon	39	Kabupaten Semarang	69	Kabupaten Madiun
10	Kabupaten Majalengka	40	Kabupaten Temanggung	70	Kabupaten Magetan
11	Kabupaten Sumedang	41	Kabupaten Kendal	71	Kabupaten Ngawi
12	Kabupaten Indramayu	42	Kabupaten Batang	72	Kabupaten Bojonegoro
13	Kabupaten Subang	43	Kabupaten Pekalongan	73	Kabupaten Tuban
14	Kabupaten Purwakarta	44	Kabupaten Pematang	74	Kabupaten Lamongan
15	Kabupaten Karawang	45	Kabupaten Tegal	75	Kabupaten Gresik
16	Kabupaten Bekasi	46	Kabupaten Brebes	76	Kabupaten Bangkalan
17	Kabupaten Bandung Barat	47	Kabupaten Kulon Progo	77	Kabupaten Sampang
18	Kabupaten Cilacap	48	Kabupaten Bantul	78	Kabupaten Pamekasan
19	Kabupaten Banyumas	49	Kabupaten Gunung Kidul	79	Kabupaten Sumenep
20	Kabupaten Purbalingga	50	Kabupaten Sleman	80	Kabupaten Pandeglang
21	Kabupaten Banjarnegara	51	Kabupaten Pacitan	81	Kabupaten Lebak
22	Kabupaten Kebumen	52	Kabupaten Ponorogo	82	Kabupaten Tangerang
23	Kabupaten Purworejo	53	Kabupaten Trenggalek	83	Kabupaten Serang
24	Kabupaten Wonosobo	54	Kabupaten Tulungagung		
25	Kabupaten Magelang	55	Kabupaten Blitar		
26	Kabupaten Boyolali	56	Kabupaten Kediri		
27	Kabupaten Klaten	57	Kabupaten Malang		
28	Kabupaten Sukoharjo	58	Kabupaten Lumajang		
29	Kabupaten Wonogiri	59	Kabupaten Jember		
30	Kabupaten Karanganyar	60	Kabupaten Banyuwangi		

## 5.7 Data collection methods

To collect the primary data, personally administered questionnaires were given to groups of respondents. The reason to use a personally administered questionnaire was because the targeted groups of respondents were confined to a local area and the authorities of the organisations were willing and able to assemble groups of respondents at their workplaces. Sekaran and Bougie (2010) state that the advantages of personally administered questionnaires are a high response rate, less time required to collect data from large numbers of respondents, less expense and the researcher can clarify any questions from respondents. On the other hand, there are several disadvantages of a personally administered questionnaire, including limited coverage of geographic regions, limited time available for respondents to respond at their convenience and limited availability of work hours of organisations to be spent on data collection.

## 5.8 Questionnaire survey

Questionnaires were used to record the opinions of respondents about the importance of the dimensions forming the financial condition of local government. The questionnaire was designed in accordance with the Analytical Hierarchical Process (AHP) method. The AHP method requires reciprocal comparisons of homogeneous elements (Saaty, 1994). Each question consisted of a combination of two pairs of dimensions. Because there were six dimensions of financial condition, so there were fifteen comparison pairs.<sup>13</sup>

Respondents were required to give their opinions on the relative weight of each dimension of the financial condition of local government based on its importance by putting a cross 'X' in the column that they thought was most suitable. There were five columns provided in each question; where column 1 meant equally important, column

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<sup>13</sup>  $N(N-1)/2 = 6 \times (6-1)/2 = 15$

2 meant slightly more important, column 3 meant more important, column 4 meant much more important and column 5 meant absolutely more important. The reason for using a 5-column scale was due to the fact that human beings have difficulty in establishing appropriate relationships when the ratios go beyond 9 (Saaty, 1994). It is argued that, by using a 5-column scale, respondents could differentiate the importance of each dimension more accurately.

Before the respondents were asked to fill out the questions, they were asked to follow an example provided of how to fill out the questions. In addition, respondents were also provided with detailed explanations for all terms used in the questions. Thus, respondents were expected to have received an adequate explanation prior to answering the questions. The questionnaire of this current study can be seen in Appendix B of this thesis.

## **5.9 Administration of survey**

### **5.9.1 Recruitment of participants**

The following were the steps taken to approach potential participants and inform them about the research.

1. The researcher informed the management of the identified organisations by using a formal letter to arrange a group meeting. The researcher also explained that all information in the questionnaire was for research purposes and treated as private and confidential and would not be revealed under any circumstances. In addition, there were no risks involved in participating in the study.
2. The management of the identified organisations was requested to contact potential participants to ascertain their willingness to participate in answering the questionnaire and subsequently arrange a group meeting with them.
3. The researcher requested permission from the management of the identified organisations to meet participants in groups. This approach was implemented in

order to ease the supervision of the participants while answering questions to increase the response rate.

### **5.9.2 Procedural details for obtaining informed consent**

Before participants were requested to fill out the questionnaire, the researcher requested that participants sign a consent form to indicate their willingness to be involved in this study. This was not a compulsory step, because consent would be implied by the return of the completed questionnaire. If they did not want to be involved, they were asked to leave the meeting room. The following procedures were adopted for obtaining informed consent:

- a. The researcher met the participants in groups and informed them that all information in the questionnaire was for research purposes and the information provided would be treated as private and confidential. Furthermore, there were no risks involved in participating in the study.
- b. If they agreed, the participants signed the consent form, which was attached to the cover of the questionnaire.
- c. The researcher explained each question to the participants and provided instructions.

### **5.10 Data editing and coding**

Since there are restrictions on the number of characters in a column in SPSS<sup>14</sup> variable naming, the variable name was coded by using character symbols. Each variable has a unique code. The list of variable codes and descriptions is as follows.

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<sup>14</sup> SPSS is the name of statistical package program.

**Table 5.4: Variable codes and descriptions**

<b>Variable code</b>	<b>Description</b>
SHORT	Short-term solvency
LONG	Long-term solvency
BUDG	Budgetary solvency
VULN	Financial independence
FLEX	Financial flexibility
SERV	Service-level solvency
POP	Population size
AP	Age profile
RB	Revenue base
PD	Population density
FE	Financial efficiency
CSG	Cost of goods and services
CW	Community wealth
FCI	Financial Condition Index

### **5.11 Data screening**

To obtain reasonable assurance that all of the inputted data were free from error, the data were screened to check whether there were data with impossible values or extreme values. In this current study, the impossible values are those with negative values, because all data used must have at least a zero value or be positive. The extreme values are those with a standard score (the z-value) of more than 3 (Hair et al., 2006). In this study, when the researcher found such values, the researcher checked back to the sources of data to confirm the correctness of the data prior to correcting them. If the data were as found in their sources, then those data were deleted.

Screening the data as to whether they had an impossible value was done using a descriptive statistic, by looking at the frequency, maximum, minimum, mean and standard deviation. Screening for extreme data was done by converting the values of the data into standard scores.

## **5.12 Data analysis**

To analyse the data, the researcher used the Analytic Hierarchy Process and some statistical tools, namely correlation tests, the Cronbach alpha test, the ANOVA test and multivariate regression analysis. The following sections will give a brief description of these methods.

### **5.12.1 Data analysis for first objective (i.e. developing a measure of the financial condition of local government)**

#### **5.12.1.1 Correlation test**

The Pearson product moment, Kendall tau and Spearman rho were used to test the reliability of the indicators forming a dimension. Testing the reliability of the measure was done by looking at the correlation coefficient between two or more indicators. This correlation coefficient indicates the intensity and direction of the relationship between two or more indicators. A measure is claimed to be reliable if the variables are correlated with one another, meaning that they measure the same concept.

The Pearson, Spearman rho and Kendall tau correlation tests were used to assess the reliability of the indicators forming each dimension. The reason for using the three tests together was to anticipate non-normal data distribution and non-linear relationships between variables. The Pearson correlation test requires that the data tested have the characteristics of normally distributed data, interval level data,

homoscedasticity, lack or no outliers and linear relationship between variables (Garson, 2012), whereas the Spearman rho and Kendall tau tests do not make such assumptions. An indicator is labelled reliable if the three tests give similar results for the indicator. This is to apply the precautionary principle.

#### **5.12.1.2 Cronbach's alpha test**

Cronbach's alpha is a measure of the internal consistency or reliability of the items – which could be questions, rates, indicators – that form a scale. Sekaran and Bougie (2009) state that the Cronbach alpha is a reliability coefficient that indicates how well the items in a set are positively correlated to one another. In this current study, the scale is the Financial Condition Index. Internal consistency refers to the interrelatedness of a set of items (Schmitt, 1996). A scale is considered reliable if its Cronbach alpha coefficient is at least 0.7 (Nunnally, 1978; Nunnally & Bernstein, 1994).

#### **5.12.1.3 Analytic Hierarchy Process**

The Analytic Hierarchy Process (AHP) was used to determine the weight of each dimension forming the financial condition of local government because the eigenvalue method in the AHP is one method for estimating the relative weights of a matrix of pair-wise comparisons (Zahedi, 1986). In addition, Saaty (2008) states that the AHP is a suitable tool for generating priorities in an organised way. The AHP is a technique to support a decision-making process that aims to determine the best choice from several alternatives that can be taken. The AHP was developed by Thomas L. Saaty in the 1970s and has undergone many improvements and developments to date. The advantage of the AHP is that it is able to provide a comprehensive and rational framework in structuring decision problems.

The AHP does not offer the absolute right decision, but helps decision-makers to find a decision that best fits the purpose and understanding of the issues facing them. The AHP provides a comprehensive and rational framework for structuring a problem, representing and measuring the problem elements, connecting elements with the overall objectives and evaluating alternative solutions.

Zahedi (1986) explains the process of the AHP in the following steps.

Step 1: Setting up the decision hierarchy by breaking down the decision problem into a hierarchy of interrelated decision elements.

Step 2: Collecting input data by pair-wise comparisons of the decision elements.

Step 3: Using the eigenvalue method to estimate the relative weights of the decision elements.

Step 4: Aggregating the relative weights of the decision elements to arrive at a set of ratings for the decision alternatives.

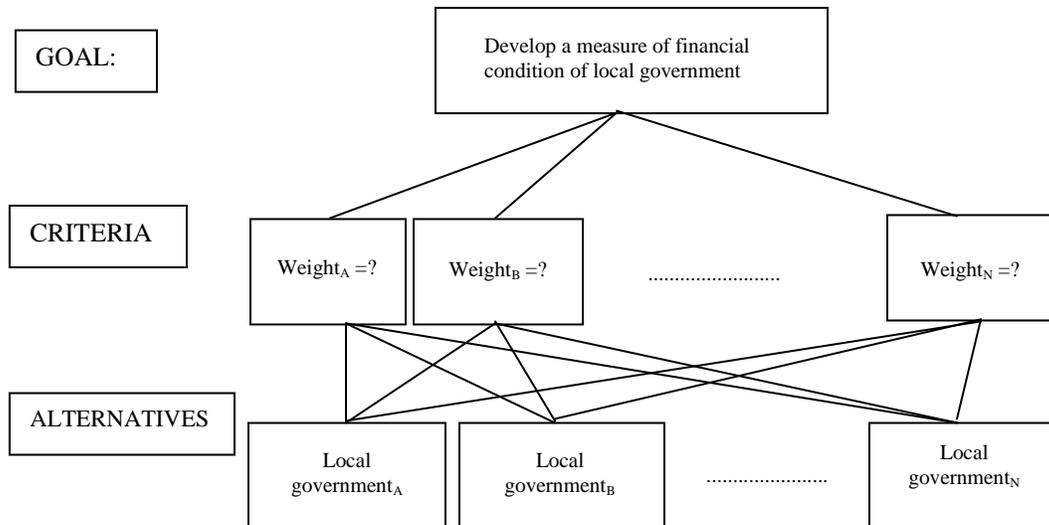
According to Forman and Gass (2001), the AHP can be used for the following types of situations.

1. Deciding between options, which are the selection of one alternative from a set of alternatives. This situation usually involves multivariate decision criteria.
2. Deciding on a rating, which puts a set of alternatives in order of least desirable to most desirable.
3. Deciding on priorities, which determine the relative goodness of the members of a set of alternatives.
4. Allocating resources, which relates to the distribution of resources among a set of alternatives

The weight determination of each dimension in this current study was consistent with

situations 2 and 3 stated above. A general description of the AHP process in this current study is exhibited in the following figure.

**Figure 5.1: The AHP process**



**Note:**

In this current study, the analysis was only performed to the level of criteria, namely the determination of weights for each dimension forming financial condition. Further measurements of financial condition for each local government used the arithmetic mean.

**5.12.1.4 Analysis of Variance (ANOVA)**

The ANOVA is a statistical tool used to test the differences between means among more than two samples. The ANOVA was used in the stage of categorising local governments as in good, average or poor financial condition. The categorisation was based on the characteristic of normal distribution area. Local governments were classified as having “good financial condition” if their financial condition index score was more than positive one standard deviation. Local governments with financial condition index scores located between a range of positive one standard deviation to minus one standard deviation were grouped as “average financial condition”. Finally,

local governments that had financial condition index scores less than minus one standard deviation were labelled as having “poor financial condition”.

### **5.12.2 Data analysis for second objective (i.e. determining the factors affecting the financial condition of local government)**

#### **5.12.2.1 Multivariate regression analysis**

Multivariate regression analysis was used to achieve the second objective of this thesis: determining the factors affecting the financial condition of local government. Gujarati (2003) explains that multivariate regression analysis is a statistical technique used for studies predicting that multiple variables may affect a dependent variable. Jones and Walker (2007) argue that there are advantages of using multivariate regression analysis because it allows a number of complex relationships among variables to be examined simultaneously and in terms of their joint contribution to explain variations in local government financial condition.

There are several assumptions that should be met in order that multivariate regression analysis works well, ideally with unbiased and efficient estimates (Brooks, 2002; Gujarati, 2003; Lind et al., 2011). The following paragraphs will explain these assumptions in brief.

1. The regression model should be built on the basis of theoretical concepts and reasonable logic (Rubinfeld, 2000). The relationship between the dependent variables and explanatory variables must be explained logically. In this current study, the framework of supply and demand was used as the theoretical basis for explaining the relationship between the dependent variable (i.e. the financial condition of local government) and the independent variables (population size, population density, wealth of the community, financial efficiency, revenue base, age profile and cost of production of services and goods).

2. Error terms are normally distributed, with a bell- shaped curve (Lind et al., 2011).
3. The errors have zero mean.
4. Linearity. Gujarati (2003) explains that linearity is the conditional expectation of the dependent variable as a linear function of the coefficients of the independent variables (i.e. the  $\beta$ 's).
5. Zero covariance between error terms and independent variables. Gujarati (2003) states that error terms and independent variables should be not correlated.
6. Homoscedasticity or equal variance of the error term. The variance of the error term is constant for each of the values of the independent variables. It neither increases nor decreases as a value of an independent variable varies (Gujarati, 2003).
7. No autocorrelation between the error terms. Lind et al. (2011) state that successive error terms should be independent or are not correlated.
8. No multicollinearity. Multicollinearity is a condition where two or more independent variables correlate very strongly (Lind et al., 2011).

This current study does not test assumptions number 1, 3 and 5. Assumption number 1 was satisfied when this current study utilised the framework of supply and demand when developing the relationships between the dependent variable and the independent variables. Assumption number 3 is automatically satisfied when using a statistical package program because the program considers this assumption when producing the output. In addition, assumption number 5 was not tested because this assumption is automatically fulfilled if assumption 3 holds and this assumption is not very critical (Gujarati, 2003).

## **5.12.2.2 Testing of assumptions of multivariate regression analysis**

### **5.12.2.2.1 Test of normality of residuals**

Violation of this assumption would interfere with the validity of the results of the analysis. Osborne and Waters (2002) state that non-normally distributed variables can distort relationships and significance tests.

A normally distributed set of the data has the shape of a symmetrical bell curve. The standard normal distribution has the characteristics of a mean of 0 and a standard deviation of 1. A common rule-of-thumb of the characteristics of a normally distributed data set are skewness within +2 to -2 and kurtosis within +2 to -2 (Garson, 2012).

The normality of a set of data can be assessed several ways, including looking at graphics (e.g. histogram, P-P plot, Q-Q plot, detrended Q-Q plot and boxplot tests) or using inferential statistics (e.g. Shapiro-Wilk's  $W$  test and the Kolmogorov-Smirnov  $D$  test or K-S Lilliefors test) (Garson, 2012). This study utilises the histogram method and Shapiro-Wilk's  $W$  test to assess the normality of the residuals because samples number are less than 2,000. Garson (2012) states that Shapiro-Wilk's  $W$  test is recommended for small and medium samples up to  $n = 2,000$ .

### **5.12.2.2.2 Test of linearity**

Several methods are available to assess linearity, including the graphical method by examination of the residuals, the Durbin-Watson test, Ramsey's RESET test and the Langrange multiplier test (Gujarati, 2003). In addition, Garson (2012) states that, in general, it is a sign indicating that probable non-linearity exist when the standard deviation of the residuals exceeds the standard deviation of the dependent variable.

Osborne and Waters (2002) state that a preferable method of detection linearity is examining the residual plots. This study utilises the graphical method, standard deviation comparison method, Durbin-Watson test and Ramsey's RESET test to test the linearity of the model developed. Under the graphical method, a linear relationship exists when scatterplots of the standardised residuals as a function of standardised predicted values show a random pattern (Garson, 2012; Osborne & Waters, 2002). If the points spread with no apparent pattern above and below the 0 on the Y axis, then there is no problem of non-linearity.

To detect linearity using the Durbin-Watson test, the steps taken are as follows (Gujarati, 2003).

1. Run the ordinary least square regression for two regression models, which are linear and quadratic. The equations are as follows.

$$\text{a) } FCI = \alpha + \beta_1 \text{Pop} + \beta_2 \text{AP} + \beta_3 \text{CW} + \beta_4 \text{PD} + \beta_5 \text{CSG} + \beta_6 \text{FE} + \beta_7 \text{RB} + \varepsilon \dots \text{ (5.1)}$$

$$\text{b) } FCI = \alpha + \beta_1 \text{Pop} + \beta_2 \text{AP} + \beta_3 \text{CW} + \beta_4 \text{PD} + \beta_5 \text{CSG} + \beta_6 \text{FE} + \beta_7 \text{RB} + \beta_8 \text{Pop}^2 + \beta_9 \text{AP}^2 + \beta_{10} \text{CW}^2 + \beta_{11} \text{PD}^2 + \beta_{12} \text{CSG}^2 + \beta_{13} \text{FE}^2 + \beta_{14} \text{RB}^2 + \varepsilon \dots \text{ (5.2)}$$

2. Calculate the Durbin-Watson coefficient for each model.
3. Compare the calculated Durbin-Watson coefficients from step 2 to their Durbin-Watson table. If both the coefficients are significant, then the model is misspecified.

Regarding Ramsey's RESET test, the steps undertaken to detect linearity are as follows (Gujarati, 2003).

1. Run the ordinary least square as in equation 5.1.
2. Obtain fitted values ( $\hat{Y}$ ). In addition, find the R square ( $R^2_{old}$ ).
3. Rerun the ordinary least square as in equation 5.1 by adding the powers of the fitted values obtained in step 1 as additional regressors to form an augmented

model:

$$\text{FCI} = \alpha + \beta_1 \text{Pop} + \beta_2 \text{AP} + \beta_3 \text{CW} + \beta_4 \text{PD} + \beta_5 \text{CSG} + \beta_6 \text{FE} + \beta_7 \text{RB} + \beta_8 \hat{Y}^2 + \beta_9 \hat{Y}^3 + \beta_{10} \hat{Y}^4 + \varepsilon \dots\dots\dots (5.3)$$

4. Calculate the R square ( $R^2_{\text{new}}$ ) from step 3.
5. Calculate the F statistics using the formula (Gujarati, 2003):

$$F = ((R^2_{\text{new}} - R^2_{\text{old}}) / \text{number of new regressor}) / ((1 - R^2_{\text{new}}) / (n - \text{number of parameters in new model})) \dots\dots\dots (5.4)$$

6. Compare the calculated F to the F table; if the calculated F is larger than the F table, then the model is misspecified.

#### 5.12.2.2.3 Test of homoscedasticity of residuals

Homoscedasticity occurs when the error term of the dependent variable is constant for each of the values of the independent variables. There are many approaches available to check for homoscedasticity, including the graphical method, Spearman's rank correlation test, Goldfield-Quandt test, Glejser test, Park test, Breusch-Pagan-Godfrey test, White's test and Koenker-Bassett test (Gujarati, 2012).

In this current study, the homoscedasticity assumption was assessed by using the graphical method, Spearman's rank correlation test and the Koenker-Bassett test. Under the graphical method, the assessment is done by examining a scatterplot of the standardised residuals against the standardised predicted dependent value (Osborne & Waters, 2002). The homoscedasticity assumption is fulfilled if the plots are scattered and there is no obvious pattern (Garson, 2012; Lind et al., 2011).

To detect homoscedasticity using Spearman's rank correlation test, the procedures taken are as follows (Gujarati, 2003).

1. Run the ordinary least square as in equation 5.1.
2. Obtain the residuals from step 1.
3. Ignore the sign of the residuals by taking their absolute value.
4. Run Spearman's rank correlation test by correlating the absolute residuals and independent variables.
5. If the computed correlation is significant, then the residuals show heteroscedasticity.

The Koenker-Bassett test is done by squaring the residuals and regressing the squared residuals on the squared estimated values of the regressand (Gujarati, 2003). If the model is significant, then there is heteroscedasticity.

#### **5.12.2.2.4 Test of autocorrelation**

The methods used to check for the no-autocorrelation assumption include the Breusch-Godfrey test, Runs test, Durbin-Watson test and graphical method (Gujarati, 2003). To assess the assumption, this current study utilised the Durbin-Watson coefficient. The Durbin-Watson coefficient ranges from 0 to 4, where a value near 2 indicates non-autocorrelation. If the value of the Durbin-Watson coefficient is between  $dU^{15}$  (i.e the upper bound) and  $4-dU$ , the regression model meets the assumption of no-autocorrelation (Brooks, 2002). As a rule of thumb, Garson (2012) states that no-autocorrelation occurs if the value of the Durbin-Watson coefficient is between 1.5 and 2.5. The steps taken in doing the Durbin-Watson test are as follows (Gujarati, 2003).

1. Run the ordinary least square as in equation 5.1.
3. Find the calculated Durbin-Watson coefficient from step 1.

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<sup>15</sup> The value of  $dU$  is known from the Durbin-Watson table.

4. Determine the Durbin-Watson value ( $d$ ) by looking at the Durbin-Watson table with 5 percent significance,  $n = 83$  and  $k = 7$  ( $n$  is the number of data;  $k$  is the number of independent variables). The results are  $dU = 1.453$  and  $dL = 1.831$  ( $dU$  = upper bound;  $dL$  = lower bound).
5. Make a decision with the following guidance:
  - a. if  $dU < d < 4 - dU$ , do not reject the null hypothesis,
  - b. if  $d < dL$  or  $d > 4 - dL$ , reject the null hypothesis,
  - c. if  $dL < d < dU$  or  $4 - dU < d < 4 - dL$ , the test is inconclusive.

#### **5.12.2.2.5 Test of multicollinearity**

Multicollinearity is a situation where there is a high level of intercorrelation among the independent variables (as a rule of thumb, 0.8), which leads to difficulty in making inferences about the individual regression coefficients and their individual effects on the dependent variable (Lind et al., 2011). This current study utilises both the Variance Inflation Factor (VIF) and the Tolerance as a tool to check whether multicollinearity exists. A coefficient of VIF of more than 10 or a value of Tolerance of less than 0.1 indicates that multicollinearity exists in the model.

#### **5.13 Ethics in this research**

Sekaran and Bougie (2010) explain that ethics in research is a code of conduct or expected societal norm of behaviour while conducting research. The code of conduct applies to all parties (i.e. sponsors of the research, researchers, respondents) related to the research being undertaken. This research follows the Victoria University Code of Conduct for Research. The code provides guidelines for responsible practice in research and procedures for dealing with instances in which misconduct in research may have occurred ([http://research.vu.edu.au/ordsite/ethics/Code\\_of\\_Conduct.pdf](http://research.vu.edu.au/ordsite/ethics/Code_of_Conduct.pdf)).

## **CHAPTER 6**

### **DEVELOPING A MEASURE OF LOCAL GOVERNMENT FINANCIAL CONDITION**

#### **6.1 Introduction**

This chapter will examine the steps in developing a measure to assess the financial condition of local government. There are four main sections in this chapter: assessing the reliability of the measure; determining the weight of each dimension forming the measure; developing a composite index of the financial condition of local government; and assessing the validity of the measure.

The first section will discuss reliability tests. There were two main procedures undertaken in assessing the reliability of a measure of local government financial condition. The procedures were:

1. analysing the reliability of the indicators forming dimension using the Pearson, Spearman rho and Kendall tau correlation tests; and
2. analysing the reliability of the instrument for measuring financial condition using the Cronbach alpha test.

After assessing the reliability of the measure, the second section will examine the steps to determine the weight of each dimension forming the measure using the Analytic Hierarchy Process (AHP). The procedures of the AHP will be detailed in this section.

After determining the weight of each dimension, the next steps taken are as follows:

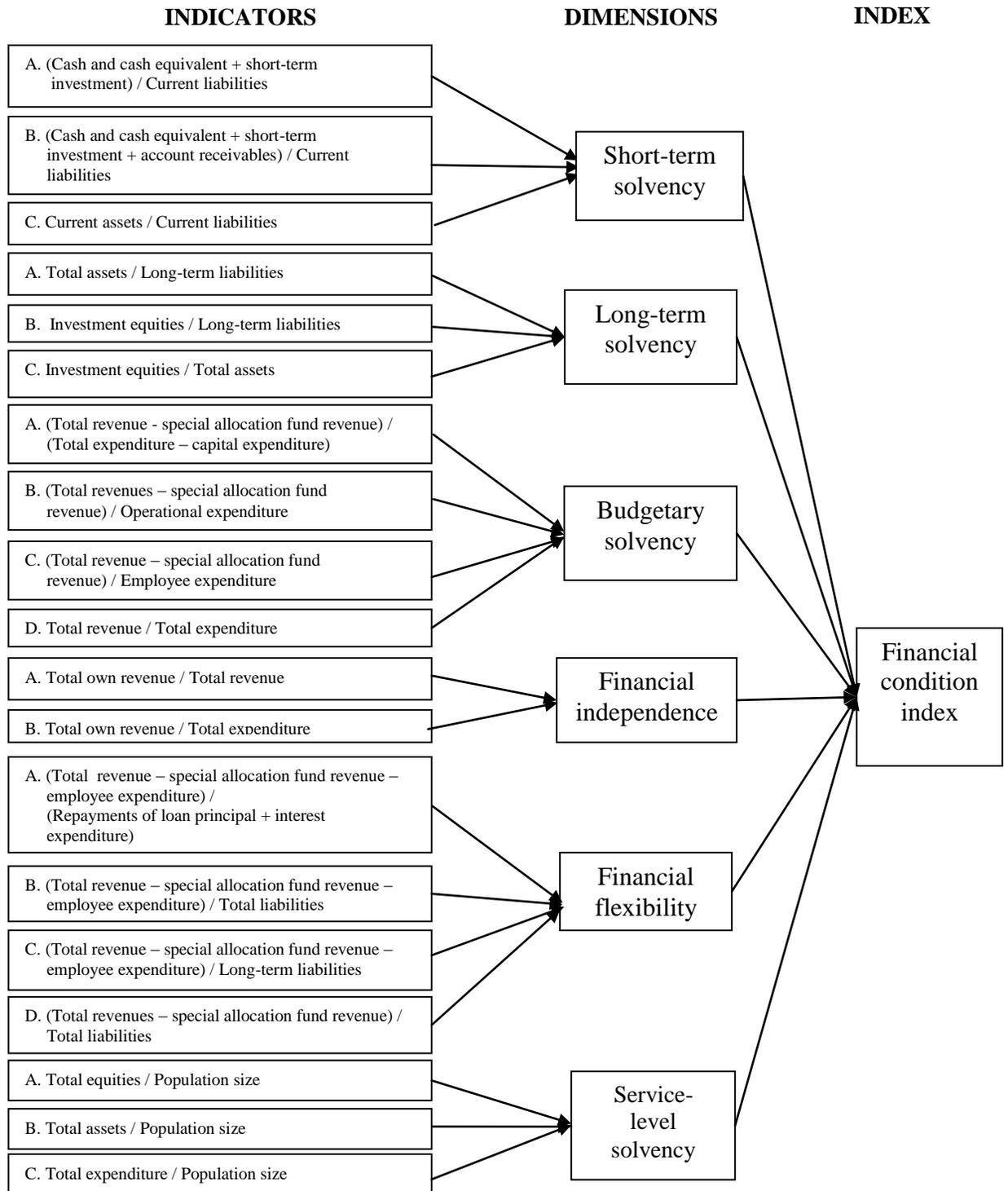
1. developing an indicator index for each indicator
2. developing dimension indexes; and

### 3. developing a composite index of financial condition.

The validity of the measure is assessed as well. There will be three types of validity examined. These are predictive validity, concurrent validity and convergent validity. Finally, this chapter also discusses methods to differentiate local government financial condition into good, average and poor financial conditions. Several attachments show the results of the Analytic Hierarchy Process, indicator indexes, dimension indexes and the financial condition index to complement the discussion in this chapter.

To detail the steps, Figure 6.1 shows a conceptual framework in developing the measure of a composite financial condition index for local government.

**Figure 6.1: Conceptual framework for developing measure of composite financial condition index for local government**



## **6.2 Analysing the reliability of the measure**

The steps taken in analysing the reliability of the measure were inspired by Wang et al.'s (2005) work. However, this study addresses some weaknesses of their work, such as using the Pearson correlation test without considering the normality of data, using the descriptive statistic of mean to represent the population and not discarding data from unreliable financial statements, which are financial statements with adverse opinions or disclaimer opinions.

### **6.2.1 Analysing the reliability of the indicators forming the dimension**

Before analysing the reliability of the measure, it is best to describe and summarise the observed data. As explained in Chapter 4, the length of observation period was four years, from the financial year 2007 to 2010. There were 506 financial statements available from six provinces in Java. The first step taken was to screen the data by discarding financial statements with disclaimer opinions or adverse opinions. There were 86 financial statements with such opinions. Based on data availability, ratios for each dimension were calculated.

After computing all ratios, the next step was to identify outlier data. A case is considered an outlier if its standard score is more than three (Hair et al., 2006). The standard score of a case is computed by using the formula  $z = (X - \text{mean})/\text{standard deviation}$ , where  $X$  is the value of the variable. Outliers should not be used in the analysis because they could disturb the picture of the objects analysed (Judd & McClelland, 1989). After removing the outliers, then the descriptive statistic to summarise and describe the object analysed was run. The result of the descriptive statistic can be used as a benchmark or “industry ratio” by local governments.

The Pearson, Spearman rho and Kendall tau correlation tests were used to assess the reliability of the indicators forming each dimension. Before running the correlation

test, a logarithmic transformation was undertaken to improve the normality of the variables. The reason for using the three tests together is to anticipate for non-normal data distribution and non-linear relationships between variables. The Pearson correlation test requires that the data tested have the characteristics of normal distribution and linear relationships between variables, whereas the Spearman rho and Kendall tau tests do not make such assumptions. An indicator is labelled reliable if the three tests give a similar result for the indicator. This is to apply the precautionary principle to test the robustness of results.

Before running the correlation test, a square root transformation or a logarithmic transformation was undertaken to improve the normality of the data. The use of a method of data transformation is depends on the level of data abnormality (Micceri, 1989). A logarithmic transformation is more powerful than a square root transformation. Therefore, a logarithmic transformation is used when the ranges of data are extreme and a square root transformation is used when there are ranges taht are less extreme (Micceri, 1989).

### **6.2.1.1 Indicators of short-term solvency**

Recall from Chapter 4 section 4.6.1 that indicators of short-term solvency consists of three ratios. The ratios are:

1. Ratio A =  $(\text{Cash and cash equivalent} + \text{short-term investment}) / \text{Current liabilities}$
2. Ratio B =  $(\text{Cash and cash equivalent} + \text{short-term investment} + \text{account receivables}) / \text{Current liabilities}; \text{ and}$
3. Ratio C =  $\text{Currents assets} / \text{Current liabilities}.$

Higher values of these three ratios indicate more current assets available to cover current liabilities. Thus, increasing values of these ratios demonstrate an improving financial condition of short-term solvency. Table 6.1 below summarises the data used to analyse the reliability of the indicators forming the dimension of short-term solvency.

**Table 6.1: Data used to analyse reliability of indicators of short-term solvency**

	2007	2008	2009	2010	Total
Number of existing local governments	126	127	128	128	509
Data availability	124	127	127	128	506
Data with adverse opinions	38	5	2	1	46
Data with disclaimer opinions	14	12	7	7	40
Outlier data	1	2	1	1	5
Data utilised	71	108	117	119	415

In calculating the descriptive statistic, there were 94 local governments not included because 3 local governments' financial statements were not available, 86 local governments had unreliable financial statements (i.e. adverse opinion or disclaimer opinion) and 5 cases of local governments were considered outliers. Therefore, the data used were 415 observations, which constitute 81.53% of the number of existing local governments. The descriptive statistics of the data are shown in Table 6.2 below, calculated using 415 observations.

**Table 6.2: The descriptive statistics of the indicators of short-term solvency**

		SHORT_A	SHORT_B	SHORT_C
N	Valid	415	415	415
	Missing	0	0	0
Mean		1.27E+09	1.39E+09	1.53E+09
Std. error of mean		5.07E+08	5.51E+08	6.02E+08
Median		29.4106	34.3041	38.5546
Std deviation		1.03E+10	1.12E+10	1.23E+10
Variance		1.06E+20	1.26E+20	1.50E+20
Skewness		9.340	9.380	9.387
Std. error of skewness		0.120	0.120	0.120
Kurtosis		93.626	95.357	96.760
Std. error of kurtosis		0.239	0.239	0.239
Range		1.29E+11	1.43E+11	1.58E+11
Minimum		0.13	0.16	0.26
Maximum		1.29E+11	1.43E+11	1.58E+11

Table 6.2 shows that the data for Ratios A, B and C are not normally distributed, as indicated by the values of skewness of 9.34, 9.38 and 9.387 respectively for Ratios A, B and C. In addition, the values of kurtosis of Ratios A, B and C are 93.626, 95.357 and 96.76 respectively. The data are considered normally distributed if they have skewness of 0 and kurtosis of 3. Therefore, the median is a better statistic to represent the population (Kamnikar et al., 2006).

The medians of Ratios A, B and C show that local governments have 29.41, 34.30 and 38.55 times the specified assets to cover their current liabilities. This condition indicates that local governments have considerable idle current assets, which should be avoided. Local government should optimise its current assets in order to deliver services to its community. Based on the ratios above, it is concluded that local governments have strong short-term solvency.

Before running the correlation test, a logarithmic transformation was undertaken to improve the normality of the variables. The results of the Pearson correlation, Spearman rho and Kendall tau tests of the three ratios are presented in the Table 6.3. Table 6.3 shows that all three ratios were significantly correlated ( $p$ -values  $< 0.01$ ) with high intensity correlation, because all tests showed coefficients of correlation nearly equal to 1 for all pairs. Thus, it can be concluded that the three ratios measure the same construct or dimension, namely the dimension of short-term solvency.

**Table 6.3: Results of correlation tests of indicators of short-term solvency**

			LGSHOR_A	LGSHOR_B	LGSHOR_C
Pearson correlation	LGSHOR_A	Coefficient correlation	1	0.999(**)	0.999(**)
		Significance (2-tailed)	.	0.000	0.000
		N	415	415	415
	LGSHOR_B	Coefficient correlation	0.999(**)	1	1.000(**)
		Significance (2-tailed)	0.000	.	0.000
		N	415	415	415
	LGSHOR_C	Coefficient correlation	0.999(**)	1.000(**)	1
		Significance (2-tailed)	0.000	0.000	.
		N	415	415	415
Kendall tau_b	LGSHOR_A	Correlation coefficient	1.000	0.963(**)	0.954(**)
		Significance (2-tailed)	.	0.000	0.000
		N	415	415	415
	LGSHOR_B	Correlation coefficient	0.963(**)	1.000	0.980(**)
		Significance (2-tailed)	0.000	.	0.000
		N	415	415	415
	LGSHOR_C	Correlation coefficient	0.954(**)	0.980(**)	1.000
		Significance (2-tailed)	0.000	0.000	.
		N	415	415	415
Spearman rho	LGSHOR_A	Correlation coefficient	1.000	0.997(**)	0.995(**)
		Significance (2-tailed)	.	0.000	0.000
		N	415	415	415
	LGSHOR_B	Correlation coefficient	0.997(**)	1.000	0.999(**)
		Significance (2-tailed)	0.000	.	0.000
		N	415	415	415
	LGSHOR_C	Correlation coefficient	0.995(**)	0.999(**)	1.000
		Significance (2-tailed)	0.000	0.000	.
		N	415	415	415

Notes: \*\* Correlation is significant at 0.01 level.

### 6.2.1.2 Indicators of long-term solvency

The indicators of long-term solvency consist of three ratios. The ratios are:

1. Ratio A = Total assets / Long-term liabilities;
2. Ratio B = Investment equities / Long-term liabilities; and
3. Ratio C = Investment equities / Total assets.

The larger the value of the ratio of total assets to long-term liabilities (Ratio A) and the ratio of investment equities to long-term liabilities (Ratio B), the more assets available to cover long-term liabilities. Therefore, growing values of both ratios represent an improving financial condition of long-term solvency.

The ratio of investment equities to total assets (Ratio C) shows the value of assets funded by local government's own resources. So, the increasing value of this ratio exhibits that the financial condition of long-term solvency is improving. Table 6.4 describes the data that were used to analyse the reliability of the indicators forming the dimension of long-term solvency.

**Table 6.4: Data used to analyse reliability of indicators of long-term solvency**

	2007	2008	2009	2010	Total
Number of existing local governments	126	127	128	128	509
Data availability	124	127	127	128	506
Data with adverse opinions	38	5	2	1	46
Data with disclaimer opinions	14	12	7	7	40
Outlier data	6	4	3	4	17
Data utilised	66	106	115	116	403

As stated earlier, in calculating the descriptive statistic, there were 106 local governments not included because 3 local governments' financial statements were not available, 86 local governments had unreliable financial statements (i.e. adverse opinion or disclaimer opinion) and 17 sets of data of local governments were considered outliers. Therefore, the data used were 403 observations, which constitute 79.17% of the number of existing local governments. The descriptive statistics of the data are shown in the Table 6.5, calculated using 403 observations.

**Table 6.5: The descriptive statistics of the indicators of long-term solvency**

		<b>LONG_A</b>	<b>LONG_B</b>	<b>LONG_C</b>
N	Valid	403	403	403
	Missing	0	0	0
Mean		1.3E+12	1.2E+12	0.9314
Std. error of mean		1.1E+11	1.1E+11	0.00391
Median		22728.24	21989.55	0.9428
Std deviation		2.3E+12	2.2E+12	0.07844
Variance		5.3E+24	4.9E+24	0.00615
Skewness		4.026	4.159	-8.676
Std. error of skewness		0.122	0.122	0.122
Kurtosis		23.182	24.648	98.462
Std. error of kurtosis		0.243	0.243	0.243
Range		2.0E+13	2.0E+13	1.00
Minimum		6.35	0.00	0.00
Maximum		2.0E+13	2.0E+13	1.00

Table 6.5 shows that the data for Ratios A, B and C are not normally distributed, as indicated by the values of skewness of 4.026, 4.159 and  $-8.676$  and by the values of kurtosis of 23.182, 24.648 and 98.462 respectively for Ratios A, B and C. Therefore, the median is a better statistic to represent the population. The medians of Ratios A and B are 22,728.24 and 21,989.55 respectively. This means that every one rupiah of long-term debt is guaranteed by 22,728.24 rupiahs of assets or 21,989.55 rupiahs of investment equities. This fact indicates that local governments have strong ability to fulfil their long-term obligations. In addition, Ratio C indicates that most of local governments' assets, 94.28%, are financed by their own resources. Therefore, based on these three ratios, it can be concluded that local government has strong long-term solvency.

Before running the correlation test, a logarithmic transformation was undertaken to improve the normality of the data. The test results of the Pearson correlation, Spearman rho and Kendall tau tests among the three ratios are presented in Table 6.6.

**Table 6.6: Results of correlation tests of indicators of long-term solvency**

			LGLONG_A	LGLONG_B	LGLONG_C
Pearson correlation	LGLONG_A	Coefficient correlation	1	0.982(**)	0.070
		Significance (2-tailed)	.	0.000	0.160
		N	403	403	403
	LGLONG_B	Coefficient correlation	0.982(**)	1	0.258(**)
		Significance (2-tailed)	0.000	.	0.000
		N	403	403	403
	LGLONG_C	Coefficient correlation	0.070	0.258(**)	1
		Significance (2-tailed)	0.160	0.000	.
		N	403	403	403
Kendall tau_b	LGLONG_A	Correlation coefficient	1.000	0.986(**)	0.056
		Significance (2-tailed)	.	0.000	0.093
		N	403	403	403
	LGLONG_B	Correlation coefficient	0.986(**)	1.000	0.070(*)
		Significance (2-tailed)	0.000	.	0.037
		N	403	403	403
	LGLONG_C	Correlation coefficient	0.056	0.070(*)	1.000
		Significance (2-tailed)	0.093	0.037	.
		N	403	403	403
Spearman rho	LGLONG_A	Correlation coefficient	1.000	0.999(**)	0.081
		Significance (2-tailed)	.	0.000	0.106
		N	403	403	403
	LGLONG_B	Correlation coefficient	0.999(**)	1.000	0.100(*)
		Significance (2-tailed)	0.000	.	0.045
		N	403	403	403
	LGLONG_C	Correlation coefficient	0.081	0.100(*)	1.000
		Significance (2-tailed)	0.106	0.045	.
		N	403	403	403

**Notes:** \*\* Correlation is significant at 0.01 level.

\* Correlation is significant at 0.05 level.

Based on the above test results, the ratio of long-term liabilities to total assets (Ratio A) and the ratio of long-term liabilities to investment equities (Ratio B) are significantly correlated (p-values < 0.01) with high-intensity association, because all correlation tests show coefficients of correlation, r, almost equal to 1 for all pairs. However, the ratio of investment equities to total assets (Ratio C) is not correlated with the two other indicators. This is indicated by p-values > 0.05. Thus, it can be concluded that only two ratios similarly measure the construct or dimension of long-term solvency. These ratios are the ratio of long-term liabilities to total assets and the ratio of long-term liabilities to investment equities.

### 6.2.1.3 Indicators of budgetary solvency

Indicators of budgetary solvency consist of four ratios. These ratios are:

1. Ratio A = (Total revenues – special allocation fund revenue) / (Total expenditures – capital expenditure)
2. Ratio B = (Total Revenues – special allocation fund revenue) / Operational expenditure
3. Ratio C = (Total revenues – special allocation fund revenue) / Employee expenditure; and
4. Ratio D = Total revenue / Total expenditure.

Higher values of these ratios show more revenue is available to fund local government operations. This means that growing values of these ratios indicate an improving financial condition of budgetary solvency. Table 6.7 describes the data that were used to analyse the reliability of the indicators forming the dimension of budgetary solvency.

**Table 6.7: Data used to analyse reliability of indicators of budgetary solvency**

	2007	2008	2009	2010	Total
Number of existing local governments	126	127	128	128	509
Data availability	124	127	127	128	506
Data with adverse opinions	38	5	2	1	46
Data with disclaimer opinions	14	12	7	7	40
Outlier data	9	5	5	6	25
Data utilised	63	105	113	114	395

In calculating the descriptive statistics, there were 114 local governments not included because 3 local governments' financial statements were not available, 86 local governments had unreliable financial statements (i.e. adverse opinion or disclaimer opinion), and 25 sets of data of local governments were considered

outliers. Therefore, the data used were 395 observations, which constitute 77.6% of the number of existing local governments. The descriptive statistics of the data are shown in Table 6.8, calculated using 395 observations.

**Table 6.8: The descriptive statistics of the indicators of budgetary solvency**

		<b>BUDG_A</b>	<b>BUDG_B</b>	<b>BUDG_C</b>	<b>BUDG_D</b>
N	Valid	395	395	395	395
	Missing	0	0	0	0
Mean		1.1484	1.1733	1.7164	1.0049
Std. error of mean		0.00550	0.00602	0.01677	0.00258
Median		1.1310	1.1550	1.6380	1.0020
Std deviation		0.10939	0.11963	0.33322	0.05127
Variance		0.01197	0.01431	0.11103	0.00263
Skewness		0.710	0.775	2.548	0.226
Std. error of skewness		0.123	0.123	0.123	0.123
Kurtosis		0.542	0.832	11.678	1.333
Std. error of kurtosis		0.245	0.245	0.245	0.245
Range		0.70	0.81	2.83	0.37
Minimum		0.84	0.84	1.21	0.84
Maximum		1.53	1.65	4.04	1.21

Table 6.8 shows that the data for Ratios A, B, C and D are not normally distributed, as indicated by the values of skewness of 0.71, 0.775, 2.548 and 0.226 and by the values of kurtosis of 0.542, 0.832, 11.678 and 1.333 respectively for Ratios A, B, C and D. Consequently, the median is a better statistic to represent the population. The medians for Ratios A, B, C and D are 1.15, 1.17, 1.69 and 1.00 respectively. This condition indicates that local governments have sufficient revenues to cover their operational expenditures. Based on these ratios, it is concluded that local governments have good budgetary solvency.

Before running the correlation test, a natural logarithmic transformation was undertaken to improve the normality of the data. The results of the Pearson,

Spearman rho and Kendall tau correlation tests among the four ratios are presented in Table 6.9.

**Table 6.9: Results of correlation tests of indicators of budgetary solvency**

			LNBUDG_A	LNBUDG_B	LNBUDG_C	LNBUDG_D
Pearson correlation	LNBUDG_A	Coefficient correlation	1	0.925(**)	0.652(**)	0.390(**)
		Significance (2-tailed)	.	0.000	0.000	0.000
		N	395	395	395	395
	LNBUDG_B	Coefficient correlation	0.925(**)	1	0.734(**)	0.389(**)
		Significance (2-tailed)	0.000	.	0.000	0.000
		N	395	395	395	395
	LNBUDG_C	Coefficient correlation	0.652(**)	0.734(**)	1	0.159(**)
		Significance (2-tailed)	0.000	0.000	.	0.002
		N	395	395	395	395
LNBUDG_D	Coefficient correlation	0.390(**)	0.389(**)	0.159(**)	1	
	Significance (2-tailed)	0.000	0.000	0.002	.	
	N	395	395	395	395	
Kendall tau_b	LNBUDG_A	Correlation coefficient	1.000	0.830(**)	0.577(**)	0.247(**)
		Significance (2-tailed)	.	0.000	0.000	0.000
		N	395	395	395	395
	LNBUDG_B	Correlation coefficient	0.830(**)	1.000	0.570(**)	0.248(**)
		Significance (2-tailed)	0.000	.	0.000	0.000
		N	395	395	395	395
	LNBUDG_C	Correlation coefficient	0.577(**)	0.570(**)	1.000	0.116(**)
		Significance (2-tailed)	0.000	0.000	.	0.001
		N	395	395	395	395
	LNBUDG_D	Correlation coefficient	0.247(**)	0.248(**)	0.116(**)	1.000
		Significance (2-tailed)	0.000	0.000	0.001	.
		N	395	395	395	395
Spearman rho	LNBUDG_A	Correlation coefficient	1.000	0.938(**)	0.762(**)	0.357(**)
		Significance (2-tailed)	.	0.000	0.000	0.000
		N	395	395	395	395
	LNBUDG_B	Correlation coefficient	0.938(**)	1.000	0.761(**)	0.362(**)
		Significance (2-tailed)	0.000	.	0.000	0.000
		N	395	395	395	395
	LNBUDG_C	Correlation coefficient	0.762(**)	0.761(**)	1.000	0.176(**)
		Significance (2-tailed)	0.000	0.000	.	0.000
		N	395	395	395	395
	LNBUDG_D	Coefficient correlation	0.357(**)	0.362(**)	0.176(**)	1.000
		Significance (2-tailed)	0.000	0.000	0.000	.
		N	395	395	395	395

Notes: \*\* Correlation is significant at 0.01 level.

Based on the above test results, all four ratios were significantly correlated (p-values < 0.01) with various intensity correlations (the coefficient correlation ranging from 11.6% to 93.8%). Therefore, it can be concluded that the four ratios measure the same construct or dimension, namely the dimension of budgetary solvency.

#### 6.2.1.4 Indicators of financial independence

The indicators of financial independence consist of two ratios. The ratios are:

1. Ratio A = Total own revenues / Total revenues
2. Ratio B = Total own revenues / Total expenditures.

The two ratios show the financial independence of local government to fund its operations. Higher values of these ratios show more independence of a local government in managing their finance.

Table 6.10 below describes the data that were used to analyse the reliability of the indicators forming the dimension of financial independence.

**Table 6.10: Data used to analyse reliability of indicators of financial independence**

	2007	2008	2009	2010	Total
Number of existing local governments	126	127	128	128	509
Data availability	124	127	127	128	506
Data with adverse opinions	38	5	2	1	46
Data with disclaimer opinions	14	12	7	7	40
Outlier data	4	4	6	7	21
Data utilised	68	106	112	113	399

In calculating the descriptive statistics, there were 110 local governments not included because 3 local governments' financial statements were not available, 86 local governments had unreliable financial statements (i.e. adverse opinion or disclaimer opinion), and 25 sets of data of local governments were considered outliers. Therefore, the data used were 399 observations, which constitute 78.38% of

the number of existing local governments. The descriptive statistics of the data are shown in Table 6.11 below, calculated using 399 observations.

**Table 6.11: The descriptive statistics of the indicators of financial independence**

		<b>INDP_ A</b>	<b>INDP_ B</b>
N	Valid	399	399
	Missing	0	0
Mean		0.1048	0.1060
Std. error of mean		0.00369	0.00382
Median		0.0849	0.0859
Std deviation		0.07378	0.07378
Variance		0.00544	0.00581
Skewness		4.060	4.136
Std. error of skewness		0.122	0.122
Kurtosis		23.099	24.003
Std. error of kurtosis		0.244	0.244
Range		0.70	0.73
Minimum		0.00	0.00
Maximum		0.71	0.74

Table 6.11 shows that the data for Ratios A and B are not normally distributed, as indicated by the values of skewness of 4.06 and 4.136 and by the values of kurtosis of 23.099 and 24.003 respectively for Ratios A and B. Therefore, the median is a better statistic to represent the population. The medians of the two ratios are 8.49% and 8.59%, respectively. This means that only around 8.5% of local governments' revenues are under their control. In other words, it can be said that local governments rely heavily on sources of funding beyond their control or influence. Based on these ratios, it is concluded that local governments have weak financial independence.

Before running the correlation test, a square-root transformation was undertaken to improve the normality of the data. The test results of the Pearson, Spearman rho and Kendall tau correlation tests among the two ratios are presented in Table 6.12.

**Table 6.12: Results of correlation tests of indicators of financial independence**

			SQINDP_A	SQINDP_B
Pearson correlation	SQINDP_A	Coefficient correlation	1	0.993(**)
		Significance (2-tailed)	.	0.000
		N	399	399
	SQINDP_B	Coefficient correlation	0.993(**)	1
		Significance (2-tailed)	0.000	.
		N	399	399
Kendall tau_b	SQINDP_A	Correlation coefficient	1.000	0.931(**)
		Significance (2-tailed)	.	0.000
		N	399	399
	SQINDP_B	Correlation coefficient	0.931(**)	1.000
		Significance (2-tailed)	0.000	.
		N	399	399
Spearman rho	SQINDP_A	Correlation coefficient	1.000	0.993(**)
		Significance (2-tailed)	.	0.000
		N	399	399
	SQINDP_B	Correlation coefficient	0.993(**)	1.000
		Significance (2-tailed)	0.000	.
		N	399	399

Notes: \*\* Correlation is significant at 0.01 level.

Based on the above test results, both ratios were significantly correlated (p-values < 0.01) with high-intensity association (all correlation coefficients, r, were nearly equal to 1 for all pairs). Thus, it can be concluded that both ratios measure the same construct or dimension, namely the dimension of financial independence.

### 6.2.1.5 Indicators of financial flexibility

The indicators of financial flexibility consist of four ratios. The ratios are:

1. Ratio A = (Total revenues – special allocation fund revenue – employee expenditures) / (Repayments of loan principal + interest expenditures)
2. Ratio B = (Total revenues – special allocation fund revenue – employee expenditures) / Total liabilities
3. Ratio C = (Total revenues – special allocation fund revenue – employee expenditures) / Long-term liabilities; and
4. Ratio D = (Total revenues – special allocation fund revenue) / Total liabilities.

Higher values of these four ratios show better financial capacity of local government to face extraordinary events, which could be either internal or external to the local government organisation. So, upward trends of the values of these ratios represent a growing quality of financial flexibility. Table 6.13 below describes the data that were used to analyse the reliability of the indicators forming the dimension of financial flexibility.

**Table 6.13: Data used to analyse reliability of indicators of financial flexibility**

	2007	2008	2009	2010	Total
Number of existing local governments	126	127	128	128	509
Data availability	124	127	127	128	506
Data with adverse opinions	38	5	2	1	46
Data with disclaimer opinions	14	12	7	7	40
Outlier data	2	6	6	5	19
Data utilised	70	104	112	115	401

In calculating the descriptive statistics, there were 108 local governments not included because 3 local governments' financial statements were not available, 86 local governments have unreliable financial statements (i.e. adverse opinion or disclaimer opinion), and 19 sets of data of local governments were considered outliers. Therefore, the data used were 401 observations, which constitute 78.78% of the number of existing local governments. The descriptive statistics of the data are shown in Table 6.14, calculated using 401 observations.

**Table 6.14: The descriptive statistics of the indicators of financial flexibility**

		<b>FLEX_A</b>	<b>FLEX_B</b>	<b>FLEX_C</b>	<b>FLEX_D</b>
N	Valid	401	401	401	401
	Missing	0	0	0	0
Mean		7.7E+10	3.6E+09	1.7E+09	1.5E+11
Std. error of mean		8.9E+09	1.8E+09	8.4E+08	1.2E+10
Median		728.0129	181.1926	68.8882	2314.1148
Std. Deviation		1.8E+11	3.6E+10	1.7E+10	2.5E+11
Variance		3.2E+22	1.3E+21	2.8E+20	6.0E+22
Skewness		3.494	10.003	10.007	2.400
Std. error of skewness		0.122	0.122	0.122	0.122
Kurtosis		16.009	99.184	101.204	7.008
Std. Error of kurtosis		0.243	0.243	0.243	0.243
Range		1.4E+12	3.9E+11	1.9E+11	1.5E+12
Minimum		2.85	3.80	1.59	1.79
Maximum		1.4E+12	3.9E+11	1.9E+11	1.5E+12

Table 6.14 shows that the data for Ratios A, B, C and D are not normally distributed, as indicated by the values of skewness of 3.494, 10.003, 10.077 and 2.400 and by the values of kurtosis of 16.009, 99.184, 101.204 and 7.008 respectively for Ratios A, B, C and D. Consequently, the median is a better statistic to represent the population. The medians of Ratios A, B, C and D show that local governments have financial capacity of 728.01, 181.19, 68.88 and 2,314.11 times to anticipate extraordinary events, which could be internal or external to the local government organisation.

Before running the correlation test, a logarithmic transformation was undertaken to improve the normality of the data. The results of the Pearson, Spearman rho and Kendall tau correlation tests among the four ratios are presented in the following Table 6.15.

**Table 6.15: Results of correlation tests of indicators of financial flexibility**

			LGFLEX_A	LGFLEX_B	LGFLEX_C	LGFLEX_D
Pearson correlation	LGFLEX_A	Coefficient correlation	1	0.261(**)	0.271(**)	0.511(**)
		Significance (2-tailed)	.	0.000	0.000	0.000
		N	401	401	401	401
	LGFLEX_B	Coefficient correlation	0.261(**)	1	0.996(**)	0.372(**)
		Significance (2-tailed)	0.000	.	0.000	0.000
		N	401	401	401	401
	LGFLEX_C	Coefficient correlation	0.271(**)	0.996(**)	1	0.379(**)
		Significance (2-tailed)	0.000	0.000	.	0.000
		N	401	401	401	401
	LGFLEX_D	Coefficient correlation	0.511(**)	372(**)	0.379(**)	1
		Significance (2-tailed)	0.000	0.000	0.000	.
		N	401	401	401	401
Kendall tau_b	LGFLEX_A	Correlation coefficient	1.000	0.228(**)	0.241(**)	0.337(**)
		Significance (2-tailed)	.	0.000	0.000	0.000
		N	401	401	401	401
	LGFLEX_B	Correlation coefficient	0.228(**)	1.000	0.905(**)	0.346(**)
		Significance (2-tailed)	0.000	.	0.000	0.000
		N	401	401	401	401
	LGFLEX_C	Correlation coefficient	0.241(**)	0.905(**)	1.000	0.359(**)
		Significance (2-tailed)	0.000	0.000	.	0.000
		N	401	401	401	401
	LGFLEX_D	Correlation coefficient	0.337(**)	0.346(**)	0.359(**)	1.000
		Significance (2-tailed)	0.000	0.000	0.000	.
		N	401	401	401	401
Spearman rho	LGFLEX_A	Correlation coefficient	1.000	0.325(**)	0.344(**)	0.403(**)
		Significance (2-tailed)	.	0.000	0.000	0.000
		N	401	401	401	401
	LGFLEX_B	Correlation coefficient	0.325(**)	1.000	0.986(**)	0.479(**)
		Significance (2-tailed)	0.000	.	0.000	0.000
		N	401	401	401	401
	LGFLEX_C	Correlation coefficient	0.344(**)	0.986(**)	1.000	0.493(**)
		Significance (2-tailed)	0.000	0.000	.	0.000
		N	401	401	401	401
	LGFLEX_D	Coefficient correlation	0.403(**)	0.479(**)	0.493(**)	1.000
		Significance (2-tailed)	0.000	0.000	0.000	.
		N	401	401	401	401

Notes: \*\* Correlation is significant at 0.01.

Based on the above test results, all four ratios were significantly correlated (p-values < 0.01) with varying intensity of association between pairs (i.e. correlation coefficients ranging from 22.8% to 99.6%). Thus, it can be concluded that the four ratios measure the same construct or dimension, namely the dimension of financial flexibility.

### 6.2.1.6 Indicators of service-level solvency

The indicators of service level solvency consist of three ratios. These ratios are:

1. Ratio A = Total equities / Population
2. Ratio B = Total assets / Population; and
3. Ratio C = Total expenditures / Population.

Larger values of the ratio of total equities to population and the ratio of total assets to population show more local government assets are available to serve its communities. Thus, the higher the value of these ratios, the better is the service-level solvency.

The ratio of total expenditures to population shows the expenditure incurred by local government to serve every resident. The higher the values of this indicator, the more services and goods (either quantity or quality) local government is delivering to the community. Therefore, growing values of these ratios show increasing quality of service level-solvency. Table 6.16 describes the data that were used to analyse the reliability of the indicators forming dimension of service-level solvency.

**Table 6.16: Data used to analyse reliability of indicators of service-level solvency**

	2007	2008	2009	2010	Total
Number of existing local governments	126	127	128	128	509
Data availability	124	127	127	128	506
Data with adverse opinions	38	5	2	1	46
Data with disclaimer opinions	14	12	7	7	40
Outlier data	1	2	1	1	5
Data utilised	71	108	117	119	415

In calculating the descriptive statistics, there were 94 local governments not included because 3 local governments' financial statements were not available, 86 local

governments had unreliable financial statements (i.e. adverse opinion or disclaimer opinion), and 5 sets of data of local governments were considered outliers. Therefore, the data used were 415 observations, which constitute 81.53% of the number of existing local governments. The descriptive statistics of the data are shown in Table 6.17, calculated using 415 observations.

**Table 6.17: The descriptive statistics of the indicators of service-level solvency**

		SERV_A	SERV_B	SERV_C
N	Valid	415	415	415
	Missing	0	0	0
Mean		2.5E+08	2.5E+08	5.4E+08
Std. error of mean		2.2E+08	2.2E+08	4.1E+08
Median		2124062	2124909	847609.5
Std. Deviation		4.6E+09	4.6E+09	8.3E+09
Variance		2.1E+19	2.1E+19	7.0E+19
Skewness		19.918	19.916	17.160
Std. error of skewness		0.120	0.120	0.120
Kurtosis		401.670	401.606	309.346
Std. error of kurtosis		0.239	0.239	0.239
Range		9.2E+10	9.2E+10	1.6E+11
Minimum		8,5629.50	90,998.09	12,0602.60
Maximum		9.2E+10	9.2E+10	1.6E+11

Table 6.17 shows that the data for Ratios A, B and C are not normally distributed, as indicated by the values of skewness of 19.91, 19.91 and 17.16 and by the values of kurtosis of 401.67, 401.60 and 309.34 respectively for A, B and C. Therefore, the median is a better statistic to represent the population. The medians of Ratios A and B show that local governments have Rp2.124.062 and Rp2.124.909 of assets, respectively, to serve their residents. Ratio C indicates that local governments incur expenditure of Rp847.609 to serve each of their residents. For the dimension of service-level solvency, it cannot be concluded whether the existing condition of local government is good or not, because there is no threshold that distinguishes a good

and a weak condition for this dimension. However, in general, the higher the ratio of service-level solvency, the better is the service-level solvency.

Before running the correlation test, a logarithmic transformation was undertaken to improve the normality of the data. The results of the Pearson, Spearman rho and Kendall tau tests among the three ratios are presented in Table 6.18.

**Table 6.18: Results of correlation tests of indicators of service level-solvency**

			LGSERV_A	LGSERV_B	LGSERV_C
Pearson correlation	LGSERV_A	Coefficient correlation	1	1.000(**)	0.866(**)
		Significance (2-tailed)	.	0.000	0.000
		N	415	415	415
	LGSERV_B	Coefficient correlation	1.000(**)	1	0.867(**)
		Significance (2-tailed)	0.000	.	0.000
		N	415	415	415
	LGSERV_C	Coefficient correlation	0.866(**)	0.867(**)	1
		Significance (2-tailed)	0.000	0.000	.
		N	415	415	415
Kendall tau_b	LGSERV_A	Correlation coefficient	1.000	0.994(**)	0.562(**)
		Significance (2-tailed)	.	0.000	0.000
		N	415	415	415
	LGSERV_B	Correlation coefficient	0.994(**)	1.000	0.563(**)
		Significance (2-tailed)	0.000	.	0.000
		N	415	415	415
	LGSERV_C	Correlation coefficient	0.562(**)	0.563(**)	1.000
		Significance (2-tailed)	0.000	0.000	.
		N	415	415	415
Spearman rho	LGSERV_A	Correlation coefficient	1.000	1.000(**)	0.744(**)
		Significance (2-tailed)	.	0.000	0.000
		N	415	415	415
	LGSERV_B	Correlation coefficient	1.000(**)	1.000	0.745(**)
		Significance (2-tailed)	0.000	.	0.000
		N	415	415	415
	LGSERV_C	Correlation coefficient	0.744(**)	0.745(**)	1.000
		Significance (2-tailed)	0.000	0.000	.
		N	415	415	415

**Notes:** \*\* Correlation is significant at 0.01 level.

Based on the test results presented in Table 6.18, all three indicators were significantly correlated (p-values < 0.01) with various intensity correlations between pairs (i.e. correlation coefficients ranging from 56.2% to 100%). Thus, it can be concluded that the three ratios measure the same construct or dimension, namely the dimension of service-level solvency.

### **6.2.2 Analysing the reliability of the measure of financial condition**

After determining the indicators forming the dimensions of the measure, the Cronbach alpha test was used to analyse the reliability (i.e. internal consistency) of the 18 reliable indicators, which had been analysed in the prior section to ascertain whether they reliably measure the same underlying construct (i.e. financial condition of local government).

The standardised Cronbach coefficient alpha was used instead of the raw coefficient to analyse the results because there was a mixture of multi-units of variables (Santos, 1999). For example, the unit of measure of Ratio B of total assets to population is the amount of money per resident, whereas the unit of Ratio C of current assets to current liabilities is expressed as “times”. Another reason to use the standardised alpha is because the variances of indicators showed a huge spread (Santos, 1999). For example, the variance of Ratio C of the dimension of short-term solvency is  $1.5 \times 10^{20}$ . On the other hand, the variance of Ratio D of the dimension of budgetary solvency is only 0.00263. One consequence of using the standardised Cronbach alpha is that the values of variables were transformed to a standard score before running the test. Table 6.19 shows the results of the Cronbach alpha test.

**Table 6.19: Results of the Cronbach alpha test**

```

***** Method 1 (space saver) will be used for this analysis *****
R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   ( A L P H A )

```

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	0.0232	84.5679	9.1961	18

Item-total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
ZSERV_A	0.0201	75.2356	0.4807	0.8222
ZSERV_B	0.0200	75.2738	0.4784	0.8223
ZSERV_C	0.0210	77.4486	0.3475	0.8291
ZLONG_A	0.0210	74.7683	0.5087	0.8208
ZLONG_B	0.0210	74.7736	0.5083	0.8208
ZSHOR_A	0.0232	73.8100	0.5679	0.8176
ZSHOR_B	0.0232	73.7757	0.5700	0.8175
ZSHOR_C	0.0232	73.8730	0.5640	0.8178
ZBUDG_A	0.0227	77.3288	0.3542	0.8288
ZBUDG_B	0.0229	78.1885	0.3037	0.8314
ZBUDG_C	0.0223	76.5398	0.4011	0.8264
ZBUDG_D	0.0187	81.0247	0.1419	0.8393
ZINDP_A	0.0222	80.5496	0.1678	0.8381
ZINDP_B	0.0217	80.0263	0.1977	0.8367
ZFLEX_A	0.0223	77.6763	0.3337	0.8298
ZFLEX_B	0.0239	73.2828	0.5999	0.8159
ZFLEX_C	0.0238	72.7032	0.6362	0.8139
ZFLEX_d	0.0210	74.8198	0.5055	0.8209

Reliability Coefficient  
N of Cases = 394.0  
Alpha = 0.8333

N of Items = 18

From Table 6.19 above, the Cronbach coefficient alpha is 0.8333.<sup>16</sup> Based on the coefficient, it can be concluded that the 18 indicators demonstrate good internal consistency (reliability) to measure the same construct (financial condition of local government) because it is more than 0.70. Nunnaly (1978) and Nunnaly and Bernstein (1994) state that an instrument is reliable if it has a coefficient of Cronbach alpha equivalent to or higher than 0.70.

The values in the column **Cronbach’s Alpha if Item Deleted** show the Cronbach alpha values obtained when the item (variable) on the line was removed. If an item (variable) has a Cronbach alpha value greater than the overall value of the Cronbach alpha measurement scale, the item (variable) should be deleted or revised for the purposes of analysis. Based on the results of the reliability analysis above, all values

<sup>16</sup> The raw Cronbach coefficient alpha is 0.8088.

in the column **Cronbach's Alpha if Item Deleted** are less than or equal to 0.83, so that no items (variables) need to be removed.

### **6.3 Developing indicator index and dimension index**

To develop the indicator index of each dimension, the first step is to determine which local governments have similar characteristics (cohorts) in order to achieve homogeneity among local governments. There are three groups of local governments, namely district local governments, municipal local governments and provincial local governments. For the years 2007 – 2010, the numbers of the groups were 83, 29 and 6 for the district group, municipal group and provincial group respectively. A list of the groups of local governments is provided in Appendix D of this thesis. This study develops an indicator index for group district and municipal local governments from 2007 until 2010. This action is intended to follow Wang et al.'s (2007) suggestion and to remedy their work's limitation. They suggest using more than one year of data to develop an instrument to assess financial condition because longitudinal data collected over time may further validate the findings.

The second step is determining the minimum and maximum values of each indicator in order to create the indicator index. The minimum and the maximum values are determined for each year. Local government financial statements with adverse or disclaimer opinions are not included in the process of developing the indicator index. The index of each indicator is calculated as follows:

$$\text{Indicator index} = (\text{Actual value} - \text{Minimum value}) / (\text{Maximum value} - \text{Minimum value}) \dots\dots\dots (6.1)$$

Before calculating the indicator index, several treatments were done:

1. The values of the indicators of long-term solvency, service-level solvency and financial flexibility were transformed using the natural logarithm ( $\ln$ ) to “new values” so that the difference between the maximum value and the minimum value became smaller. This is the same way the United Nation develops the sub-dimension index of income in the Human Development Index (UNDP, 2011). In developing such an index, the UN uses  $\ln$  to transform the raw values of income.
2. The values of the indicators composing short-term solvency and budgetary solvency are multiplied by 10 and then the results are transformed using  $\ln$ . The reason for multiplying by 10 is because there was great variation in the values of the indicators, ranging from less than 1 to more than 1. There is a difference in the behaviour of numbers less than 1 and more than 1 if one transforms the number directly by using  $\ln$ . If one transforms a number less than 1 using  $\ln$ , the result will be negative. On the other hand, if one transforms a number more than 1 using  $\ln$ , the result will be positive. To avoid this problem, first the values of the indicators were multiplied by 10 so that the values of the indicators were more than 1. Therefore, the behaviour of all the values would be similar.

The results of each indicator index for each group of local governments from 2007 to 2010 can be found in Appendix E and Appendix F. The appendixes show 18 indicator indexes for the group of municipal local governments and the group of district local governments.

Next, the third step is determining the dimension index by using the arithmetic mean. The current study argues that in developing the dimension index, the arithmetic mean is more appropriate than the geometric mean because the arithmetic mean gives a fairer result than the geometric mean. For example, if a dimension consists of three indicators and one of the indicators has zero value, the end result of the geometric mean is zero although the other two ratios have good values. This condition does not

occur in the arithmetic mean. The formula to develop the dimension index is as follows:

$$\text{Dimension Index} = (\mathbf{I}_{\text{Indicator-1}} + \mathbf{I}_{\text{Indicator-2}} + \dots + \mathbf{I}_{\text{Indicator-n}}) : \mathbf{n} \dots\dots\dots (6.2)$$

where n is the number of indicators forming the dimension.

The dimension index is the average of the indicator indexes that compose it. This current study assumes that the indicator indexes have equal importance, so they have similar weight. The results of each dimension index for the groups of municipal local governments and district local governments for the financial years 2007 to 2010 can be found in Appendix E and Appendix F.

#### 6.4 Analysing the weight of each dimension

To analyse the weight of each dimension comprising the financial condition, this study utilised the Analytic Hierarchy Process (AHP). The more important a dimension, the more weight will be assigned to it. To determine the weight, this study used 162 respondents from the Ministry of Home Affairs (30 respondents), the Ministry of Finance (33 respondents), universities (33 respondents), the Supreme Audit Board (34 respondents) and local governments (32 respondents).

There were several steps taken in implementing the AHP. The steps are as follows.

1. Calculate the geometric mean for every pair-wise comparison from all respondents. There are 15 combinations of pair-wise comparison. Based on all values of respondents' answers, the geometric mean for every pair-wise comparison was calculated using the formula as follows:

$$\text{Log } G = \frac{\sum_{i=1}^n \text{Log } x_i}{n} \dots\dots\dots (6.3)$$

Log G : logarithm geometric mean  
 $x_i$  : value of respondent<sub>i</sub>'s answer  
n: number of respondents

Next, the values of the geometric means were put into a matrix to determine the weight of each dimension.

2. Develop a pair-wise comparison matrix. The form of a pair-wise comparison matrix, say matrix M, is shown in Figure 6.2 below.

**Figure 6.2: Form of pair-wise matrix comparison**

	STS	LTS	BS	FF	FI	SLS
STS	1	M <sub>xy</sub>				
LTS	M <sub>xy</sub>	1	M <sub>xy</sub>	M <sub>xy</sub>	M <sub>xy</sub>	M <sub>xy</sub>
BS	M <sub>xy</sub>	M <sub>xy</sub>	1	M <sub>xy</sub>	M <sub>xy</sub>	M <sub>xy</sub>
FF	M <sub>xy</sub>	M <sub>xy</sub>	M <sub>xy</sub>	1	M <sub>xy</sub>	M <sub>xy</sub>
FI	M <sub>xy</sub>	M <sub>xy</sub>	M <sub>xy</sub>	M <sub>xy</sub>	1	M <sub>xy</sub>
SLS	M <sub>xy</sub>	1				

STS = short-term solvency; LTS = long-term solvency, BS = budgetary solvency; FF = financial flexibility; FI = financial independence; SLS = service-level solvency

A number in row x-th and column y-th is the relative importance of dimension x compared to dimension y. The scale ranges from 1 to 5, which can be interpreted as follows:

- M<sub>xy</sub> = **1** if the two dimensions are **equally** important
- M<sub>xy</sub> = **2** if dimension x is **slightly more important** than dimension y
- M<sub>xy</sub> = **3** if dimension x is **more important** than dimension y
- M<sub>xy</sub> = **4** if dimension x is **much more important** than dimension y
- M<sub>xy</sub> = **5** if dimension x is **absolutely more important** than dimension y

3. Determine the weight for each dimension using the values of eigenvectors. The larger the eigenvector value of a dimension, the more important is the dimension.
4. Assess the consistency of the respondents' answers.

The AHP tolerates inconsistency by providing a measure to assess inconsistencies. This measure is one important element in the process of setting priorities based on pair-wise comparison. The greater the consistency ratio, the more inconsistent are respondents' answers. An acceptable consistency ratio is smaller than or equivalent to 0.1, although in some cases ratios greater than ten percent can be considered acceptable (Forman & Selly, 2001).

The details, process and results of the process mentioned above can be seen in Appendix C. The overall results of weight determination are reported in Table 6.20 below.

**Table 6.20: Weight of each dimension based on Analytic Hierarchy Process**

<b>Name of dimension</b>	<b>Weight</b>
Short-term solvency	0.206
Budgetary solvency	0.142
Long-term solvency	0.245
Service-level solvency	0.107
Financial flexibility	0.175
Financial independence	0.125
<b>Total of weights</b>	<b>1.000</b>

Table 6.20 above shows that the dimension with the largest weight is the dimension of long-term solvency, followed by the dimensions of short-term solvency, financial flexibility, budgetary solvency, financial independence and service-level solvency. This means that the dimensions of long-term solvency and short-term solvency are considered the two most important dimensions among the dimensions comprising the financial condition of local government. On the other hand, the dimension of service-level solvency is considered the least important of the elements of financial condition.

These findings indicate that the stakeholders of local governments in Indonesia tend to be myopic, which means that their horizons of view tend to be short-term (as indicated by long-term and short-term solvencies) rather than long-term (as indicated by service-level solvency). This finding is similar with that of Svara (2001), who found that public officials may focus more on the organisation's ability to pay its bill on time, but overlook the aspects of its long-term financial condition.

If the overall results above are decomposed based on the origin of the respondents, the weights of dimensions will be different for each group of respondents. The results are reported in Table 6.21.

**Table 6.21: Weight of each dimension based on groups of respondents**

Name of dimension	Weight				
	MoHA	MoF	Univ.	SAB	LGs
Short-term solvency	0.228	0.179	0.238	0.182	0.235
Long-term solvency	0.259	0.239	0.176	0.277	0.253
Budgetary solvency	0.150	0.147	0.164	0.112	0.150
Financial flexibility	0.175	0.195	0.176	0.182	0.145
Financial independence	0.101	0.136	0.130	0.150	0.096
Service-level solvency	0.086	0.104	0.117	0.098	0.121
<b>Total of weights</b>	1.00	1.00	1.00	1.00	1.00

MoHA = Ministry of Home Affairs, MoF = Ministry of Finance, Univ. = universities; SAB = Supreme Audit Board; LGs = local governments

Table 6.21 reports that all groups of respondents, except the universities, consider the dimension of long-term solvency the most important dimension of financial condition. The pattern is also similar for the least important dimension, where all groups of respondents put service-level solvency as the least important dimension, except respondents from the group of local government. Again, these findings indicate that the majority of local government stakeholders in Indonesia tend to have short-term horizons rather than long-term horizons.

### 6.5 Developing a composite index of financial condition

After each dimension is calculated and the weight of each dimension is determined, the final step is to develop a composite index of financial condition. The formula to create the index is as follows:

$$FCI = w_1*DI_1 + w_2*DI_2 + \dots + w_n*DI_n \dots\dots\dots (6.4)$$

where: FCI = financial condition index; w = weight of dimension index; DI = dimension index; n = number of dimension

The results of the financial condition index for municipal local government and district local governments from 2007 to 2010 can be found in Appendix G and H. For the financial year 2010 the three highest ranked municipal local governments are Mojokerto, Madiun and Blitar, whereas the three lowest ranked are Serang, Cimahi and Bekasi. In the range between financial years 2007 and 2010, the municipal local governments which were consistently in the top ten ranks are Bogor, Kediri, Mojokerto and Pekalongan. On the other hand, the municipal local governments that remained in the lowest ten from financial years 2007 to 2010 are Yogyakarta, Cimahi, Bekasi, Tasikmalaya, Surakarta and Malang. The following tables present the highest ten (Table 6.22) and the lowest ten (Table 6.23) of the composite Financial Condition Index (FCI) of municipal local governments in Java from 2007 to 2010.

**Table 6.22: The highest 10 municipal local governments in Java from 2007 to 2010 for financial condition index (FCI)**

2007	FCI	2008	FCI	2009	FCI	2010	FCI
Kota Bogor	0.69	Kota Mojokerto	0.67	Kota Madiun	0.69	Kota Mojokerto	0.75
Kota Kediri	0.57	Kota Bogor	0.50	Kota Tangerang Selatan	0.65	Kota Madiun	0.59
Kota Banjar	0.56	Kota Salatiga	0.49	Kota Pekalongan	0.62	Kota Blitar	0.57
Kota Pasuruan	0.55	Kota Pekalongan	0.49	Kota Bogor	0.54	Kota Cilegon	0.55
Kota Blitar	0.52	Kota Pasuruan	0.48	Kota Tangerang	0.49	Kota Bandung	0.52
Kota Magelang	0.51	Kota Kediri	0.48	Kota Kediri	0.48	Kota Tangerang Selatan	0.52
Kota Salatiga	0.50	Kota Sukabumi	0.48	Kota Cilegon	0.47	Kota Bogor	0.52
Kota Surabaya	0.49	Kota Batu	0.45	Kota Mojokerto	0.46	Kota Magelang	0.51
Kota Mojokerto	0.49	Kota Madiun	0.45	Kota Bandung	0.45	Kota Kediri	0.50
Kota Pekalongan	0.48	Kota Probolinggo	0.43	Kota Probolinggo	0.43	Kota Pekalongan	0.49

**Table 6.23: The lowest 10 municipal local governments in Java from 2007 to 2010 for financial condition index (FCI)**

2007	FCI	2008	FCI	2009	FCI	2010	FCI
Kota Yogyakarta	0.39	Kota Bandung	0.31	Kota Depok	0.32	Kota Pasuruan	0.40
Kota Tegal	0.38	Kota Bekasi	0.31	Kota Yogyakarta	0.32	Kota Yogyakarta	0.38
Kota Cilegon	0.37	Kota Yogyakarta	0.29	Kota Tegal	0.32	Kota Tasikmalaya	0.38
Kota Semarang	0.37	Kota Malang	0.29	Kota Bekasi	0.30	Kota Surakarta	0.33
Kota Cimahi	0.31	Kota Cirebon	0.29	Kota Tasikmalaya	0.29	Kota Malang	0.32
Kota Bekasi	0.31	Kota Semarang	0.29	Kota Cirebon	0.29	Kota Cirebon	0.32
Kota Surakarta	0.30	Kota Tegal	0.28	Kota Cimahi	0.28	Kota Semarang	0.30
Kota Depok	0.28	Kota Surakarta	0.26	Kota Malang	0.26	Kota Bekasi	0.28
Kota Malang	0.26	Kota Tasikmalaya	0.25	Kota Serang	0.25	Kota Cimahi	0.25
Kota Tasikmalaya	0.23	Kota Cimahi	0.23	Kota Surakarta	0.24	Kota Serang	0.23

In the group of district local governments, the best three for the financial year 2010 are Bekasi, Sampang and Demak consecutively, while the local governments of Grobogan, Ngawi and Garut are the three lowest ranks. Looking at the four-year trend from 2007 to 2010, local governments that were always in the ten highest ranks are Bekasi, Tangerang and Bogor. On the other hand, the local governments of Ngawi,

Garut and Grobogan consistently remained in the ten lowest ranks. The following tables present the highest ten (Table 6.24) and the lowest ten (Table 6.25) of the composite financial condition index of district local governments in Java from 2007 to 2010.

**Table 6.24: The highest 10 district local governments in Java from 2007 to 2010 for financial condition index (FCI)**

2007	FCI	2008	FCI	2009	FCI	2010	FCI
Kabupaten Pati	0.70	Kabupaten Bekasi	0.85	Kabupaten Bekasi	0.84	Kabupaten Bekasi	0.76
Kabupaten Bekasi	0.58	Kabupaten Bangkalan	0.73	Kabupaten Bangkalan	0.68	Kabupaten Sampang	0.71
Kabupaten Gresik	0.58	Kabupaten Pati	0.73	Kabupaten Pati	0.68	Kabupaten Demak	0.70
Kabupaten Tangerang	0.57	Kabupaten Bandung Barat	0.62	Kabupaten Tangerang	0.61	Kabupaten Sidoarjo	0.60
Kabupaten Jepara	0.57	Kabupaten Gresik	0.60	Kabupaten Sidoarjo	0.60	Kabupaten Bogor	0.58
Kabupaten Serang	0.56	Kabupaten Serang	0.60	Kabupaten Bogor	0.58	Kabupaten Jepara	0.52
Kabupaten Bogor	0.56	Kabupaten Bogor	0.59	Kabupaten Serang	0.57	Kabupaten Tangerang	0.50
Kabupaten Bandung	0.55	Kabupaten Tangerang	0.58	Kabupaten Gresik	0.55	Kabupaten Banjarnegara	0.50
Kabupaten Banjarnegara	0.52	Kabupaten Jepara	0.57	Kabupaten Sukabumi	0.53	Kabupaten Jombang	0.50
Kabupaten Sampang	0.52	Kabupaten Sampang	0.56	Kabupaten Banjarnegara	0.52	Kabupaten Bangkalan	0.49

**Table 6.25: The lowest 10 district local governments in Java from 2007 to 2010 for financial condition index (FCI)**

2007	FCI	2008	FCI	2009	FCI	2010	FCI
Kabupaten Jember	0.34	Kabupaten Ponorogo	0.36	Kabupaten Bojonegoro	0.33	Kabupaten Semarang	0.29
Kabupaten Sukoharjo	0.34	Kabupaten Ngawi	0.35	Kabupaten Kulon Progo	0.32	Kabupaten Tasikmalaya	0.29
Kabupaten Cianjur	0.33	Kabupaten Ciamis	0.35	Kabupaten Mojokerto	0.32	Kabupaten Pekalongan	0.28
Kabupaten Brebes	0.31	Kabupaten Garut	0.35	Kabupaten Garut	0.31	Kabupaten Kediri	0.28
Kabupaten Kuningan	0.30	Kabupaten Kuningan	0.34	Kabupaten Ponorogo	0.31	Kabupaten Pemalang	0.28
Kabupaten Grobogan	0.30	Kabupaten Purwakarta	0.34	Kabupaten Ciamis	0.30	Kabupaten Purwakarta	0.28
Kabupaten Ciamis	0.30	Kabupaten Karanganyar	0.33	Kabupaten Grobogan	0.29	Kabupaten Sumedang	0.26
Kabupaten Garut	0.29	Kabupaten Cianjur	0.33	Kabupaten Wonogiri	0.29	Kabupaten Grobogan	0.26
Kabupaten Ngawi	0.27	Kabupaten Pandeglang	0.32	Kabupaten Blora	0.29	Kabupaten Ngawi	0.25
Kabupaten Pandeglang	0.19	Kabupaten Grobogan	0.32	Kabupaten Ngawi	0.27	Kabupaten Garut	0.21

## 6.6 Analysing the validity of the measure

This study utilises predictive, convergent and concurrent validities to assess the validity of the measure. In the following section, those three types of validity will be discussed.

### 6.6.1 Analysing predictive validity

In the predictive validity approach, a measure is considered valid if the measure has a relationship with the factors that are believed to be associated with it. It is believed that the financial condition of local governments is associated with socioeconomic factors (Wang et al., 2007; Zafra-Gomez et al., 2009). Socioeconomic factors include population size, population per capita, gross domestic product (GDP), either GDP at current price or GDP at constant price, and GDP per capita. The socioeconomic data were obtained from the Central Bureau of Statistics of the Republic of Indonesia ranging from 2007 to 2010.

The analysis of predictive validity was performed by looking at the correlations between the financial condition indexes of district local governments and the socioeconomic factors. There were 329 observations available from 2007 to 2010. The results of the examination are shown in Table 6.26 below.

**Table 6.26: Correlation between financial condition of local government and socioeconomic factors**

Associated factors	Number of observations	Pearson coefficient of correlation	Significance (2-tailed)
Population size	329	0.259**	0.000
Population density	329	0.301**	0.000
GDP at current price	329	0.367**	0.000
GDP at constant price (2000)	329	0.432**	0.000
GDP per capita	329	0.224**	0.000

**Notes:** \*\*Correlation is significant at the 0.01 level (2-tailed)

Based on Table 6.26 above, all socioeconomic factors are significantly correlated with the financial condition of local government because the p-values are less than 5%. All of the associations are positive, meaning that the larger the value of the socioeconomic factors, the better the financial condition index. The strongest association is the relationship between GDP at constant price and financial condition, which has a coefficient correlation of 43.2%, whereas the weakest association is between GDP per capita and financial condition, which has a coefficient correlation of 22.4%. Based on these findings, it is concluded that the measure of financial condition developed in this study meets the attribute of predictive validity.

### **6.6.2 Analysing convergent validity**

In the convergent validity approach, a measure is considered valid if the measure is interrelated with the factors that are theoretically supposed to be interrelated with it (Sekaran & Bougie, 2010). This current study argues that the financial condition of local governments is interrelated with the level of financial distress, which means the better the financial condition, the less local government financial distress. To measure the level of local government financial distress, the study used a ratio as follows:

$$\text{Financial distress} = (\text{Total revenues} - \text{operating expenditures}) / \text{Total revenues} \dots (6.5)$$

A higher ratio means a lesser level of local government financial distress. A large difference between revenues and operating expenditures means that a local government has more money to fund its non-mandatory activities. This condition reflects that the local government experiences less financial distress. On the other hand, a local government experiences a higher level of financial distress if it has a smaller difference between revenues and operating expenditures. Therefore, the expected relationship between the financial condition index and the ratio of financial distress is positive.

The analysis of convergent validity was performed by looking at the correlations between the financial condition indexes of district local governments and the degree of financial distress. There were 329 observations available from 2007 to 2010. The results of the examination report that there was a significant correlation between financial condition and the degree of financial distress because the p-value, 0.000, is smaller than 0.05. The association is positive, 0.329, meaning that the higher the score of the financial condition index (i.e. the better the financial condition), the higher the ratio of financial distress (i.e. the less financial distress). This result is parallel with the expected relationship. Based on these findings, it is concluded that the instrument of financial condition developed in this current study fulfils the attribute of convergent validity.

### **6.6.3 Analysing concurrent validity (distinctive capability)**

In the concurrent validity approach, a measure is valid if it has the capability to differentiate clusters that it is supposed to be theoretically capable of differentiating between (Trochim, 2006). A good measure should have the capability to distinguish well among the local governments evaluated (Kloha et al., 2005a). Analysis of distinctive capability was developed based on the results of convergent validity discussed in the previous sections, which show that there is a correlation between financial distress and the financial condition index. The steps taken in the analysis of concurrent validity were as follows.

1. Rank local governments based on financial condition index scores.
2. Group local governments into three groups. Group 1 consists of local governments that have financial condition index scores less than 1 standard deviation, group 2 consists of local governments that have financial condition index scores between minus 1 and plus 1 standard deviation, and group 3 consists of local governments

that have financial condition index scores more than 1 standard deviation.<sup>17</sup> This division is based on the area of normal distribution, which looks like a bell.<sup>18</sup> In the normal distribution area, the area of plus and minus 1 standard deviation covers 67% of the population, the area of more than plus 1 standard deviation is 16.5% of the population and the area of less than minus 1 standard deviation is 16.5% of the population.

3. Analyse the mean difference of the levels of financial distress among the three groups using the one-way ANOVA test. The results of the ANOVA test are shown in Table 6.27.

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<sup>17</sup> To reduce type I error, which is when someone deduces that a local government is in good condition although in fact it is not, one could modify the division of groups, for example, stating that the group in good financial condition lies in an area of more than 1.5 standard deviations, rather than 1 standard deviation.

<sup>18</sup> The normality test using Kolmogorov-Smirnov test shows that the data of financial condition index is normally distributed. The p-value is 0.506 at 5% significant level (2-tailed).

**Table 6.27: Results of ANOVA tests for analysis of distinctive capabilities**

**Test of homogeneity of variances**

Levene Statistic	df1	df2	Sig.
2.240	2	326	0.108

**ANOVA**

	Sum of squares	Df	Mean square	F	Sig.
Between Groups	0.224	2	0.112	23.897	0.000
Within Groups	1.525	326	0.005		
Total	1.748	328			

**Multiple comparisons**

(I) factor	(J) factor	Mean difference (I-J)	Std. Error	Sig.	95% confidence interval	
					Lower bound	Upper bound
1.00	2.00	-0.06277*	0.01180	0.000	-0.0860	-0.0396
	3.00	-0.10164*	0.01481	0.000	-0.1308	-0.0725
2.00	1.00	0.06277*	0.01180	0.000	0.0396	0.0860
	3.00	-0.03887*	0.01090	0.000	-0.0603	-0.0174
3.00	1.00	0.10164*	0.01481	0.000	0.0725	0.1308
	2.00	0.03887*	0.01090	0.000	0.0174	0.0603

**Notes:** \*The mean difference is significant at the 0.05 level.

The results of the test of homogeneity of variance show that the three groups have equal variance because the p-value of Levene Statistic is 0.108, which is more than 0.05. Results of the ANOVA test show that the p-value is 0.000, which is less than 0.05. This statistic means that the three groups of local government have significantly different means of financial distress. Furthermore, looking at the multiple comparison table, the mean of the financial distress of group 3 (good financial condition) is significantly higher (i.e. the p-value is less than 0.05) than that of group 2 (average

financial condition) and the mean of the financial distress of group 2 is significantly higher than that of group 1 (poor financial condition). Based on these findings, it is concluded that the measure of financial condition developed in this study has distinctive capability.

### **6.7 Determining the cut-offs of the levels of financial condition**

The cut-offs of the levels of financial condition were determined based on the results of concurrent validity. This study differentiates financial condition into three groups, which are: good financial condition; average financial condition; and poor financial condition. The grouping is based on the characteristic of normal distribution area, which has a shape like a bell. Local governments are classified as “good financial condition” if their financial condition index score is more than positive 1 standard deviation. Local governments with financial condition index scores located between a range of positive 1 standard deviation to minus 1 standard deviation are grouped as “average financial condition”. Finally, local governments that have financial condition index scores less than minus one standard deviation are labelled “poor financial condition”.

Based on the results of the ANOVA test in the concurrent validity analysis in the previous section, which show that the financial condition index score can distinguish well the level of financial distress among groups of local government, the cut-off scores of the financial condition index to differentiate the levels of financial condition were determined.

To determine the cut-off scores, first the researcher looked at the financial condition index scores of local governments lying on the borders between groups of local governments, which are the borders between the group of good financial condition (i.e. z score-FCI more than 1) and the group of average financial condition (i.e. z

score-FCI between  $-1$  to  $1$ ); and the border between the group of average financial condition and the group of poor financial condition (i.e. z score-FCI less than  $-1$ ). Table 6.28 below shows the financial condition index scores and z-scores of financial condition index for local governments on the borders.

**Table 6.28: FCI and z-scores of FCI on borders of groups of good, average and poor financial condition**

<b>Rank</b>	<b>Name of district local government</b>	<b>FCI</b>	<b>Z-FCI</b>
1	Kabupaten AAA	0.190797	-2.36387
...	Kabupaten ...	...	...
39	Kabupaten BBB	0.32329	-1.00126
40	Kabupaten CCC	0.323707	-0.99697
...	...	...	...
247	Kabupaten DDD	0.51774	1
248	Kabupaten EEE	0.519136	1.01437
...	...	...	...
329	Kabupaten FFF	0.520528	1.02869

The cut-off point between the group of poor financial condition and the group of average financial condition is the financial condition index score of the local government in the lowest rank of the group of average. The local government of Kabupaten CCC has the lowest rank in the group of “average financial condition” with a financial condition index score of 0.323707, which lies just above minus 1 standard deviation. Therefore, the cut-off point between the group of poor financial condition and the group of average financial condition is the financial condition index score of 0.323707. As a result, local governments with a financial condition index scores below 0.323707 are grouped into poor financial condition and local governments with financial condition index scores of 0.323707 or above are put into average financial condition.

The same process was taken to determine the cut-off point between the group of average financial condition and the group of good financial condition. The cut-off

point between the group of average financial condition and the group of good financial condition is the financial condition index score of the local government in the highest rank of the group of average. The local government of Kabupaten DDD has the highest rank in the group of average financial condition with a financial condition index score of 0.51774, which lies exactly on plus 1 standard deviation. Therefore, the cut-off point between the group of average financial condition and the group of good financial condition is the financial condition index score of 0.51774. As a result, local governments with financial condition index scores of 0.51774 or lower are grouped into average financial condition and local governments with financial condition index scores higher than 0.51774 are grouped into good financial condition. Table 6.29 shows the cut-off scores of local government financial condition.

**Table 6.29: Cut-off scores of local government financial condition**

<b>Level of financial condition</b>	<b>FCI score</b>
Good financial condition	Higher than 0.51774
Average financial condition	Between 0.323707 and 0.51774
Poor financial condition	Less than 0.323707

The cut-off scores of financial condition provided in Table 6.29 could serve as an early-warning system. These cut-off scores could help local governments to recognise problems before the problems become as serious as financial crises (Kloha et al., 2005a; 2005b).

Importantly, the instrument works quite well in recognising local governments that have been categorised by this study as having poor financial condition. For example, in 2012, when the central government required local governments to use non-subsidised fuel, the secretary of the local government of Kabupaten Kulonprogo (i.e.

classified as poor financial condition) stated that the district local government could not follow the policy of the central government due to the inadequate local budget (*Harian Tribun Jogja*, 5 April 2012, p.1) and if the district followed the policy it would reduce the services provided to the community (*Harian Tribun Jogja*, 24 July 2012, p.12). On the other hand, the district of Sleman (i.e. classified as average financial condition) reported that it could immediately implement the central government policy (*Harian Tribun Jogja*, 5 April 2012, p.1).

However, there is the possibility that the cut-off points above face type I<sup>19</sup> or type II<sup>20</sup> errors. A type I error is frequently regarded to be more critical and consequently more significant to avert than a type II error. In this case, a type I error would occur when it is concluded that the cut-off point of 0.51774 differentiated between the group with good financial condition and the group with average financial condition; and that the cut-off point of 0.323707 differentiated between the group with average financial condition and the group with poor financial condition, but in fact there was no difference among these groups. It is argued that the cost of a type I error is bigger than the cost of a type II error. For example, a local government, when it is concluded to be in better financial condition although in fact it is not, probably will find it easier to raise funds by issuing bonds with a low interest rate. This happens because investors trust in its good financial condition (although in fact it is not). When the bond matures and the local government fails to pay the principal of the bonds due to its poor financial condition (i.e. the real condition), so the amount of the cost of the type I error is as much as the amount of the bond principal, which is lost. On the other hand, the amount of the cost of a type II error (i.e. it is concluded that a local government has a bad financial condition although in fact it is not) is less than the cost of a type I error because the cost of a type II error is as much as the difference of

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<sup>19</sup> Type I errors occur when a local government is concluded as financially healthy although in reality it is not healthy.

<sup>20</sup> Type II errors take place when a local government is declared financially poor when in fact it is not poor.

the coupons that the local government has to pay. In this situation, the local government has to pay a higher coupon rate than it should.

To avoid such errors, one could change the cut-off points as follows:

1. increase the cut off point between the groups of good and average financial condition from 0.51774; and
2. increase the cut-off point between the groups of average and poor financial condition from 0.323707.

## **6.8 Conclusion**

Based on the descriptive statistics that summarise and describe the observed data from 2007 to 2010, it can be concluded that local government:

1. have strong, even excessive, short-term solvency, as the median values of the ratios comprising it range from 29.41 times to 38.55 times
2. have strong long-term solvency, as every one rupiah of debt is guaranteed by at least 21,989.55 rupiahs
3. have adequate budgetary solvency, as the median values of the indicators comprising it are equal to or more than 1
4. have weak financial independence, as only around 8.5% of local government revenues are under their control
5. have sufficient capabilities to anticipate unexpected events, as local government has a debt service coverage ratio of at least 69 times; and
6. are experiencing an improvement in delivering services to the community, as indicated by the increasing trend of the ratios of service-level solvency.

The instrument constructed in this current study to measure the financial condition of local government is reliable and valid. The reliability analysis of the indicators forming the dimensions of financial condition shows which indicators are accepted or

rejected to form a dimension. An indicator is accepted if it has a significant association with other variables. Based on reliability analysis using the Pearson, Spearman rho and Kendall tau correlation tests, there is only one ratio that is not reliable, namely Ratio C of the long-term solvency dimension (i.e. Ratio C = Investment equities / Total assets). The rest of the indicators are reliable. The reliable indicators forming the dimensions of financial condition are shown in Table 6.30.

**Table 6.30: List of reliable indicators forming financial condition of local government**

<b>Dimensions</b>	<b>Indicators</b>
Short-term solvency	1. (Cash and cash equivalent + short-term investment) / Current liabilities 2. (Cash and cash equivalent + short-term investment + account receivables) / Current liabilities 3. Currents assets / Current liabilities
Long-term solvency	1. Long-term liabilities / Total assets 2. Long-term liabilities / Investment equities
Budgetary solvency	1. (Total revenue – special allocation fund revenue) / (Total expenditure – capital expenditure) 2. (Total revenue – special allocation fund revenue) / Operational expenditure 3. (Total revenue – special allocation fund revenue) / Employee expenditure 4. Total revenue / Total expenditure
Financial flexibility	1. (Total revenue – special allocation fund revenue – employee expenditures) / (Repayments of loan principal + interest expenditure) 2. (Total revenue – special allocation fund revenue – employee expenditure) / Total liabilities 3. (Total revenue – special allocation fund revenue – employee expenditures) / Long-term liabilities 4. (Total revenue – special allocation fund revenue) / Total liabilities
Financial independence	1. Total own revenues / Total revenues 2. Total own revenues / Total expenditures
Service-level solvency	1. Total equities / Population size 2. Total assets / Population size 3. Total expenditures / Population size

Based on the Cronbach alpha test, which gives a coefficient of 0.83, it can be concluded that all ratios in Table 6.30 above indicate internal consistency (i.e. are reliable) to measure the same construct (i.e. financial condition of local government).

Therefore it can be claimed that the indicators and dimensions developed in this study are a reliable instrument to measure the financial condition of local government.

Based on the validity analysis, the measure developed in this study is valid. The measure meets three types of validity: predictive validity, convergent validity and concurrent validity. In addition, the measure has the capability to distinguish three levels of local government financial condition, namely good, average and poor financial condition.

Finally, this chapter finds that the stakeholders of local government in Indonesia perceive the dimensions of long-term solvency and short-term solvency to be the two most important dimensions; and the dimension of service-level solvency is considered the least important of the elements of financial condition. These facts indicate that the stakeholders tend to have short-term horizons rather than long-term horizons in managing local government finance.

# **CHAPTER 7**

## **ANALYSING FACTORS AFFECTING THE FINANCIAL CONDITION OF LOCAL GOVERNMENT**

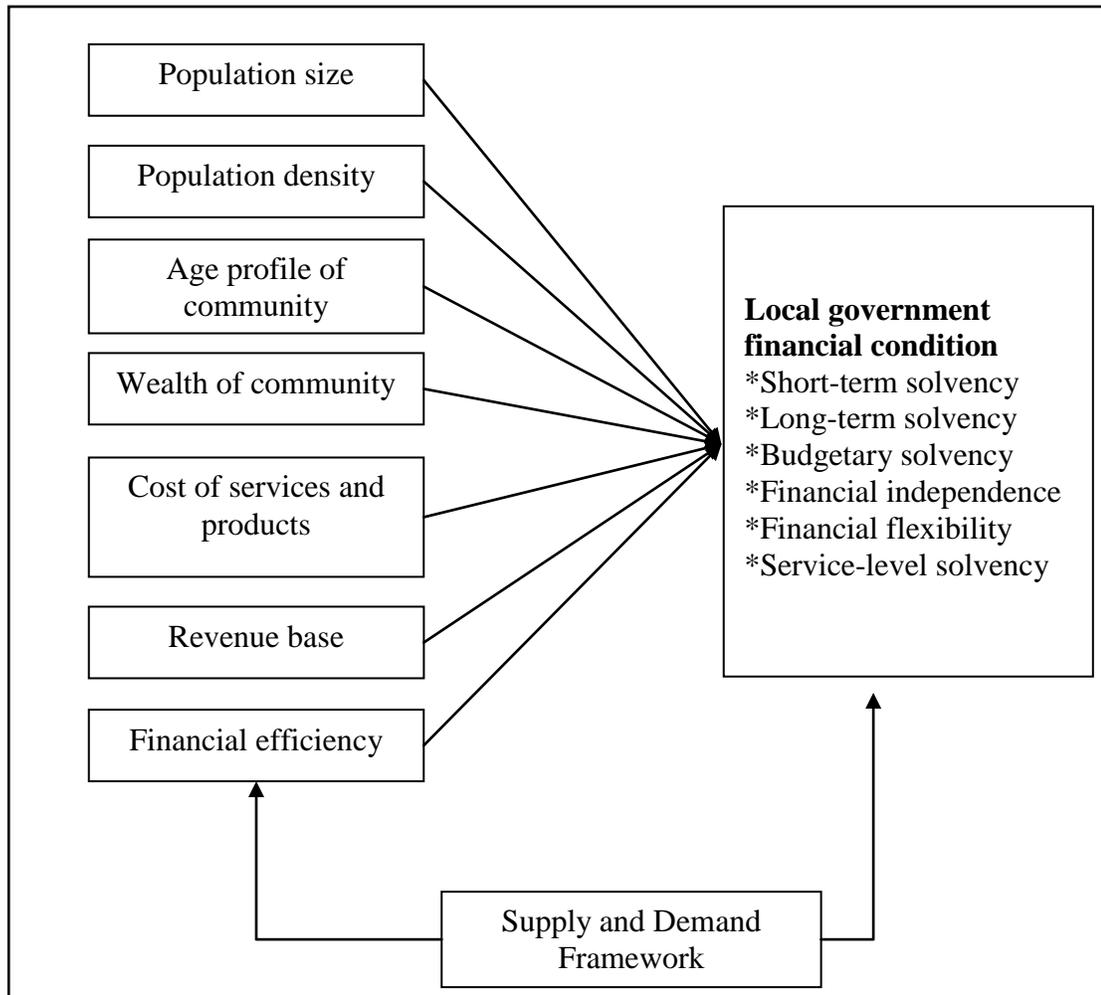
### **7.1 Introduction**

Chapter 6 has discussed the process to construct an instrument for measuring local government financial condition. This chapter will analyse the factors affecting the financial condition of local government. There are four main topics discussed in this chapter. The first section will review the conceptual framework to develop the regression model, followed by explanation about the data and length of observation period. The next sections discuss the results of the multivariate regression analysis and assumptions underlying the multivariate regression model. The final section will provide conclusions based on the findings. The discussion of the results of the multiple regression analysis will be discussed in Chapter 8.

### **7.2 Regression model**

As has been explained in Chapter 4, the conceptual framework to determine the factors affecting financial condition of local government is shown in Figure 7.1.

**Figure 7.1: Conceptual framework of factors affecting local government financial condition**



Referring to Figure 7.1, the regression equation developed in this study is as follows:

$$FCI = \alpha + \beta_1 Pop + \beta_2 AP + \beta_3 CW + \beta_4 PD + \beta_5 CSG + \beta_6 FE + \beta_7 RB + \varepsilon \dots \dots \dots (7.1)$$

where:

FCI = financial condition index;  $\alpha$  = overall intercept term;  $\beta_1$  to  $\beta_7$  = regression coefficients; Pop = population size; AP = age profile of community; CW = wealth of

community; PD = population density; CSG = cost of services and goods; FE = financial efficiency; RB = revenue base,  $\varepsilon$  = error term.

Although the dependent variable and each independent variable have been discussed in the previous chapters, each variable is briefly summarised in the following sections to remind the reader before proceeding.

### **7.2.1 Dependent variable**

The dependent variable is the financial condition index of local governments. The index is a composite index of the short-term solvency index, long-term solvency index, budgetary solvency index, service-level solvency index, financial flexibility index and financial independence index. The value of the financial condition index ranges from 0 to 1. A value of 0 indicates a minimum value and a value of 1 indicates the maximum value for the index; 1 meaning a perfect score for financial condition.

### **7.2.2 Independent variables**

#### **a. Population size**

Population size refers to the number of citizens who live in the territory of a local government in 2010 when the Bureau of Statistics Centre conducted the decennial census.

#### **b. Age profile of the community**

The age profile of the community refers to the composition of the population of working age and non-working age. This variable is measured by using the ratio of the sum of people under 18 years old and over 60 years old divided by population size. The formula is (people under 18 years old + people over 60 years old) / Population size.

**c. Wealth of the community**

The wealth of the community refers to the level of community prosperity in a local government. This variable is measured using the ratio of the percentage of people who live above the poverty line to the total population size of a local government.

**d. Revenue base of local government**

The revenue base of local government refers to the resources available from which a local government generates its revenues. This variable is measured by using gross domestic product at constant prices.

**e. Population density**

Population density refers to the number of people living in a square kilometre in a certain period. This variable is measured by population size divided by jurisdiction area in square kilometres.

**e. Cost of services and goods**

The cost of services and goods refers to the cost to produce the services and goods produced by local government. The cost of wage and salaries is the major cost of producing services and goods by local government (Hyman, 1990). Therefore, this variable is measured by using the minimum regional wage.

**f. Local government financial efficiency**

Local government financial efficiency refers to the level of efficiency of local government in delivering services and goods to the community. This variable is measured by using a ratio of total expenditures to employee expenditures.

### **7.3 Data and observation period**

To determine the factors affecting the financial condition of local government, the current study used secondary data. The data for population size, population density and gross domestic product per capita were sourced from the Central Bureau of Statistics, the Ministry of Home Affairs and the Ministry of Finance. Data related to finance were sourced from local government audited financial statements.

In order to achieve homogeneity so that comparability was maximised, this study used the financial statements of district local governments in Java as the sample. District local governments in Java are relatively homogenous in environment, socioeconomic factors, culture and infrastructure. Besides that, the sample numbers of those local governments in Java (83 district local governments) are considered adequate from a statistical perspective.

The length of observation period was one year, which was the financial year 2010. The reason to use 2010 is that, in that year, the Central Bureau of Statistics conducted a census of the population. Thus, the data on population size, population density and age profile of the population, three factors that are examined, are reliable. Data used to estimate the regression model are provided in Appendix I.

### **7.4 Descriptive statistics**

Table 7.1 below shows descriptive statistics of data that are used to analyse factors affecting the financial condition of local government.

**Table 7.1: Descriptive statistics of data used in multivariate regression analysis**

		financial conditio n index	population	revenue base	population density	cost of goods sold	financial efficiency	age profile	community wealth
N	Valid	83	83	83	83	83	83	83	83
	Missing	0	0	0	0	0	0	0	0
Mean		.3921	1,270,742.25	7,451,698,795,180.72	973.31	796,987.07	1.5794	.5069	83.19
Median		.3816	1,096,244.00	5,256,000,000,000.00	845.81	746,400.00	1.5497	.5062	83.98
Std. Deviation		.09986	680,789.31	7,879,605,311,916.57	514.57	133487.48	.18528	.02181	5.48
Skewness		1.346	2.352	3.574	1.820	1.100	1.353	.334	-.400
Std. Error of Skewness		.264	.264	.264	.264	.264	.264	.264	.264
Kurtosis		2.827	8.120	16.714	4.055	.311	2.429	.079	.063
Std. Error of Kurtosis		.523	.523	.523	.523	.523	.523	.523	.523
Minimum		.21	388,869	1,548,000,000,000	269.11	630,000	1.27	.46	68.51
Maximum		.76	4,771,932	54,989,000,000,000	3060.46	1,168,974	2.21	.57	94.20

### **Financial condition index**

The highest value for financial condition index is 0.76 for Kabupaten Bekasi and the lowest value is 0.21 for Kabupaten Garut. Data of variable financial condition index are not normally distributed, as indicated by the values of skewness of 1.346 and the value of kurtosis of 2.827. The data are considered normally distributed if they have skewness of 0 and kurtosis of 3. Therefore, the median is a better statistic to represent the population. The median of variable financial condition index is 0.3816.

### **Population**

The smallest population is Kabupaten Kulonprogo with 388,869 people, while Kabupaten Bogor has the largest population with 4,771,932 people. Data of variable population are not normally distributed, as indicated by the values of skewness of 2.352 and the values of kurtosis of 8.120. Therefore, the median is a better statistic to represent the population. The median of variable population is 1,096,244.

### **Revenue Base**

Kabupaten Bekasi has the largest revenue base, which is Rp54,989,000,000,000. On the other hand, Kabupaten Pacitan is the local government with smallest revenue base, which is Rp1,548,000,000,000. Data of variable revenue base are not normally distributed, as indicated by the values of skewness of 3.574 and the values of kurtosis of 16.714. Therefore, the median is a better statistic to represent the population. The median of variable revenue base is Rp5,256,000,000,000.

### **Population Density**

Local government with the densest population is Kabupaten Sidoarjo with 3,060.46 people per square kilometre, while Kabupaten Banyuwangi is the least dense with 269.11 people per square kilometre. Data of variable population density are not normally distributed, as indicated by the values of skewness of 1.820 and the values of kurtosis of 4.055. Therefore, the median is a better statistic to represent the

population. The median of variable population density is 845.81 people per square kilometre.

### **Cost of goods sold**

Local government with the most expensive cost of goods sold is Kabupaten Bekasi with cost of Rp1,168,974 while Kabupaten Pacitan is the local government with the cheapest cost of goods sold (i.e. Rp630,000). Data of variable cost of goods sold are not normally distributed, as indicated by the values of skewness of 1.100 and the values of kurtosis 0.311. Therefore, the median is a better statistic to represent the population. The median of variable cost of goods sold is Rp746,400.

### **Financial Efficiency**

Kabupaten Bogor has the highest level of financial efficiency with ratio of 2.21 and Kabupaten Klaten has the lowest level of financial efficiency with ratio of 1.27. Data of variable financial efficiency are not normally distributed, as indicated by the values of skewness of 1.353 and the values of kurtosis of 2.429. Therefore, the median is a better statistic to represent the population. The median of variable financial efficiency is 1.5497.

### **Age Profile**

Kabupaten Garut is the local government with the lowest portion of non-working age, which is 46%, while Kabupaten Sidoarjo has the highest portion of non-working age (i.e. 57%). Data of variable age profile are not normally distributed, as indicated by the values of skewness of 0.334 and the values of kurtosis of 0.079. Therefore, the median is a better statistic to represent the population. The median of variable age profile is 50.62%.

## Community Wealth

The local government with the most prosperous community is Kabupaten Serang with 94.20% of its people live above the poverty line. On the other hand, Kabupaten Sampang is the least prosperous community with 68.51% of its people live above the poverty line. Data of variable community wealth are not normally distributed, as indicated by the values of skewness of -.400 and the values of kurtosis of 0.063. Therefore, the median is a better statistic to represent the population. The median of variable community wealth is 83.98%.

## 7.5 Results of multivariate regression analysis

The following sections discuss the results of the multivariate regression analysis. There are three main results that will be analysed: model summary; F-test; and significance testing. As in Dennis's (2004) study, this study uses a 10-percent level of statistical significance because of the exploratory nature of this study and its potential impact on future research pertaining to the emerging study of the financial condition of local government, especially in Indonesia. In addition, one-tailed p-values are used to test the hypotheses.

### 7.5.1 Model summary

Table 7.2 provides information about the model summary.

**Table 7.2: Model summary of factors affecting financial condition**

Adjusted R square	Std. error of the estimate	Durbin-Watson
0.389	0.07807	2.275

a Predictors: (constant) community wealth, age profile, population size, population density, cost of goods sold, financial efficiency, revenue base.

b Dependent variable: financial condition index.

The adjusted R-square values summarise the model's ability to explain the sample by assessing the joint effect of a set of variables (De Vaus, 2002). The higher the

adjusted R-square, the more powerful is the model. From the model summary presented in Table 7.2 above, the adjusted R-square is 0.389, which can be interpreted that the seven explanatory variables together in the model explain 38.9% percent of the variation in the financial condition of local government. This fact suggests that the financial condition of local government is a complex phenomenon. Therefore, more than 60% of the variation in the financial condition is explained by unknown variables. In addition, this situation suggests that using a framework of supply and demand potentially limited an investigation of the full range of factors that might affect the financial condition of local governments. Such a low adjusted R-square is in line with Carmeli's statement. Carmeli (2003) stated that researchers know little about the dynamics that create local government financial condition.

### 7.5.2 F-test

The F-test is used to test the significance of the regression model as a whole. In other words, the significant F-value tells us whether the R-square is greater than zero because of sampling error. The null hypothesis of the F-test is that there is no linear relationship of the dependent variable to the independent variables, or all regression coefficients are jointly equal to 0. The results of the F-test are shown in Table 7.3.

**Table 7.3: F-test of factors affecting financial condition**

ANOVA <sup>a</sup>					
	Sum of squares	Df	Mean square	F	Significant
Regression	0.360	7	0.051	8.448	0.000 <sup>b</sup>
Residual	0.457	75	0.006		
Total	0.818	82			

a. Dependent variable: financial condition index

b. Predictors: (constant), community wealth, age profile, population size, population density, cost of goods sold, financial efficiency, revenue base

According to Table 7.3 above, the F-value is 8.448 and the p-value of F is 0.000, smaller than 0.05. As a consequence, the null hypothesis of no linear relationship is rejected. Therefore it can be concluded that the regression model as a whole is significant at the 0.000 level.

### 7.5.3 Significance testing of parameters

The t-test is used to examine the significance of individual coefficients. The null hypothesis of the t-test is that the regression coefficient of an independent variable is zero when the other predictors are present in the model. The unstandardised coefficients and direction of relationship of the individual variables were analysed using a statistical significance of 10%. Table 7.4 below provides information about the coefficient of each independent variable, t-statistics and p-values.

**Table 7.4: T-test of factors affecting financial condition**

	Coefficients <sup>a</sup>			T	Sig.
	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta		
(Constant)	0.335	0.272		1.231	0.222
population size	-4.89E-08	0.000	-0.333	-2.239	0.028
revenue base	5.184E-15	0.000	0.409	2.663	0.009
population density	2.048E-05	0.000	0.106	0.962	0.339
cost of goods sold	-1.62E-07	0.000	-0.217	-1.771	0.081
financial efficiency	0.356	0.074	0.661	4.813	0.000
age profile	-0.280	0.533	-0.061	-0.525	0.601
community wealth	-0.003	0.002	-0.153	-1.480	0.143

a. Dependent variable: financial condition index

Based on the coefficients in Table 7.3 above, the regression equation is:

$$FCI = 0.335 - 4.89E-08POP - 0.28AP + 5.184E-15RB + 2.048E-05PD + 0.356FE - 1.62E-07CSG - 0.003CW + \epsilon$$

**Population size coefficient (–4.89E-08POP)**

The estimate for population size is  $-4.89E-08POP$  and its p-value is 0.028. This significant value means that there is only 2.8% chance that the coefficient of  $-4.89E-08$  is due to sampling error. Thus, the p-value indicates that the population size is statistically significant at the 5% level in explaining the financial condition of local government in the presence of the other variables. The negative sign means that an increase in the population will cause the financial condition of a local government to worsen. Further interpretation is as follows: when the coefficient of population size is estimated to be  $-4.89E-08$ , the increase of population size by one unit will lead to a decrease in the financial condition index by  $-4.89E-08$ , assuming that other variables are held fixed. This finding is consistent with the hypothesis.

**Age profile of community coefficient (–0.28AP)**

The estimate for the age profile of community is negative and not significant because the p-value is 0.601, which is more than 0.10. The negative direction is consistent with the hypothesis. The insignificant value means that there is 60.1% chance that the coefficient of  $-0.28$  is due to sampling error. Because the chance of the result being produced by sampling error is too high (i.e. more than 10%), therefore it can be concluded that statistically the age profile of community is not significant in explaining the financial condition of local government in the presence of the other variables. In other words, statistically, the age profile of community has no predictive capability. This finding is not consistent with the hypothesis.

**Population density coefficient (2.048E-05PD)**

The estimate for density is positive and not significant because the p-value is 0.339, which is more than 0.10. The positive direction is consistent with the hypothesis. The insignificant value means that there is 33.9% chance that the coefficient of  $2.048E-05PD$  is due to sampling error. Because the chance of the result being produced by sampling error is too high (i.e. more than 10%), it can be concluded that population

density is not statistically significant in explaining the financial condition of local government in the presence of the other variables. In other words, statistically, population density has no predictive capability. This finding is not consistent with the hypothesis.

**Revenue base coefficient (5.184E-15RB)**

The estimate for the revenue base is 5.184E-15 and its p-value is 0.009. This significant value means that there is only 0.9% chance that the coefficient of 5.184E-15 is due to sampling error. Thus, the p-value indicates that the revenue base is statistically significant at the 1% level in explaining the financial condition of local government in the presence of the other variables. The positive sign means that an increase in the level of the revenue base will cause the financial condition of a local government to improve. Further explanation is as follows: when the coefficient of the revenue base is estimated to be 5.184E-15, the increase in revenue base by one unit will lead to a financial condition index increase of 5.184E-15, assuming that other variables are held fixed. This finding is consistent with the hypothesis.

**Financial efficiency coefficient (0.356FE)**

The estimate for financial efficiency is 0.356 and its p-value is 0.00. This significant value means that there is 0% chance that the coefficient of 0.356 is due to sampling error. Thus, the p-value indicates that financial efficiency is statistically significant at the 1% level in explaining the financial condition of local government in the presence of other variables. The positive sign means that better financial efficiency leads to strengthening the financial condition of local government. Further explanation is as follows: when the coefficient of financial efficiency is estimated to be 0.356, the increase of financial efficiency by one unit will lead to a financial condition index increase of 0.356, assuming that other variables are held fixed. This finding is consistent with the hypothesis.

### **Cost of production coefficient ( $-1.62E-07$ CSG)**

The estimate for the cost of production is  $-1.62E-07$  and its p-value is 0.081. The p-value indicates that there is 8.1% chance that the coefficient of  $-1.62E-07$  is due to sampling error. Thus, the p-value shows that the cost of production is statistically significant at the 10% level in explaining financial condition in the presence of the other variables. The negative sign means that an increase of the cost of production of services and goods produced by a local government leads to a worsening financial condition. Further explanation is as follows: when the coefficient of the cost of production of services and goods is estimated to be  $-1.62E-07$ , the increase of cost of production by one unit will lead to a financial condition index decrease of  $-1.62E-07$ , assuming that other variables are held fixed. This finding is consistent with the hypothesis.

### **Wealth of community coefficient ( $-0.003$ CW)**

The estimate for community wealth is negative and not significant because the p-value is 0.143, which is more than 0.10. The negative direction is consistent with the hypothesis. The insignificant value means that there is a 14.3% chance that the coefficient of  $-0.003$  is due to sampling error. Because the chance of the result being produced by sampling error is too high, it can be concluded that wealth of community is not statistically significant in explaining financial condition in the presence of the other variables. In other words, statistically, wealth of community has no predictive capability. This finding is not consistent with the hypothesis.

## **7.6 Tests of multivariate regression assumptions**

A multivariate regression model can be claimed as a good model if it fulfils the criteria of BLUE (Best Linear Unbiased Estimator). The BLUE criteria can be

achieved through the fulfilment of regression assumptions. Tests of regression assumptions are important because, if such assumptions are not met, the results and interpretation of regression analysis could be misleading. Osborne and Waters (2002) argue that the outcomes of regression might not be reliable if the underlying assumptions are not satisfied. Such a condition leads to a type I or type II error. This study tests five assumptions of the multivariate regression model: test of normality of residuals; test of homoscedasticity of residuals; test of multicollinearity; test of autocorrelation; and test of linearity.

### 7.6.1 Tests of normality of residuals

The common method used to determine whether a model has a normal distribution of residuals is by inspecting the histogram of residuals. If the histogram has the shape of a bell curve, then one could conclude that the residuals are normally distributed. The histogram of the residuals is shown in Figure 7.2.

**Figure 7.2: Histogram of residuals of factors affecting financial condition**

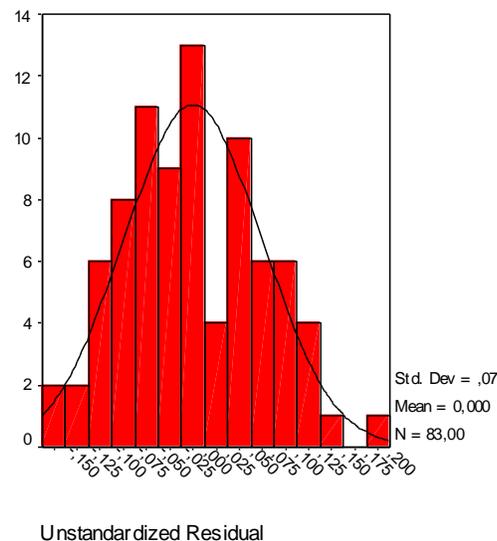


Figure 7.2 above shows that the histogram has the shape of a bell curve, so that it can be concluded that the residuals are normally distributed. Furthermore, the normality test can be done using a probability test, which is the Shapiro-Wilk test. Table 7.5 below shows the results of the Shapiro-Wilk test of normality.

**Table 7.5: Results of the Shapiro-Wilk test of normality**

	Tests of normality					
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Unstandardised residual	0.066	83	0.200*	0.986	83	0.519

\*. This is a lower bound of the true significance.

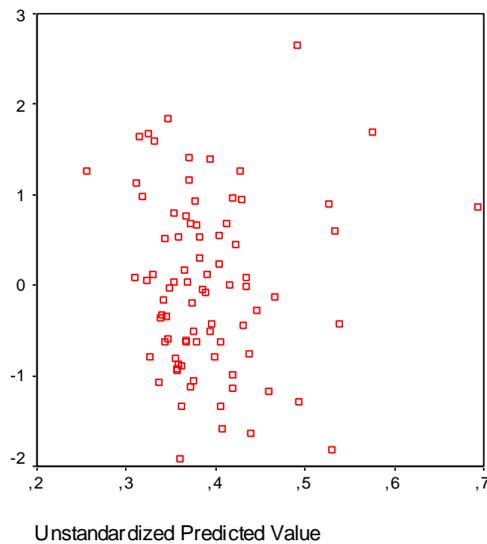
a. Lilliefors significance correction.

The null hypothesis of normality test is that the residuals are normally distributed. Based on the Shapiro-Wilk test of normality above, the p-value is 0.519, which is higher than 0.05. As a consequence, this study cannot accept the alternate hypothesis at 95% significance. Therefore it can be concluded that the residuals are normally distributed. The significance test of normality of the residuals indicates that the p-values are correct, since they are based on the assumption of normally distributed residuals.

### 7.6.2 Tests of homoscedasticity of residuals

Homoscedasticity is a situation when variance in residuals is constant and does not depend on independent variables (Stock & Watson, 2003). Homoscedasticity can be examined by plotting standardised residual values against predicted dependent values (Garson, 2012; Lind et al., 2008). Homoscedasticity exists when there is a form of a patternless cloud of dots. Figure 7.3 below shows a scatter graph of standardised residual values against predicted dependent values.

**Figure 7.3: Results of test of homoscedasticity of residuals**



The figure shows that the data points are patternless (i.e. the points spread with no apparent pattern above and below the 0 on the Y axis) suggesting that the variance of residuals is homogeneous across the level of the predicted values (Lind et al., 2008). If a more prudent position is adopted, it could be said that there is a slight heteroscedasticity because there are some slightly expanded residual plots at higher levels of the predicted values. However, Berry and Feldman (1985) and Tabachnick and Fidell (1996) argue that minor heteroscedasticity has small consequence for significance tests. To strengthen the examination of residual plots, this study also utilised Spearman's rank correlation test and the Koenker-Bassett test. Spearman's rank correlation test was done by correlating the absolute residuals and independent variables. The results are presented in Table 7.6 following.

**Table 7.6: Results of Spearman’s rank correlation test on homoscedasticity of residuals**

		Absolute residual
Absolute residual	Correlation coefficient	1.000
	Significant (2-tailed)	.
	N	83
Population size	Correlation coefficient	-0.033
	Significant (2-tailed)	0.767
	N	83
Revenue base	Correlation coefficient	-0.122
	Significant (2-tailed)	0.271
	N	83
Population density	Correlation coefficient	0.119
	Significant (2-tailed)	0.282
	N	83
Cost of goods sold	Correlation coefficient	-0.173
	Significant (2-tailed)	0.119
	N	83
Age profile	Correlation coefficient	-0.103
	Significant (2-tailed)	0.356
	N	83
Wealth of Community	Correlation coefficient	-0.081
	Significant (2-tailed)	0.466
	N	83
Financial efficiency	Correlation coefficient	-0.015
	Significant (2-tailed)	0.892
	N	83

Table 7.6 above shows that all computed correlations between residuals and independent variables are not significant, which indicates that the residuals are homoscedasticity.

In addition, the Koenker-Bassett test was done by squaring residuals and regressing the squared residuals on the squared estimated values of the regressand (Gujarati, 2003). The results are shown in Table 7.7 below.

**Table 7.7: Results of Koenker-Bassett test of homoscedasticity of residuals**

<b>Coefficients<sup>a</sup></b>					
	Unstandardised coefficients		Standardised coefficients	T	Sig.
	B	Std. Error	Beta		
(constant)	-0.007	0.009		-0.762	0.448
squared predicted	0.020	0.015	0.148	1.347	0.182

a. Dependent variable: squared residuals

The null hypothesis of Koenker-Bassett test is that there is no heteroscedasticity. The table shows that the model is not significant because the p-value is 0.182, which is more than 10%. This result indicates that there is no heteroscedasticity.

### 7.6.3 Tests of multicollinearity

Multicollinearity is a situation when independent variables have correlation among them. Multicollinearity could cause standard errors to inflate (Stock & Watson, 2003). Multicollinearity exists if the value of variance inflation factor (VIF)<sup>21</sup> is more than 10 or a 1/VIF (i.e. the tolerance) is less than 0.1. The two last columns in Table 7.8 below present the collinearity statistics.

**Table 7.8: Results of test of multicollinearity**

<b>Coefficients<sup>a</sup></b>							
	Unstandardised coefficients		Standardized coefficients	t	Significance	Collinearity statistics	
	B	Std. Error	Beta			Tolerance	VIF

<sup>21</sup> Variance inflation factor is a measure of the effect of the other independent variables on a regression coefficient (Cooper and Schindler, 2011).

(Constant)	0.335	0.272		1.231	0.222			
Population size	-4.89E-08	0.000	-0.333	-2.239	0.028	0.336	2.972	
revenue base	5.184E-15	0.000	0.409	2.663	0.009	0.316	3.165	
population density	2.048E-05	0.000	0.106	0.962	0.339	0.619	1.614	
cost of goods sold	-1.62E-07	0.000	-0.217	-1.771	0.081	0.499	2.004	
financial efficiency	0.356	0.074	0.661	4.813	0.000	0.395	2.532	
age profile	-0.280	0.533	-0.061	-0.525	0.601	0.549	1.821	
community wealth	-0.003	0.002	-0.153	-1.480	0.143	0.701	1.427	

a. Dependent variable: financial condition index

From Table 7.8 above it can be seen that all variables have VIF values less than 10 and tolerance values of less than 0.1. Therefore, it can be concluded that the model does not have a problem of multicollinearity.

#### 7.6.4 Test of autocorrelation

Autocorrelation is a condition when the errors associated with one variable are correlated with the errors of any other variable. Garson (2012) argues that if the Durbin-Watson value of a regression model lies between 1.5 and 2.5, then the model does not face the problem of autocorrelation. In this study, the Durbin-Watson value,  $d$ , is 2.275<sup>22</sup>, which is between 1.5 and 2.5. This condition indicates that the regression model does not face the problem of autocorrelation. In addition, to confirm the above indication, the Durbin-Watson test was done step by step. Because  $d = 2.275$  is between  $dU = 1.453$  and  $4 - dU = 2.547$ , the null hypothesis of zero autocorrelation should not be rejected. Therefore, it can be concluded that the model satisfies the assumption of no autocorrelation.

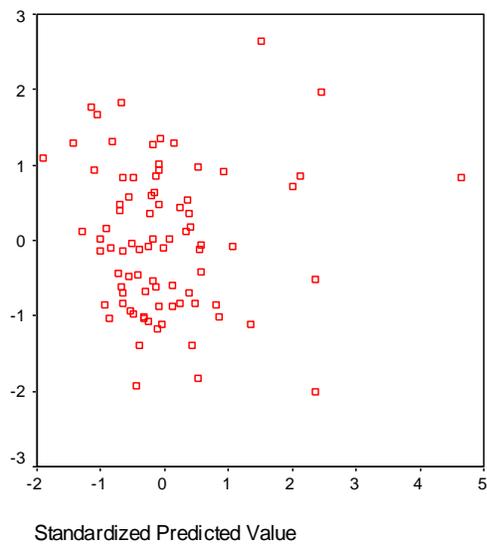
#### 7.6.5 Tests of linearity

The relationships between the predictors and the response variable should be linear. This study utilises the graphical method, standard deviation comparison method, Durbin-Watson test method and Ramseys RESET test to test the linearity of the data used. A linear relationship exists when scatterplots of the standardised residuals as a

<sup>22</sup> The Durbin-Watson value ( $d$ ) is determined by looking at the Durbin-Watson table with 5 percent significance,  $n = 83$  and  $k = 7$  ( $n$  is number of data;  $k$  is number of independent variables). The results are  $dU = 1.453$  and  $dL = 1.831$  ( $dU =$  upper bound;  $dL =$  lower bound).

function of standardised predicted values show a random pattern (Garson, 2012; Osborne & Waters, 2002). If one finds that the standardised residuals by the standardised predicted values are not homoscedastic, this condition is due to non-linearity in the relationship. Figure 7.4 shows the scatterplot of the standardised residuals as a function of standardised predicted values.

**Figure 7.4: Results of test of linearity**



If the points spread with no apparent pattern above and below 0 on the Y axis, there is no problem of non-linearity (Garson, 2012; Lind et al., 2008). From the figure above, it can be seen that the plots show a cloud pattern because the points spread with no clear pattern above and below 0 on the axis Y. This means that there is a linear relationship between the predictors and the response variables.

In addition, Garson (2012) argues that, in general, a sign indicating that probable non-linearity exists when the standard deviation of the residuals exceeds the standard deviation of the dependent variable. Table 7.9 below provides information about the standard deviation of the dependent variable (i.e. the FCI) and the standard deviation of the residuals.

**Table 7.9: Descriptive statistics of tests of linearity**

<b>Descriptive Statistics</b>					
	N	Minimum	Maximum	Mean	Std. Deviation
financial condition index	83	0.21	0.76	0.3921	0.09986
Unstandardised Residual	83	-0.14974	0.20656	0E-7	0.07466752
Valid N (listwise)	83				

The table above shows that the standard deviation of the residuals, which is 0.0746, is smaller than the standard deviation of the dependent variable, which is 0.099. This condition indicates that non-linearity does not exist in the model.

To corroborate the test results explained above, this study also utilised the Durbin-Watson test method and Ramsey's RESET test. The Durbin-Watson test was done by running the ordinary least square regression for two regression models, which are:

a)  $FCI = \alpha + \beta_1Pop + \beta_2AP + \beta_3CW + \beta_4PD + \beta_5CSG + \beta_6FE + \beta_7RB + \varepsilon \dots (7.2)$

b)  $FCI = \alpha + \beta_1Pop + \beta_2AP + \beta_3CW + \beta_4PD + \beta_5CSG + \beta_6FE + \beta_7RB + \beta_8Pop^2 + \beta_9AP^2 + \beta_{10}CW^2 + \beta_{11}PD^2 + \beta_{12}CSG^2 + \beta_{13}FE^2 + \beta_{14}RB^2 + \varepsilon \dots (7.3)$

The calculated Durbin-Watson coefficient for equation (7.2) is,  $d$ , 2.275 (see results in section 7.7.4 above) and 2.175<sup>23</sup> for equation (7.3). Related to equation (5.1),  $d = 2.175$  is located between  $4 - dU = 1.941$ <sup>24</sup> and  $4 - dL = 2.847$ <sup>25</sup>, which is in the inconclusive region. However Hair et al. (2010) argue that in this context one should not reject the null hypothesis of zero autocorrelation.

<sup>23</sup> The Durbin-Watson value ( $d$ ) is determined by looking at the Durbin-Watson table with 5 percent significance,  $n = 83$ , and  $k = 14$  ( $n$  is number of data;  $k$  is number of independent variables). The results are  $dU = 2.059$  and  $dL = 1.253$  ( $dU$  = upper bound;  $dL$  = lower bound).

<sup>24</sup>  $4 - 2.059$

<sup>25</sup>  $4 - 1.253$

In addition, the Ramsey RESET test was done by re-running the ordinary least square as in equation (7.2) by adding powers of fitted values ( $\hat{Y}$ ) obtained in step 1 as additional regressors to form an augmented model. The augmented model is as follows.

$$FCI = \alpha + \beta_1 \text{Pop} + \beta_2 \text{AP} + \beta_3 \text{CW} + \beta_4 \text{PD} + \beta_5 \text{CSG} + \beta_6 \text{FE} + \beta_7 \text{RB} + \beta_8 \hat{Y}^2 + \beta_9 \hat{Y}^3 + \beta_{10} \hat{Y}^4 + \varepsilon \dots\dots\dots (7.4)$$

The calculated F-value of the augmented model above is 2.88<sup>26</sup>. The F-table value is 3.73 (i.e df numerator 3, df denominator 72 at 1% significance level). Because the calculated F-value is smaller than the F-table value, the model meets the assumption of linearity.

Based on tests of the regression assumptions of normality of residuals, homoscedasticity, multicollinearity, autocorrelation and linearity, it can be concluded that none of the assumptions are violated by this model. Therefore, the regression model in this current study can be claimed to be a good model because it fulfils the criteria of BLUE (Best Linear Unbiased Estimator).

## 7.7 Conclusions

After analysing the results of multivariate regression in the previous sections, the following conclusions are made.

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<sup>26</sup>  $F = ((R_{\text{new}}^2 - R_{\text{old}}^2) / \text{number of new regressor}) / ((1 - R_{\text{new}}^2) / (n - \text{number of parameters in new model}))$   
 $F = ((0.50 - 0.44) / 3) / (1 - 0.5) / (83 - 11)$

1. From the hypothesis testing, this current study finds that there are four out of seven statistically significant variables affecting the financial condition of local government. The variables are population size, financial efficiency, revenue base and cost of production of services and goods produced by local government. These findings are consistent with the hypotheses.
2. Three insignificant variables are population density, age profile of community and wealth of community. This suggests that population density, age profile of community and wealth of community do not significantly affect the financial condition of local government. These findings are not consistent with the hypotheses.
3. All directions of seven independent variables are consistent with the hypotheses.
4. The order of independent variables based on importance is financial efficiency, revenue base, population and cost of services.
5. All assumptions underlying the multivariate regressions – normality of residuals, linearity, homoscedasticity, no multicollinearity, no autocorrelation – are met, so that the model developed in this current study is good.

## **CHAPTER 8**

### **DISCUSSION, CONCLUSIONS AND SUGGESTIONS**

#### **8.1 Introduction**

Chapter 6 examined the steps in developing a measure of the financial condition of local government and Chapter 7 analysed the factors determining the financial condition. This chapter will discuss, conclude and make suggestions regarding the issues examined in those chapters. This chapter is divided into three main parts: discussions pertaining to the results of Chapter 6 and Chapter 7; conclusions; and suggestions for future research assessing the financial condition of local government.

#### **8.2 Discussion**

##### **8.2.1 Key findings of indicators forming the financial condition of local government**

Before discussing the key findings of the indicators forming the measure of the financial condition of local government, the formulas for the indicators are briefly reiterated. Table 8.1 shows the dimensions, indicators and formulas comprising financial condition.

**Table 8.1: Dimensions, indicators and formulas for financial condition of local government**

<b>Dimension</b>	<b>Indicator</b>	<b>Formula</b>
Short-term solvency	Ratio A	$(\text{Cash and cash equivalent} + \text{short-term investment}) / \text{Current liabilities}$
	Ratio B	$(\text{Cash and cash equivalent} + \text{short-term investment} + \text{account receivables}) / \text{Current liabilities}$
	Ratio C	$\text{Currents assets} / \text{Current liabilities}$
Long-term Solvency	Ratio A	$\text{Total assets} / \text{Long-term liabilities}$
	Ratio B	$\text{Investment equities} / \text{Long-term liabilities}$
	Ratio C	$\text{Investment equities} / \text{Total assets}$
Budgetary solvency	Ratio A	$(\text{Total revenues} - \text{special allocation fund revenue}) / (\text{Total expenditures} - \text{capital expenditure})$
	Ratio B	$(\text{Total revenues} - \text{special allocation fund revenue}) / \text{Operational expenditure}$
	Ratio C	$(\text{Total revenues} - \text{special allocation fund revenue}) / \text{Employee expenditure}$
	Ratio D	$\text{Total revenue} / \text{Total expenditure}$
Financial independence	Ratio A	$\text{Total own revenues} / \text{Total revenues}$
	Ratio B	$\text{Total own revenues} / \text{Total expenditures}$
Financial flexibility	Ratio A	$(\text{Total revenues} - \text{special allocation fund revenue} - \text{employee expenditures}) / (\text{Repayments of loan principal} + \text{interest expenditures})$
	Ratio B	$(\text{Total revenues} - \text{special allocation fund revenue} - \text{employee expenditures}) / \text{Total liabilities}$
	Ratio C	$(\text{Total revenues} - \text{special allocation fund revenue} - \text{employee$

		expenditures) / Long-term liabilities
	Ratio D	(Total revenues – special allocation fund revenue) / Total liabilities
Service-level solvency	Ratio A	Total equities / Population size
	Ratio B	Total assets / Population size
	Ratio C	Total expenditures / Population size

The value of each ratio for each local government is calculated using audited financial statements of the financial years 2007 until 2010. Table 8.2 below summarises the descriptive statistics of the indicators forming the financial condition of local government based on a four-year observation from financial year 2007 to 2010.

**Table 8.2: Descriptive statistics of financial ratios forming financial condition of local government**

Dimensions	Indicators	N	Mean	Median	Standard deviation	Maximum	Minimum
Short-term solvency	Ratio A	415	1.27E+09	29.41	1.03E+10	1.29E+11	0.13
	Ratio B	415	1.39E+09	34.30	1.12E+10	1.43E+11	0.16
	Ratio C	415	1.53E+09	38.55	1.23E+10	1.58E+11	0.26
Long-term Solvency	Ratio A	403	1.3E+12	22,728.24	2.3E+12	2.0E+13	6.35
	Ratio B	403	1.2E+12	21,989.55	2.2E+12	2.0E+13	0.00
	Ratio C	403	0.93	0.94	0.07	1.00	0.00
Budgetary solvency	Ratio A	395	1.1484	1.1310	0.10939	1.53	0.84
	Ratio B	395	1.1733	1.1550	0.11963	1.65	0.84
	Ratio C	395	1.7164	1.6380	0.33322	4.04	1.21
	Ratio D	395	1.0049	1.0020	0.05127	1.21	0.84
Financial independence	Ratio A	399	0.1048	0.0849	0.07378	0.71	0.00
	Ratio B	399	0.1060	0.0859	0.07378	0.74	0.00
Financial flexibility	Ratio A	401	7.7E+10	728.01	1.8E+11	1.4E+12	2.85
	Ratio B	401	3.6E+09	181.19	3.6E+10	3.9E+11	3.80
	Ratio C	401	1.7E+09	68.88	1.7E+10	1.9E+11	1.59
	Ratio D	401	1.5E+11	2,314.11	2.5E+11	1.5E+12	1.79
Service-level solvency	Ratio A	415	2.5E+08	2,124,062	4.6E+09	9.2E+10	85,692.59
	Ratio B	415	2.5E+08	2,124,909	4.6E+09	9.2E+10	90,998.09
	Ratio C	415	5.4E+08	847,609.5	8.3E+09	1.6E+11	120,602.60

Table 8.2 shows that the data for all indicators are not normally distributed, as indicated by the values of skewness and kurtosis, which are more than 0 for all indicators. Therefore, the median is a better statistic to represent the population (Kamnkar et al., 1996). In addition, Table 8.3 reports the median values of each

indicator from financial year 2007 to 2010. Thus, the trend of each indicator from 2007 to 2010 can be seen.

**Table 8.3: Trends of median values of dimensions comprising financial condition**

Dimension	Indicator	Median			
		2007	2008	2009	2010
Short-term solvency	Ratio A	42.72	26.31	33.51	24.55
	Ratio B	44.61	32.69	41.43	28.19
	Ratio C	47.34	38.86	46.15	32.66
Long-term solvency	Ratio A	4,613.79	8,400.38	34,461.43	1,086,848,540,934
	Ratio B	4,361.52	7,565.90	32,147.30	1,017,736,219,873
	Ratio C	0.93	0.95	0.94	0.95
Budgetary solvency	Ratio A	1.24	1.14	1.12	1.07
	Ratio B	1.27	1.17	1.14	1.08
	Ratio C	1.83	1.67	1.59	1.51
	Ratio D	1.04	0.99	0.99	1.00
Financial independence	Ratio A	0.088	0.078	0.084	0.089
	Ratio B	0.091	0.081	0.086	0.087
Financial flexibility	Ratio A	367.45	681.39	829.73	1,045.07
	Ratio B	140.40	174.50	212.93	223.91
	Ratio C	64.48	67.53	77.65	70.53
	Ratio D	534.93	891.86	4,172.72	130,019,975,914
Service-level solvency	Ratio A	1,966,593.76	2,128,104.80	2,139,932.72	2,219,483.06
	Ratio B	1,968,994.20	2,129,850.18	2,140,699.48	2,220,313.00
	Ratio C	706,338.31	837,367.78	856,702.63	924,173.14

**Short-term solvency.** Table 8.2 shows that the median values of Ratios A, B and C of local governments are 29.41, 34.30 and 38.55 times the specified assets to cover their current liabilities. This condition indicates that local governments have considerable idle current assets, which should be avoided. Based on the ratios above, it is concluded that local governments have strong short-term solvency but an excessive amount of current assets. However, Table 8.3 shows that all ratios composing short-term solvency show decreasing trends. For example, the value of

Ratio A was 42.72 in 2007 and decreased to 24.55 in 2010. Such trends indicate a good signal for local governments' financial condition since they are showing an improvement in current assets management by reducing idle current assets.

A community might question why a local government maintains a high current assets balance in excess of the amounts needed to pay current obligations. The excessive amounts of current assets indicates that there is inefficiency in current asset management relating to cash management, inventory management and other financial assets management (i.e. short-term investment and accounts receivables). In the future, local governments should reduce the ratios but not threaten their short-term solvency, so that they can optimise their current assets in delivering services to their community.

**Long-term solvency.** Table 8.2 reports that the median values of Ratios A and B are 22,728.24 and 21,989.55, respectively. It means that every one rupiah of long-term debt is guaranteed by 22,728.24 rupiahs of assets or 21,989.55 rupiahs of investment equities. This fact indicates that local governments have a strong ability to fulfil their long-term obligations. In addition, Ratio C indicates that most of local governments' assets, 94.88%, are financed by their own resources. Therefore, based on the three ratios, it can be concluded that local government has strong long-term solvency. In addition, Table 8.3 shows increasing trends for Ratios A and B and a steady trend for Ratio C. For example, Ratio A was 4,613 in 2007 and increased sharply to 1,086,848,540,934 in 2010. Such trends indicate a positive signal for local governments' long-term solvency.

In the future, the strong condition of long-term solvency would be a good provision for local governments if they are to obtain funds from the public by issuing bonds. However, it must be remembered that the issuance of bonds must conform to Government Regulation No. 30/2012 regarding regional debt. The regulation states

that a local government is allowed to issue bonds in order to finance infrastructure and investment activities or facilities within the framework of the provision of public services that generate revenues, which are derived from levies on the use of the infrastructure and/or facilities, for the local government.

**Budgetary solvency.** Table 8.2 indicates that the median values for Ratios A, B, C and D are 1.13, 1.15, 1.64 and 1.00, respectively. Thus, local governments have adequate revenues to cover their operational expenditures. This is a good foundation to build a sound financial condition. Based on these ratios, it is concluded that local governments have good budgetary solvency.

However, as indicated in Table 8.3, all ratios of budgetary solvency show declining trends. For example, the value of Ratio A, which is  $(\text{Total revenue} - \text{special allocation fund revenue}) / (\text{Total expenditure} - \text{capital expenditure})$ , decreased from 1.24 in 2007 to 1.07 in 2010. This condition means that local governments' budgetary solvency tended to deteriorate from 2007 to 2010. Although those ratios show that local governments still have the ability to cover their expenditure, local governments have to be careful in coming financial years because an operating deficit indicates the onset of financial distress (Kloha et al., 2005a).

**Financial independence.** Table 8.2 reports that the median values of the two ratios for independence are 8.49% and 8.59%, respectively. This means that only around 8.5% of local governments' revenues are under their control. In other words, it can be said that local governments rely heavily on sources of funding beyond their control or influence. Based on these ratios, it is concluded that local governments have weak financial independence. In addition, Table 8.3 shows that Ratio A and Ratio B, comprising the dimension of financial independence, show stable trends. For example, Ratio A was 0.088 in 2007 and still steady at 0.089 in 2010. This suggests

that local governments are experiencing a stable financial condition in terms of financial independence.

Weak financial independence could be caused by the Constitution. In the Constitution 1945, Article 33 states that land, water and everything that significantly influences the life of the people is controlled by the central government. As a result, strategic sources of revenues such as income tax and value added tax, even though the sources are located in the local government regions, become revenue sources for the central government, not the local government. As a result, local governments only manage non-strategic revenue sources that do not significantly influence the life of people, such as hotel tax, advertisement tax and restaurant tax. This condition leads to the low financial independence of local government.

However, based on Act No. 32/2004 on local government and Act No. 33/ 2004 on fiscal balance, local governments are required to improve their local own revenues through innovations, but the innovations must not be against the rules. The ability of innovations to improve local governments' own revenues certainly varies among local governments. Increased local own revenues will increase local government capacity to fund services and goods delivery to the community. Therefore, better local government capabilities to increase local own revenues will lead to an improvement in its financial condition.

**Financial flexibility.** The median values of Ratios A, B, C and D in Table 8.2 show that local governments have a capacity of 728.01, 181.19, 68.88 and 2,314.11 times, respectively to anticipate extraordinary events which could come from sources internal or external to the local government organisation. These values indicate that local government has adequate financial flexibility. This means that it can go to a third party to raise funds in order to overcome unexpected events. Looking at the trends as shown in Table 8.3, all the financial capacity ratios show increasing values.

For example, Ratio A was 367.45 in 2007 and increased to 1,045.07 in 2010. This indicates that local government financial flexibility is improving.

Local governments have to carefully maintain these ratios because geographically most local governments in Indonesia are located in vulnerable areas. For example, all local governments located on the southern coast of Java island are potentially threatened by tsunami because the area is part of the “ring of fire” where earthquakes frequently occur. Moreover, many local governments are located around volcanoes. Only the local governments on Kalimantan island are relatively free from the risks of volcano eruption and tsunami. Thus, it is suggested that local governments located in vulnerable locations should have higher values for the financial flexibility ratios in order to anticipate extraordinary events.

**Service-level solvency.** The median values of Ratios A and B in Table 8.2 show that local governments have Rp2,124,062 and Rp2,124,909 assets, respectively, to serve their residents. In the case of Ratio C, it indicates that local governments incur expenditure of Rp847,609 to serve their residents. For the dimension of service-level solvency, it cannot be concluded whether the values of the ratios above, showing the existing condition of local government, are good or not, because there is no threshold that distinguishes a good from a weak condition. However, in general, the higher the ratio of service-level solvency, the better is service-level solvency.

Looking at the trend of service level solvency ratios as shown in Table 8.3, all ratios show increasing trends. For example, Ratio A was 1,966,593.76 in 2007 and increased to 2,219,483.06 in 2010. This condition means that there was an improvement in delivering services to the community from 2007 to 2010. It is suggested that the values for service-level solvency should increase steadily from year to year to show that there is an improvement in delivering services to the community.

### **8.2.2 Strategies to improve financial condition**

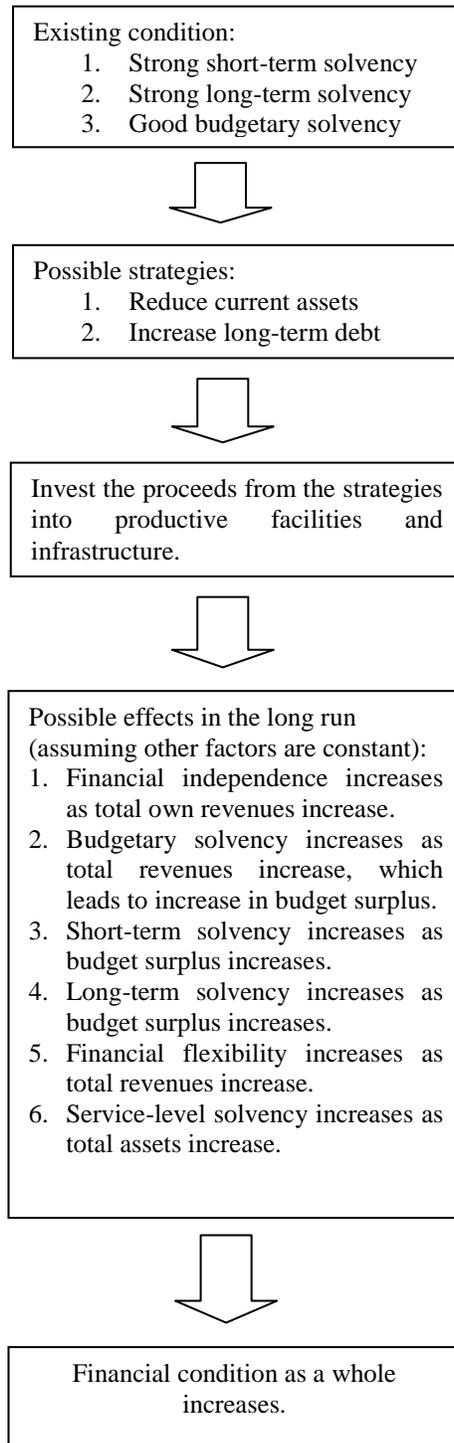
Based on the strong financial condition in the dimensions of short-term solvency and long-term solvency, local governments have opportunities to accelerate the improvement of public welfare. To achieve this, one strategy that could be taken by local governments is to reduce the excessive current assets (for example, by implementing modern cash and inventory management) along with the addition of long-term debt in an appropriate amount (i.e. as long as the amount does not create a budget deficit) to fund the development of productive facilities and infrastructure or to invest in strategic investment. This strategy is supported by the operating surplus condition as shown in the budgetary solvency dimension indicators, specifically Ratio B = (Total revenue – special allocation fund revenue) / Operational expenditure, which has a median value of 1.15 times. The addition of the appropriate amount of long-run liabilities might not deteriorate the financial condition of local governments in the long run, because the facilities and infrastructure financed are productive assets that will provide cash inflows in the future to local government in the form of retribution revenues<sup>27</sup> or local government asset management revenues. Such revenues are part of local government own revenues. Thus, in the long run local government's own revenues will increase. This condition will improve the financial condition on the dimension of financial independence. In addition, those facilities and infrastructure will improve the services provided to the community. As a result, service-level solvency will increase. Furthermore, increasing retribution revenues, as part of local own revenues, will also improve the dimensions of budgetary solvency and financial flexibility. In addition, local governments should be innovative, looking for untapped sources of revenue as long as they conform to Act No. 28/2009 about local government taxes and retributions. As a result, the financial condition of local government and social welfare will improve.

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<sup>27</sup> Retribution revenues are regional levies as payment for services or certain special permits provided by local government to the interests of individuals or agencies (Act 28/2009).

Figure 8.1 shows a proposed strategy that could be taken by local governments to strengthen their financial condition in order to improve social welfare.

**Figure 8.1: Strategies to improve financial condition of local government**



### 8.2.3 Key findings of weight determination of the dimensions of financial condition

Chapter 6 reported that the stakeholders of local government perceive that the dimensions of long-term solvency and short-term solvency are the two most important dimensions comprising the financial condition of local government. On the other hand, the dimension of service-level solvency is considered the least important of the elements of financial condition. These facts indicate that the stakeholders of local government in Indonesia tend to have short-term horizons (as indicated by long-term and short-term solvency) rather than long-term (as indicated by service-level solvency) in managing local government finance.

### 8.2.4 Factors affecting the financial condition of local government

Based on the statistical analysis in Chapter 7, the following table provides a summary of the results of the hypothesis testing.

**Table 8.4: Hypotheses and hypotheses' results**

Ho number	Hypothesis	Hypotheses' result	Explanation
H1	Population size is negatively related with the financial condition of local government	Accepted*	Population size significantly influences financial condition.
H2	Community age profile is negatively related with the financial condition of local government	Rejected	Community age profile does not significantly influence financial condition.
H3	Level of wealth of community is negatively related with the financial condition of local government	Rejected	Level of wealth of community does not significantly influence financial condition.
H4	Population density is positively related with the financial condition of local government	Rejected	Population density does not significantly influence financial condition.
H5	Local government revenue base is positively related with the financial condition of local government	Accepted*	Local government revenue base significantly influences financial condition.
H6	Local government financial efficiency is positively related with the financial condition of local government	Accepted*	Local government financial efficiency significantly influences financial condition.
H7	Cost of production of services and products is negatively related with the financial condition of local government	Accepted**	Cost of production of services and products significantly influences financial condition.

**Notes:** \*significant at 0.05      \*\*significant at 0.1

There are four variables (population size, revenue base, financial efficiency and cost of production) that are significant in explaining the variation of financial condition, whereas three other variables (population density, community wealth and age profile) are not significant in predicting financial condition. Among these significant variables, two variables – population size and revenue base – cannot be directly controlled by local government, while the other two variables – cost of services and goods and financial efficiency – can be managed by local government. From a statistical point of view, the insignificant relationships between population density–financial condition, age profile–financial condition and wealth of community–financial condition could be caused by an insufficient sample size to detect an association or lack of variation among the observations (Dennis, 2004).

An insignificant p-value could be utilised to decide whether to eliminate a factor from a model without considerably decreasing the model's predictive capacity. Nevertheless, it is suggested that an insignificant p-value should not be used as a reference to remove more than one explanatory variable at once. An explanatory variable might be not significant in the presence of other explanatory variables in the regression model, but be significant if the other explanatory variables were not included in the model. The next sections will discuss the findings regarding the factors affecting financial condition.

### **Population size**

As discussed in Chapter 7, this study finds that population size has a negative relationship with the financial condition index. This result accords with the hypothesis developed in Chapter 4. In addition, this finding is parallel with previous studies (see Casal & Gomez, 2011; Dennis 2004; Jones & Walker 2007; Ladd 1992; Pammer, 1990; Rubin, 1989; Wang et al. 2007), which found that size of population is negatively associated with the financial condition index in local councils. These findings indicate that the effect on the demand side (i.e. increase in total expenditure)

is bigger than the effect on the supply side (i.e. increase in volume of services and goods supplied by local government).

The larger the population, the greater the number of services and goods needed by the community. As a consequence, the total expenditure of a local government with more population is larger than that of a local government with less population. In facing such a situation, the local government has two choices. The first one is maintaining the supply of services and goods at existing levels due to limited funds, and the second is to increase the quantity of goods and services supplied as required by the community.

If the local government chooses the first alternative, with other factors held constant, then the dimensions of short-term solvency, budgetary solvency, long-term solvency, financial independence and financial flexibility will remain constant. However, the dimension of service-level solvency will be weakened, because the constant amount of services and goods is divided by a larger population. As a result, overall the local government's financial condition will worsen.

If the local government chooses the second alternative, then the local government will most likely take loans from other parties (i.e. banks, other local governments or the central government). Why so? Although the greater population will expand the local government revenue base for regional governments, local governments are not able to automatically explore this because of the regulation on taxes and levies limiting the types of taxes and levies that may be levied by local governments. In addition, local governments are not allowed to increase tax rates and levies because the law has limited the maximum tax rates and levies.

As a result of these loans, local government must pay interest charges, which in turn increases local government expenditure. Thus, the dimensions of short-term solvency,

budgetary solvency, long-term solvency and financial flexibility will deteriorate. On the other hand, the dimension of service-level solvency will improve. However, overall the local government's financial condition will worsen.

### **Age profile of community**

This study fails to support hypothesis H2. This finding implies that the age profile of the community does not significantly impact financial condition. This does not support the arguments proposed by Nollenberger et al. (2003), Berne and Scrammn (1986) and Zafra-Gomez et al. (2009c), who all argue that community tastes and needs as reflected in the age profile of the community are inversely related with financial conditions. They argue that age profile can be used to estimate the quantity of existing and upcoming needs and the number of liabilities in the community. In addition, this finding is not consistent with the findings of Jin and Zhang (2011), who concluded that an increasing number of elderly people in China led to a significantly increase in social security expenditures.

A possible explanation of the insignificant relationship between the age profile and financial condition is as follows. The insignificant relationship could indicate that local governments do not satisfy the needs of their communities, especially for community groups under the age of 18 years and community groups over the age of 60 years. These non-working community groups need more of certain types of facilities such as schools, parks and recreation, and nursing homes that are needed less by those of working age. This condition will result in additional expenditures of local governments to provide these facilities. As a result, the demand curve will shift to the right. Thus, local governments that have a higher percentage composition of the community with the age profile of non-working groups will face higher demand for spending than local governments that have a community with a lower percentage composition of the age profile of non-workers. In turn, the total expenditure will increase and the per capita expenditure will increase, as well. The increasing total

expenditures per capita will decrease budget surplus or increase budget deficit. As a result, the dimension of budgetary solvency will decrease. Holding other factors constant, this condition will deteriorate the financial condition.

However, because local governments do not fulfil needs of non-working community groups, this condition will not result in significant additional expenditure. In turn, the total expenditure of local government would not increase significantly and the per capita expenditure would not increase significantly either. As a result, this condition will not deteriorate the financial condition.

The implication of the explanation above is that the central government has to evaluate whether local governments have been applying minimum service standards to community age groups of under 18 and over 60 years. As required by Government Regulation No. 65/2005, local governments have to deliver services at minimum services standards to the community and incorporate the minimum service standards that have been set by the central government.

### **Wealth of community**

From Table 8.4 above, it can be seen that hypothesis H3 was rejected in this study. This finding suggests that the level of the community wealth does not influence financial condition. This finding is not in line with previous studies, which found a negative relationship between the community wealth and the financial condition of local government (Borcherding, 1985; Douglas & Gaddie, 2002; Ohls & Wales, 1972; Wang et al., 2007; Wolkoff, 1987). In addition, this finding does not support the arguments of Berne and Schramm (1986), Carmeli (2008) and Nollenberger et al. (2003), who all state that the wealth of the community is one of the major determinants of local government financial condition.

The logical framework of the relationship between the wealth of the community and the financial condition of local government is as follows. The more prosperous a society, the greater the quantity of services and goods that society wants. As a result, the total expenditures of local government will increase. In addition, not only does the quantity increase, but also the quality of the desired local government provided-services and goods will be higher. In turn, the total expenditure will increase and the per capita expenditure will increase, as well. The increasing total expenditures per capita will decrease budget surplus or increase budget deficit. As a result, the dimension of budgetary solvency will decrease. Holding other factors constant, this condition will deteriorate the financial condition. However, this logical framework does not apply in this study.

A possible explanation for the insignificant relationship between community wealth and financial condition is as follows. An increase in the level of income might not increase demand significantly for the services or goods provided by local government. This happens because the services or goods provided by local government could be perceived by the community as inferior products. “Inferior” here does not mean “bad”, but indicates a product or good that is perceived to have less quality and to be less distinctive compared to services and products provided by private organisations.

Another possible explanation is that the handling process (such as punctuality, friendliness) given by local government officers could be perceived as not good, although the services and goods provided may be superior products. As a result, some of the communities will switch to services and products provided by private organisations. As a result, the demand curve of services and goods provided by local government may not shift to the right significantly. In turn, the total expenditures of local government would not increase significantly and per capita expenditure would not increase significantly either.

The implication of the explanation above is that local governments have to improve the quality of services and goods delivered to the community. In addition, the quality of the handling process of the services and goods must be improved. In turn, the community will have a good perception of the services and goods provided by local government.

### **Population density**

Table 8.4 above shows that this current study does not support hypothesis H4. This finding suggests that population density does not influence financial condition. This finding is not consistent with the findings of Borcharding and Deacon (1972); Carmeli (2008); Downing (1973); and Ladd (1992). They found that population density is inversely related to per capita expenditure. This finding also does not accord with the argument of Berne and Schramm (1986) that population density is one of the main factors influencing local government financial condition.

The logical framework of the relationship between population density and the financial condition of local government is as follows. Population density affects local government-provided services and goods through the supply side. An increasing density of population (i.e. the closer the distance among households) will reduce the cost per unit of goods and services produced by local government (Downing, 1973). Nollenberger et al. (2003) argue that if local government has a compact boundary with a dense population, the provision of public services such as schools and health centres, maintenance of roads and bridges will be cheaper per resident. Lower cost per unit leads the local government to supply more goods and services to the community. Thus, a local government with higher population density could provide more services and goods to its people compared to a local government with smaller population density. An increase in goods and services supply to the community will result in improved service-level solvency. Holding other factors constant, the overall financial condition of local government will be improved. However, this logical

framework does not apply in this study.

A possible reason to explain the insignificant relationship between population density and the financial condition of local government is as follows. Increasing population density might not decrease significantly the cost per capita of delivering services and goods because there is too much inefficiency in delivering services and goods by local government. This happens because of the very high portion of employee expenditure as part of operational expenditure. It should be noted that employee expenditure is arguably fixed expenditure. The proportion of employee expenditure to total expenditure for the financial year 2011 is more than 50% in 294 local governments in Indonesia (*Harian Kompas*, 25 August 2011, p.1). The impact of the inefficiency caused by the high proportion of employee expenditure is greater than the impact of the efficiency caused by population density. As a result, public service delivery such as road and bridge maintenance, the number of schools or health centres by a local government with a compact boundary and high population density will not be significantly less costly per capita compared to a local government with a less compact boundary and low population density.

The implication of the explanation above is that local governments have to improve their operational efficiency, especially employee expenditures in delivering services and goods to the community. For a detailed explanation regarding how to increase efficiency, see section 8.3.3.2.

### **Revenue base**

The revenue base refers to the resources from which a local government generates its revenues. The results of the multivariate regression analysis in Chapter 7 show that the association between revenue base and financial condition is positive. This empirical finding supports the hypothesis developed in Chapter 4 and arguments stated by Berne and Scramm (1986), Honadle et al. (2004), Nollenberger et al.

(2003), Pammer (1990) and Rubin (1988). They all argue that as the revenue base increases, the financial condition of local government will improve. In addition, the finding also shows a similar result to the study by Wang et al. (2007), which showed that enlarged revenue bases led to strengthened financial condition and financial capacities. Furthermore, the results are in line with Carmeli's (2008) work which found that local authorities with an inferior revenue base encounter difficulty in providing satisfactory municipal services.

The revenue base influences local government financial condition through the supply side. This finding indicates that local governments with a wide revenue base will be followed by high revenues. As a result, such local governments will have the capability to supply more goods and services. In turn, their service-level solvency will increase. Holding other factors constant, this condition will lead to a stronger financial condition.

### **Financial efficiency**

The association between financial efficiency and financial condition is positive, meaning that the more efficient a local government in managing its finance, the better is its financial condition. This result supports the hypothesis developed. This finding is also in line with previous studies. Rubin (1988) and Pammer (1990) argue that poor management causes local governments' financial stress. Poor management includes the application of inadequate accounting methods, poor budgeting practices and inadequate management. In addition, Beck (1982) finds bureaucratic inefficiency is a contributor to financial stress, in the case of Cleveland. Beck (1982) discovers that excessive employee expenditure is a contributor to financial pressure. In addition, Baumol (1967) argues that unlike the business sector in which increases in wage levels are offset by increase in productivity, in local government this does not happen. In China, Jin and Zhang (2011) found that expenditure on administrative management of local government has a statistically negative effect on the ratio of output to capital.

Financial efficiency affects local government-provided services and goods on the supply side. This finding indicates that poor financial efficiency practices will increase the cost per unit of services and goods. As a result, local governments can provide fewer goods and services to the community (assuming other factors are held fixed). This condition will result in deteriorating service-level solvency.

If such a local government supplies goods and services in the same amount as a local government that has higher financial efficiency, then the local government has to increase its total expenditure. To finance the additional expenditures, the local government probably uses its existing revenues and or goes to a third party for debt. This condition will lead to decreasing the levels of the dimensions of short-term solvency, budgetary solvency, long-term solvency and financial flexibility. As a result, the financial condition index will decrease as well.

### **Cost of services and goods**

The results of the multivariate regression analysis show that the relationship between the cost of services and goods provided by local government and financial condition is negative. This provides further evidence to support the hypothesis developed in Chapter 4. This finding also supports Baumol (1967), Berne and Scramm (1986), Bradford et al. (1969), and Honadle et al. (2004), who all argue that capital, labour and other resource markets affect the financial condition of local government.

The mechanism of the relationship between input prices and financial condition can be explained as follows. A local government with higher prices of relevant sources will supply fewer goods and services (assuming other factors are held constant). If such a local government supplied the goods and services in the same amount as local governments that have lower input prices, then the local government has to increase its total expenditure. To cover the additional expenditure, the local government could go two ways: sacrifice its existing revenues and/or take loans from third parties (i.e.

banks, other local governments or the central government). In turn, the local government will have weaker dimensions of short-term solvency, budgetary solvency, long-term solvency and financial flexibility. As a result, overall, the financial condition of the local government will worsen.

### **Analysing the signs of independent variables**

Table 8.5 below compares the expected associations between the independent variables and the dependent variable and their actual associations based on the results of the multivariate regression analysis.

**Table 8.5: Expected versus actual relationship of independent variables and financial condition**

<b>Independent variables</b>	<b>Expected relationship</b>	<b>Actual relationship</b>
Population size	Negative	Negative (S)
Population density	Positive	Positive (NS)
Community wealth	Negative	Negative (NS)
Age profile	Negative	Negative (NS)
Revenue base	Positive	Positive (S)
Financial efficiency	Positive	Positive (S)
Cost of production	Negative	Negative (S)

**Notes:** S = significant; NS = not significant

Table 8.5 above reports that all findings regarding directions of associations between financial condition and the factors that influence it are in line with the hypotheses, although three variables are not significant (wealth of community, age profile and population density). These findings suggest that this current study provides further evidence to explain the variability of financial condition of local government under the framework of demand and supply.

### **Analysing the importance of the independent variables**

The t-values show the importance of a variable in the model. In this study the variable of financial efficiency with a t-value of 4.813 is the most important variable in

affecting the financial condition of local government, followed by revenue base ( $t = 2.663$ ), population size ( $t = -2.239$ ) and cost of services and goods ( $t = -1.771$ ) consecutively. The information about the relative importance of the variables could be used by local governments to set the priority of policies that could be taken in order to improve financial condition.

### **8.3 Research implications**

This study brings three main implications consisting of theoretical implications, methodological implications and practical implications. Those implications are discussed in the following sections.

#### **8.3.1 Theoretical implications**

##### **8.3.1.1 Theoretical implications of methods of developing financial condition index**

This study provides a conceptual framework that is more systematic in the development of measurement models of local government financial condition because this study firstly conceptualises the definition of financial condition before determining the dimensions and indicators of financial condition. This has not been done in previous studies (see Berne & Schramm, 1986; Brown, 1993, 1996; CICA, 1997; Groves et al., 1981; Hendrick, 2004; Jones & Walker, 2007; Kamnikar et al., 2006; Kloha et al., 2005a; Nollenberger et al., 2003; Wang et al., 2007). In this study, it is argued that in defining local government financial condition, it should be derived from the objectives of the nation, because financial condition is the impact of local government efforts to achieve the goals of the nation. In Chapter 2, this study conceptualises the definition of the financial condition of local government.

This current study also provides new dimensions and indicators to measure financial condition. Unlike the business sector, which has seminal ratios to assess the financial

condition of a company, this study offers new ratios to enrich tools in assessing the financial condition of local government. In turn, the method of this study could be a reference for other international scholars in assessing the financial condition of local government.

### **8.3.1.2 Theoretical implications of the factors affecting financial condition**

Based on the findings in Chapter 7, this study provides underlying basis, the frameworks of demand and supply, to explain the factors affecting the financial condition of local government, where previous studies did not indicate what theories were used to explain the factors affecting financial condition (see Berne & Schramm, 1986; Casal & Gomez, 2011; Carmeli & Cohen, 2001; Carmeli, 2008; Jones & Walker, 2007; Nollenberger et al., 2003; Wang et al., 2007; Zafra-Gomez et al., 2009). The framework of supply and demand provides a good basis to explain the relationship of population size, age profile, wealth of community, population density, revenue base, cost of services and products and financial efficiency with the financial condition of local government.

The significance of the variable of population size in affecting financial condition supports the assumptions, first, that the demand for services and goods provided by local government in Indonesia is elastic and, second, that the services and goods provided by local government in Indonesia are normal goods. This finding is in line with Hyman's (1990) argument.

## **8.3.2 Methodological implications**

### **8.3.2.1 Methodological implications of developing financial condition index**

Based on the examinations in Chapter 6, the model developed to assess the financial condition of local government is reliable, valid and practical. This is in line with Cooper and Schindler's (2011) argument that a good instrument has the

characteristics of being reliable, valid and practical. In addition, the model developed meets the criteria set in this study, so that it is a robust model. The model satisfies the following criteria:

1. be theoretically robust, which means that the dimensions and indicators developed are derived from theories on the financial condition of local government (Kloha et al., 2005a; Wang et al., 2007). To fulfil this criterion, this current study first conceptualises the definition of financial condition as a basis to determine the dimensions and indicators of financial condition. Chapter 2 discussed how to conceptualise the definition of the financial condition of local government. Based on the definition, the researcher developed dimensions and indicators to measure financial condition. Compared to previous research (see Berne & Schramm, 1986; Brown, 1993; Casal & Gomez, 2011; CICA, 1997; Groves et al., 1981; Hendrick, 2004; Jones & Walker, 2007; Kamnikar et al., 2006; Kloha et al., 2005a; Nollenberger et al., 2003; Wang et al., 2007), which built arbitrary dimensions and indicators of financial condition, this study offers a more logical flow of dimensions and indicators forming the financial condition concept.
2. possess the qualities of measurement validity and reliability (Cooper & Schindler 2011; Wang et al., 2007). Chapter 6 analysed the reliability and validity of the measure. The reliability and validity of the measure were tested systematically and comprehensively. Results of the analysis show that the measure possesses the qualities of reliability and validity, including face, content, predictive, concurrent and convergent validities.
3. assess local government financial condition as a whole (Wang et al., 2007). This study used local government financial statements, which are prepared based on governmental accounting standards to measure the financial condition of entire local government. This circumstance fulfils the criterion of assessing local

government financial condition as a whole.

4. provide predictive ability, which means that the information provided by the measure can be used to recognise financial distress before it becomes a financial emergency (Kloha et al., 2005a). Predictive ability also means that the information provided by the measure can be used to recognise factors that are believed to be associated with it. This criterion was fulfilled when this study analysed predictive and distinctive validity in Chapter 6.
5. distinguish among the local governments evaluated (Kloha et al., 2005a). The criterion is intended to avoid the risk of type I and type II errors. Type I errors take place when a local government is concluded as financially health although in reality it is not healthy, whereas type II errors take place when a local government is declared financially poor when in fact it is not poor. This criterion was satisfied when this study analysed concurrent validity in Chapter 6.
6. utilise data that are available to the public, uniform and collected regularly. As a result, the measure will be objective and resistant to manipulation and gaming (Kloha et al., 2005a). As described in Chapter 6, the data used to develop the measure (i.e. the financial statements of local governments and socioeconomic data) were sourced from state institutions, namely the Supreme Audit Board and the Central Bureau of Statistics. The data are periodically released to the public by these institutions. Therefore the data meet the criteria of being publicly available, uniform and frequently collected.
7. be practical which, as Cooper and Schindler (2011) explain, is related to various factors of economy, convenience and interpretability. The criterion of economy is satisfied when the model is built based on publicly available, uniform and frequently collected data. Using such data, local governments incur low costs (i.e.

economy) to develop the measure because the data is publicly available. The criterion of convenience is satisfied by the measure because the data needed are periodically released by authorised organisations, and the interpretability criterion is fulfilled as the measure is stated in an index ranging from 0 to 1 so that the stakeholders of local government are able to understand the instrument easily.

Therefore, this study offers a new method to assess the financial condition of local government by proposing new dimensions and indicators and also methods in developing a composite index of financial condition, which will be an improvement on the existing methods.

#### **8.3.2.2 Methodological implications of the factors affecting financial condition**

Based on discussion in Chapter 7, the model developed in this study has the characteristics of BLUE (Best Linear Unbiased Estimator) because it fulfils the assumptions of multivariate regression analysis. Thus, the model developed is a good one. Although the model is good, the adjusted R-square is only 38.9%. This fact means that there is still another 61.1% variance in financial condition that has not been explained by the model. This means that there are still other factors that affect financial condition but are not covered in this study. This is a big challenge for scholars.

Because this study is still in the early stage of examining the financial condition of local government, especially in Indonesia, it focuses on exploring variables explaining financial condition, rather than discussing complex statistics to explain the factors influencing the financial condition of local government. Therefore this study only utilises multivariate regression analysis to test the hypotheses. Results of this study will encourage scholars and practitioners to develop more sophisticated tools that are more advanced than multivariate regression analysis to disclose the factors explaining financial condition.

### **8.3.3 Practical implications**

#### **8.3.3.1 Practical implications of financial condition index**

There are several practical implications of the financial condition index, including the benefits of the financial condition index, parties who should provide the financial condition index and who can benefit from the financial condition index. The following sections discuss the practical implications.

##### *8.3.3.1.1 Benefits of financial condition index*

The existence of a published financial condition index will enhance local governments' public accountability. It can inform stakeholders as to the real financial situation of local government. It is one of the essential elements of the accountability of local government to the public and reflecting a culture of accountability. The public have become more powerful than ever before, asking with more frequency and with more assurance whether its taxes are used efficiently and for the right purposes. (Carmeli, 2002). Up to now, in Indonesia, the one reference of the local governments' public financial accountability has been the opinion on the financial statements issued by the Supreme Audit Board. In the presence of the financial condition index, local governments's public accountability will be stronger because the financial condition index provides information for public financial accountability which is more substantive than the opinion on the audited financial statements issued by the Supreme Audit Board.

As previously discussed in Chapter 1, local government in Indonesia, at each of the provincial, municipal and district levels, must prepare financial statements consisting of balance sheets, statements of actual performance compared to budget and statements of cash flows (Act No. 17/2003; Act No. 1/2004; Act No. 32/2004; Government Regulation No. 58/2005). These financial statements must be audited by the Supreme Audit Board in order to ensure compliance with the government

accounting standards (Act No. 15/2004). These financial statements inform users about the values of total assets, total debt, net assets, total revenues, total expenditures and cash inflows and outflows. However, these audited financial statements do not adequately inform users about local government financial condition or financial health. In other words, the opinion regarding the financial statements tends to look at the attributes of the financial statements rather than the substance of the financial condition. Therefore, this gap is bridged by the existence of a financial condition index.

In order to be listed in the financial condition index, a local government must have reliable financial statements. Local governments that do not have reliable financial statements (i.e. financial statements with qualified or unqualified opinions) cannot be included in the financial condition index because the information given by the financial statements cannot be trusted as to the reasonableness. As a result, such local governments have no financial condition index score. Thus, the inclusion of a local government in the financial condition index is showing a positive signal in local government financial management.

The financial condition index can also be used to rank local governments' bonds. Government Regulation No. 30/2011 regarding regional loan allows local government in Indonesia to borrow money by issuing local government bonds through the capital markets. In this circumstance, the financial condition index can be used by credit rating agencies to assign quality ratings to local government bonds. In addition, the rating of the financial condition index can be used as one of the criteria that must be met by local governments before they issue bonds to the public.

The database used to compile the financial condition index can build the industry ratios for equivalent local government groups. As discussed in Chapter 7, the industry ratios can be based on the mean or median of equivalent local governments. As is the

case in the business sector, the industry ratios can be used as the benchmark for each local government to compare its financial condition to those of other equivalent local governments. Chaney et al. (2002) argue that using ratios as indicators is only useful if the ratios are compared to appropriate benchmarks.

A further implication of using the industry ratios as a benchmark is the emergence of competition among local governments. Local government leaders will compete to be better than other local governments or at least better than their own financial condition in the previous period. The existence of an atmosphere of competition will make local governments more efficient and effective in the delivery of services and goods to the community. In turn, community wellbeing will be improved because the community can obtain better services and goods from local government.

The financial condition index can also be used as a key performance indicator in the local government strategic plans. As one of the key performance indicators, the financial condition index will be one of the measures of the success of local leaders in managing their territory. Local leaders can use the improvement of the financial condition index as an issue in local election campaigns in order to be elected. Honadle et al. (2004) have contended that local government officials strive for better financial health in order to get re-elected by voters.

#### *8.3.3.1.2 Who has responsibility for preparing financial condition index?*

Local government could prepare the financial condition index through the local government inspectorate, the Bappeda,<sup>28</sup> or the SKPKD<sup>29</sup> because these three agencies have the data to analyse the financial condition index. Another reason is that these three bodies would be the primary users of the financial condition index information. The inspectorate could use this information to oversee the financial

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<sup>28</sup> The Bappeda is the Regional Development Planning Agency.

<sup>29</sup> The SKPKD is the Regional Financial Management Agency.

management of local government, the Bappeda could use the financial condition index as an input in the planning of development, while the SKPKD could use the financial condition index as guidance in areas of financial management.

The Supreme Audit Board also could have responsibility to prepare the financial condition index. After the Supreme Audit Board completes the audit of financial statements of local government, then the Supreme Audit Board can prepare the financial condition index based on the audited financial statements.

#### *8.3.3.1.3. Who benefits from financial condition index?*

Based on the practical implications discussed above, it can be concluded that the development of the financial condition index will contribute benefits to the stakeholders of local government. For the local government itself, evaluating its financial condition is important because information resulting from the assessment would help local government to detect any signs of financial distress and in turn to help local governments to avert financial crisis (Jung, 2009) and improve service delivery (Ngwenya, 2010). In addition, local governments can develop an instrument as an alerts system to detect undesirable financial conditions that are likely to happen. In turn, the local government will be in a good situation to identify and avoid financial difficulties before they occur (Kloha et al., 2005a). Honadle (2003) also argues that the existence of such an instrument could be used by local government to avoid negative consequences of poor financial condition for society.

People and business could use the information of financial condition index for decision-making. People will not invest significantly higher levels of trust or confidence in their local government until they perceive improvements in the way it makes decisions and delivers results. Better government performance is a key to rebuilding public trust (Carmeli, 2002a). In addition, the information could be used by people and business to make decisions about whether to move to a more viable

local government area. Further, the information could be used by society as one consideration in the re-election of politicians and business locations (Casal & Gomez, 2011).

For the central government, the results of the study will be valuable, especially for the Ministry of Home Affairs and the Ministry of Finance, in monitoring the financial condition of local government and providing an input to these ministries into developing policies and regulations related to managing local government finance. The central government could use the index as a basis to give rewards or punishments to the local governments. In addition, both the Ministry of Home Affairs and the Ministry of Finance could use the index to create a watch list consisting of local governments in the group with poor financial condition. Such a list has been developed in Australia (Dollery, 2006; Murray & Dollery, 2006) and in the state of Michigan in the United States (Kloha et al., 2005a).

The legislative members of local government and the community can use the information about local government financial condition to observe local government executives in managing local government finance. If the local government's score of this year's financial condition is better than last year's or better than other local governments' scores, it means that the financial condition of the local government has improved, and vice versa. Thus, by using this information they can monitor and evaluate whether the executives are maintaining local government finance steadily in a good condition, compared to other local governments. As a result, there will be competition among local government executives in managing local government finance.

### **8.3.3.2 Practical implications of knowing the factors affecting financial condition of local government**

This current study provides evidence regarding the factors affecting the financial condition of local government. The local government executives and legislators can utilise the evidence in making effective policy pertaining to the financial conditions of local government. In turn, the quality of decision-making regarding local government financial management would be improved in the future.

Based on these results, the financial condition index could bring a message to local governments to pay more attention to the variables of financial efficiency if they want to improve their financial condition. Local government should put the variable of financial efficiency as the first priority because this variable is the variable that can be controlled by local government. Besides that, looking at the coefficients of each variable that significantly influences financial condition, financial efficiency (i.e. 0.376) has the biggest influence on financial condition. This condition means an increase of financial efficiency by one unit will lead to an improved financial condition index by 0.376, assuming that other variables are held fixed.

To increase financial efficiency, local governments should evaluate their operational expenditure. The largest component of operational expenditure is employee expenditure. In Indonesia, the proportion of employee expenditure to total expenditure for the financial year 2011 was more than 50% in 294 local governments. There were several local governments that allocated more than 70% of their budget for employee expenditure (*Harian Kompas*, 25 August 2011, p.1). Thus, local governments should start the evaluation from employee expenditure whenever they want to increase financial efficiency. Local governments have to ensure that they have the optimum number of employees at appropriate levels of salary. If a local government has too many employees, the local government can transfer the excess

employees to another local government that has a shortage of employees. Another way to control employee expenditure is by a moratorium on employee recruitment.

In addition, local government could undertake several strategies in order to reduce employee expenditure, such as reducing overtime, laying off personnel, early retirement and reducing employee compensation levels. Such strategies have been undertaken by local governments in the United States (Morgan & Pammer, 1988).

Furthermore, Hyman (1990) argues that innovations in budgeting policies could reduce the costs of supplying local government-provided services. These policies will push local government top executives to choose the minimum cost alternatives. For example, these alternatives include transferring the responsibility for supplying services and goods to private enterprises if they can supply these services and goods more efficiently. Hyman's argument is supported by Morgan and Pammer's (1988) findings. In their study they found that local governments in the United States use several strategies to improve financial efficiency by implementing better management, adopting labour-saving techniques, contracting out services to the private sector, implementing joint purchasing agreements, shifting responsibilities to other units of government and contracting out services to other units of government.

Honadle et al. (2004) also offer strategies to become more efficient. Such strategies include consolidating departments, combining facilities, closing buildings, eliminating of units of local governments and the like. These strategies could reduce overhead expenditures and achieve economies of scale.

The next priority to improve financial condition is the variable of the cost of services and goods, because this variable can be directly controlled by a local government, although it is the least important looked at from the t-value aspect (i.e.  $t = -2.086$ ). Local government should be careful when determining the regional minimum wage

because this cost is the most important component of the total cost of services and goods. On one side it is a popular policy for local leaders to set the minimum regional wage at a higher level, but on the other side it has a negative association with financial condition.

Regarding the variables of population size and revenue base, which cannot be controlled directly by local government, local government should make policies regarding these variables to improve financial condition. For the variable of population size, because it has a negative association with financial condition, local government should control, but not hinder, the growth of population. For example, local governments should encourage the community to follow family-planning programs. In addition, Honadle et al. (2004) offer other strategies such as making it difficult for people who would have higher demand for services to move into the jurisdiction or making it difficult for them to remain in the jurisdiction. However, this does not mean that local governments hinder population growth at all because on the other hand, population growth contributes to the growth of revenue base in local government jurisdiction.

To expand the revenue base, local government should create a warm climate for economic growth. For example, local government should provide legal certainty and incentives, such as tax reduction, for investors. Other strategies that could be undertaken by local governments are creating jobs, expanding sales by local business and making strategic investments of their resources (Honadle et al., 2004).

#### **8.4 Limitations of the study**

The author notes that limitations still exist in this study. The limitations are:

1. The sample of this study is only taken from local governments on Java islands.

This may invite questions regarding the generalisability of the measure to other

local governments in Indonesia. In addition, to determine the factors affecting financial condition, this study only uses year 2010 data to estimate the regression model due to data availability.

2. This study utilises accounting information derived from local government financial statements in developing a measure to assess the financial condition of local government. Such information has the limitations of monetary expression, simplification and summarisation, judgement and incentives, interim disclosures and estimates, historical cost measurement, unstable monetary unit and the need to understand accounting measurements and disclosures (Bernstein & Wild, 1998; Hendricksen, 1982, Wild et al., 2003).
3. In determining the weight of the dimensions using the Analytic Hierarchy Process, it could be that respondents' levels of expertise are different. Ideally, the level of expertise of respondents should be equal so that the quality of their professional judgements is similar.
4. There may be other factors that influence the financial condition index but are not addressed in this study. Based on the framework of supply, technology is known as one factor that influences the number of products and services produced by an organisation. Baumol (1967) argues that sharply rising costs of supplying government-provided services can be explained by rising input costs and lagging technological innovation. Unfortunately, this study does not examine this variable as one factor that could influence the financial condition index of a local government. The reason for not examining this variable is because there was no data available pertaining to the level of technology utilisation in local governments in Indonesia when this study was run. Other factors that could also influence the financial condition index are geographic location of a local government (Casal & Gomez, 2011), political system (Carmeli, 2003; Garcia et al., 2012), role of culture (Carmeli, 2008) and local government governance (Padovani & Scorsone, 2011).
5. A low adjusted R-square of 0.389 suggests that using a framework of supply and demand potentially limited an investigation of the full range of factors that might

affect the financial condition of local governments.

6. In developing the hypotheses about the factors affecting local government financial condition, it was assumed that the demand for services and goods provided by local government is elastic and those services and goods are normal goods. These assumptions are derived based on research in the United States (Hyman, 1990). Therefore it needs to be proven that those assumptions apply in Indonesia.
7. In formulating a hypothesis about a certain factor affecting local government financial condition, this current study assumed the *ceteris paribus* situation (i.e. other variables are held constant). However, in real situations such assumptions may not hold.

### **8.5 Suggestions for future studies**

The findings of this study offer opportunities for future studies. Future research could consider the following issues:

1. As Wang et al. (2007) suggest, future research could treat the financial condition index as an explanatory variable to explain the effect of the financial condition of local government on response variables, such as the level of local government innovation (Khovanova, 2008) and economic development (Carmeli, 2007).
2. Future research could involve the level of technology as one factor that influences the financial condition of local government.
3. Future research could utilise in-depth interviews to examine why one local government has a good financial condition compared to another local government.
4. Future research could examine the elasticity of the demand for services and goods provided by local governments in Indonesia and determine whether those services and goods are normal goods.
5. Future research could extend the dimensions of financial condition by using non-financial information. Like the dimensions of the balance scorecard, which involve

financial and non-financial factors, there is the possibility to use non-financial information to assess the financial condition of local government.

6. Future research should investigate more deeply the factors affecting the financial condition by relaxing the *ceteris paribus* assumption (i.e. other variables are held constant).
7. Future research could apply the methods of constructing the financial condition index used in this study in other countries.

## **8.6 Conclusions**

The following points conclude the discussion developed in this chapter.

1. The mean values of the indicators forming the financial condition of local government indicate that, on average, local governments in this study show good financial condition. All dimensions show good signals except for the dimension of financial independence. However, the weakness of financial independence is because regulations only allow local governments to raise non-strategic revenue.
2. This study offers a new method to assess the financial condition of local government by proposing new dimensions and indicators and also methods in developing a composite index of the financial conditions, which will be an improvement on the existing methods.
3. The model built in this study is a robust model. The model satisfies the criteria of being theoretically robust, being valid and reliable, assessing the financial condition of local government as a whole, providing predictive ability, distinguishing among the local governments evaluated, utilising data that are available to the public, uniform and collected regularly, and being practical.
4. The model developed in this study will provide benefits to local government itself and its stakeholders (the central government, local parliament, community, investors and potential investors, credit rating agencies, creditors and potential creditors, and the like). The benefits of the model could be used to enhance local

governments' public accountability, to rank the local governments' bonds, to build the industry ratios for equivalent local government groups and to encourage competition among local governments.

5. This study provides underlying theories, the framework of demand and supply, to explain the factors affecting the financial condition of local government, where previous studies did not indicate what theories were used to explain the factors affecting financial condition.
7. This study provides empirical evidence regarding the factors that significantly and not significantly affect the financial condition of local government. The significant factors are population size, cost of production of services and goods, financial efficiency and revenue base. The insignificant factors are population density, age profile of the community and community wealth.

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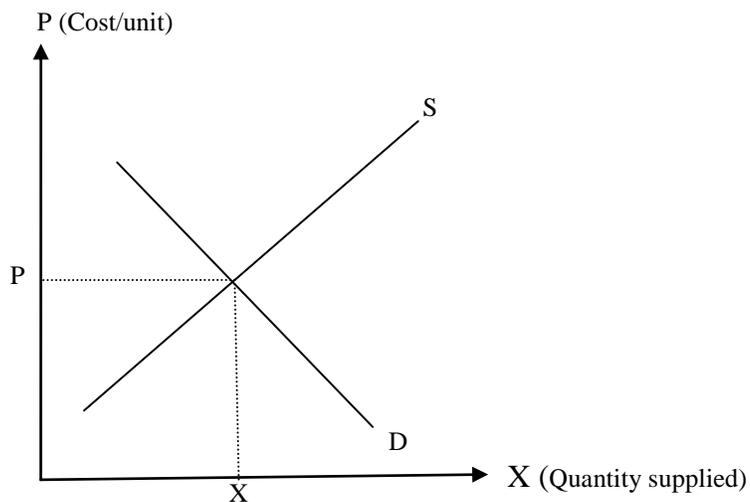
## **APPENDIXES**

**Appendix A:**  
**The framework of demand and supply**

## A.1 The framework of demand

Demand is defined as the amount or quantity of a good or service that is required by a customer (i.e. the community) (Swann, 2006). The framework of demand states that, assuming the products are normal goods,<sup>30</sup> if all other variables are held constant, when the price of a product rises, the quantity demanded of the product will fall and vice versa (Mankiw, 2007). Therefore, the more expensive a product, the less the quantity requested and vice versa. The association between quantity of a good or service demanded and its price is recognised as the demand relationship. The demand relationship shows a downward slope. The following figure shows the relationship of price and quantity demanded.

**Figure A.1: The relationship of price and quantity demanded**



### A.1.2 Factors determining demand of goods and services

In the economic context, there are many variables that affect the quantity demanded. Some of the most important variables are price, income of buyers, prices of related

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<sup>30</sup> Normal good refers to a good that has a characteristic that, if a consumer's income increases, the quantity demanded also increases (Mankiw, 2007).

goods, tastes and preferences, expectation about the future, and number and composition of buyers in the market (Mankiw et al., 1999).

**Income of buyers.** If buyers' income increases, buyers will demand more goods and services due to increased buying capacity. Conversely, when buyers' income decreases, then buyers will demand fewer goods and services. This condition applies to normal goods.<sup>31</sup> In the context of inferior goods,<sup>32</sup> the higher buyers' income, the less will be the quantity of goods and services demanded.

**Prices of related goods.** If two kinds of goods are substitutes, then if the price of one good rises, the demand for the other goods will rise. If two goods are complementary, then if the price of one good rises, the demand for the other goods will also go down.

**Tastes and preferences.** Buyers' tastes and preference will affect the amount of goods and services demanded. For example, the demand for rock music will be higher for younger groups than for older groups.

**Expectation about the future.** If buyers expect their income will rise, then buyers will increase demand for goods and services. In addition, if buyers expect that prices will go up, then buyers will increase the current demand for goods.

**Number and composition of buyers in the market.** The more buyers, the more goods and services will be demanded. This is because market demand is equal to the totality of the personal demand. In addition, if the composition of the population changes, the demand for goods and services changes as well. For example, the higher the proportion of young groups in the population, the higher will be the demand for parks and schools.

## **A.2 The framework of supply**

Supply is interpreted as the amount of an output that a manufacturer (i.e. local government) is available to and capable of delivering to the market (i.e. the

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<sup>31</sup> A good for which demand increases as income increases (Swann, 2006)

<sup>32</sup> A good for which demand decreases as income increases (Swann, 2006)

community) at a specified price (i.e. the cost to produce services and goods) in a given time period (Swann, 2006).

The fundamental rule of supply is that when the price of a product goes up, manufacturers will increase their supply to the market. The relationship between the quantity of a good or service offered to the marketplace and its price is identified as the supply relationship. Different from the direction of the demand relationship, the direction of the slope of the supply relationship is upward. This indicates that the higher the price of the product, the greater the number of products offered by the producers. Such conditions will lead to increase in producers' total revenues. Figure A.1 above depicts this relationship.

### **A.2.1 Factors determining supply of goods and services**

In the economic context, many variables affect the supply of services and goods. Some of the most important variables are: price, input prices of relevant resources, technology, expectations of suppliers and number of suppliers in the market (Mankiw, 2007).

**Input prices of related resources.** The more expensive the price of relevant resources (such as labour, direct materials, electricity), the higher will be the production costs to be incurred by the supplier. As a result, suppliers will reduce the amount of goods and services supplied.

**Technology.** Technology is used by suppliers to combine relevant resources to produce goods and services. The more advanced the technology used, the lower will be the cost of production. Thus, the supplier can supply more goods and services.

**Suppliers' expectations.** If the supplier predicts that the prices of goods will rise in the future, then the supplier will supply more goods to the market. This condition applies if the goods are difficult to store and not durable. For goods that are easily

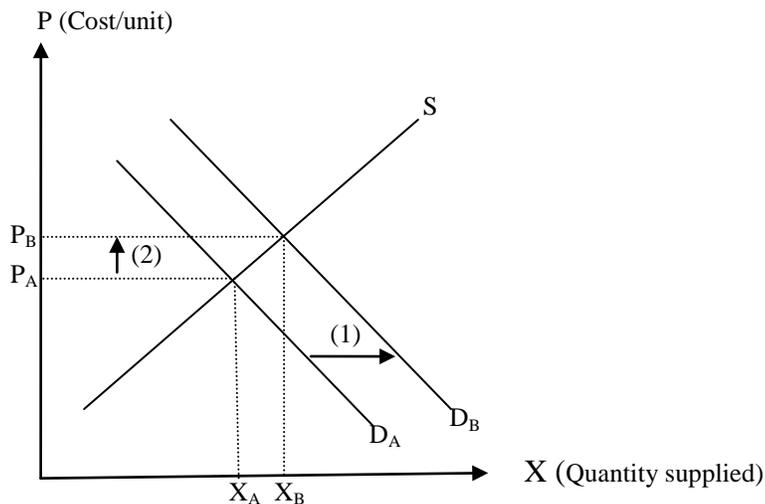
stored and durable, such as gold and fuel, then the supplier will reduce the number of goods supplied.

**Number of suppliers.** The higher the number of suppliers, the higher will be the number of goods and services supplied to the market. This is because market supply is the sum of individual supply.

### A.3 Impact of changes on quantity demanded

If there is a change in quantity demanded due to one of the economic determinants, then the demand curve will move to the right (in case of increasing demand) or to the left (in case of decreasing demand). If demand increases, while the supply curve is constant, then the amount of goods supplied will increase, resulting in a higher price than the previous price, and vice versa. Figure A.2 below explains the mechanism of the impact of changes in economic determinants on the quantity demanded.

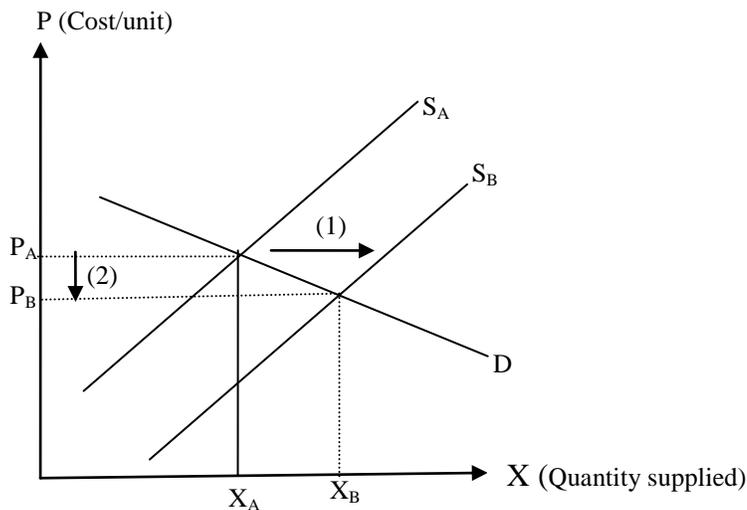
**Figure A.2: The effect of changes in demand curve (in case of increase in demand)**



#### A.4 Impact of changes on quantity supplied

If there is a change in supply due to one of the economic determinants of supply changes, then the supply curve will move to the right (in case of increasing supply) or to the left (in case of decreasing supply). If supply increases, while the demand curve is constant, then the amount of goods supplied will increase, resulting in a lower price than the previous price, and vice versa. Figure A.3 explains the mechanism of the impact of changes in economic determinants on the quantity supplied.

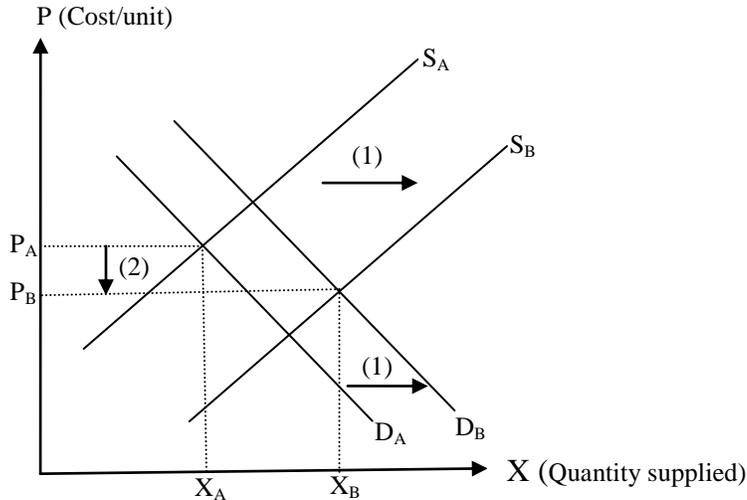
**Figure A.3: The effect of changes in supply curve (in the case of increase in supply)**



#### A.5 Simultaneous changes in demand and supply

If changes in demand and supply occur simultaneously, then the impact of the change ultimately depends on which change is more dominant. If the change in demand is more dominant than the change in supply, then the amount of goods supplied will increase, resulting in a higher price than the previous price. If the change in supply is more dominant than the change in demand, then the amount of goods supplied will increase, leading to a lower price than the previous price. Figure A.4 explains the mechanism of the impact of simultaneous changes in demand and supply.

**Figure A.4: The effect of simultaneous changes in demand and supply curves**



**Note:** Because the difference in supply is greater than the difference in demand, the net result is a decrease in price, and vice versa.

## A.6 Elasticity of demand and supply

Elasticity of demand/supply is a scale to measure the change in the number of goods/services demanded or goods/services supplied due to changes in one of the economic factors that influence this (Mankiw, 2007). The following paragraphs discuss the elasticity of demand and elasticity of supply in response to changes in price.

### A.6.1 The price elasticity of product demand

The price elasticity of demand is a scale to measure a change in the amount of a product demanded due to an alteration in the price of that product (Mankiw, 2007). It is calculated as a ratio of the proportion difference in the amount demanded to the proportion difference in price.

$\text{Price elasticity of demand} = \% \text{ difference in demand} / \% \text{ difference in price}$
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Demand for a good/service is declared to be elastic when the number of goods/services demanded changes significantly in response to changes in prices, whereas inelastic demand for a good is a condition when the quantity demanded only changes slightly when the price of that good changes. In the case of elastic demand, every 1% decline in prices will cause a rise in the quantity demanded by more than 1%. As a result, there is an increase in total revenue (for sellers) or total expenditure (for buyers). In contrast, in the case of inelastic demand, every 1% decrease in price will be responded to by a rise in the quantity demanded by less than 1%. In turn, there will be a decrease in total revenue (for sellers) or total expenditure (for buyers).

Factors that determine the price elasticity of demand include presence of close alternatives, nature of the products (i.e. necessities or luxuries), definition of the market and time horizon (Mankiw, 2007).

### **A.6.2 The price elasticity of product supply**

The price elasticity of product supply is a scale to measure a change in the amount of a product supplied due to an alteration in the price of that product (Mankiw, 2007). It is calculated as the fraction of the difference in the amount supplied divided by the fraction of the difference in price.

$$\text{Price elasticity of supply} = \% \text{ difference in supply} / \% \text{ difference in price}$$

Supply for a good is elastic when the quantity supplied changes significantly in response to changes in prices, whereas inelastic supply for a good is a condition when the quantity supplied only changes slightly when the price of that good changes. In the case of elastic supply, every 1% increase in prices will lead to a rise in the quantity supplied by more than 1%. As a result, there is a rise in total revenue (for sellers) or total expenditure (for buyers). In contrast, in the case of inelastic supply,

every 1% increase in price will be responded to by a rise in quantity supplied by less than 1%. In turn, there will be an increase in total revenue (for sellers) or total expenditure (for buyers), but the increase is less than the increase in the case of elastic supply.

The time period is considered as a factor that influences the price elasticity of supply because the price elasticity of supply is increasing in the long run (Mankiw, 2007).

**Appendix B:**  
**The questionnaire survey**

## The Questionnaire Survey

Below is questionnaire used in this current study to capture the opinion of competent respondents regarding the importance of dimension forming financial condition of local government.

### Instructions

Before you completing this questionnaire, please, read the entire contents and the logic of this questionnaire. For reference please see the example below.

### Example :

In your opinion, what is more important, eating or drinking?

	5	4	3	2	1	2	3	4	5	
Eating					X					Drinking

The left side is more important <-----> the right side is more important

Notes: Number **1** = equally important; Number **2** = slightly more important; Number **3** = more important; Number **4** = much more important; Number **5** = absolutely more important.

You are required to put a cross “**X**” in the column that you think best to choose. Putting a “**X**” in the column to the left of number 1 shows that the choice on the left is more important than the options on the right. Conversely, putting “**X**” in the column to the right of figure 1 shows that the choice on the right is more important than the options on the left.

The meaning of the numbers 1 to 5 in scale of choice can be interpreted as follows:

Number 1	<b>Equally important:</b> two things compared are <u>equally</u> important
Number 2	<b>Slightly more important:</b> one thing compared is <u>slightly more</u> important than other components.
Number 3	<b>More important:</b> one thing compared is <u>more important</u> than other components.
Number 4	<b>Much more important:</b> one thing compared is <b>much more important</b> than other components.
Number 5	<b>Absolutely very important:</b> one thing compared is <u>absolutely very important</u> than other components.

Column which is between existing options, such as a column between numbers 3 and 4, is a choice that has the qualifications of a slightly more important and more important.

In the example above, suppose you think that eating is slightly more important than drinking, then you put a cross (X) in column of number 3, which is located on the left of column number 1.

## **QUESTIONS ABOUT WEIGHT DETERMINATION OF DIMENSIONS OF THE FINANCIAL CONDITION OF LOCAL GOVERNMENT**

### **Introduction**

One of the objectives of this study is to develop a measure of the financial condition of local government based on government financial reporting framework. This study defined financial condition as the ability of local government to meet its financial and service obligations by maintaining solvency, sustainability, flexibility, and invulnerability on a continuing basis. It can be concluded that there are six dimensions forming the financial condition of local government. The six dimensions and their operational definitions are as follows:

#### **1. Short-term solvency**

Short-term solvency demonstrates the ability of local government to fulfil its obligations that mature within 30 to 60 days (Nollenberger et al., 2003). The ability is measured by the ratio of the amount of cash, cash equivalents and investments divided by total current liabilities.

#### **2. Budgetary solvency**

Budgetary solvency demonstrates the ability of local government to generate revenue in order to cover its operational expenditures for one budget period (Nollenberger et al., 2003). The ability is measured by the ratio of the total revenue after deducting the special allocation fund revenue divided by the number of operating expenditure.

#### **3. Long-term solvency**

Long-term solvency demonstrates the ability of local government to fulfil its obligations in the long run (CICA, 1997; Nollenberger et al., 2003). This dimension indicates the sustainability of local government. The ability is measured by the ratio of total long-term liabilities divided by total assets of local government.

#### **4. Service-level solvency**

Service-level solvency indicates the ability of local government to provide public services and maintain the level of public services needed and desired by society (Wang et al., 2007). The ability is measured by the ratio of the amounts of net assets divided by the population.

#### **5. Financial flexibility**

Financial flexibility is a condition in which local government can increase its financial resources to respond to increased commitment, either through increased revenues or increase its debt capacity (CICA 1997). This condition is measured by debt service capacity ratios.

#### **6. Financial independence**

Financial independence is a condition in which local government becomes independent, resulting in invulnerable, to sources of funding beyond its control or influence, both from domestic and international sources (CICA 1997). This condition is measured by a ratio of local government own revenue divided by total revenue.

#### **Instruction**

You are required to give an opinion on the weight of each dimension of the financial condition of local government based on its importance by putting a cross “X” in the column that you think is the best to choose. Filling the column on the left of number 1 shows that the option on the left has a weight that is more important than the options on the right. Conversely, putting a cross “X” in the column to the right of number 1 shows that the choice on the right has a weight that is more important than choice on the left.

Dimension	9	7	5	3	1	3	5	7	9	Dimension
Short-term solvency										Budgetary solvency
Short-term solvency										Long-term solvency
Short-term solvency										Service-level solvency
Short-term solvency										Financial flexibility
Short-term solvency										Financial independence
Budgetary solvency										Long-term solvency
Budgetary solvency										Service-level solvency
Budgetary solvency										Financial flexibility
Budgetary solvency										Financial independence
Long-term solvency										Service-level solvency
Long-term solvency										Financial flexibility
Long-term solvency										Financial independence
Service-level solvency										Financial flexibility
Service-level solvency										Financial independence
Financial flexibility										Financial independence

**Notes:** Number 1 = equally important; Number 2 = slightly more important; Number 3 = more important; Number 4 = much more important; Number 5 = absolutely more important.

**Appendix C**  
**The analytic hierarchy process**

The processes of analytical hierarchy process taken in this study are as follow.

1. Define the objective and criteria of the study.
  - objective: develop the financial conditon index
  - criteria: short-term solvency; long-term solvency; budgetary solvency; financial flexibility; financial independence; service-level solvency
2. Calculate the geometric mean for every pair-wise comparison from all respondents. In this study, there are 15 combinations of pair-wise comparisons. Based on all values of respondent answers, the geometric mean for every pair-wise comparison was calculated using the formula as follows:

$$\text{Log } G = \frac{\sum_{i=1}^n \text{Log } x_i}{n}$$

Log G : logarithm geometric mean

$x_i$  : value of respondent<sub>i</sub>'s answer

n: number of respondent

The results of the pair-wise comparison are as follows:

PAIR-WISE COMPARISON		GEOMETRIC MEAN	1/GEOMETRIC MEAN
Short-term solvency	Budgetary solvency	<b>1.73</b>	<b>1.73</b>
Short-term solvency	Long-term solvency	<b>0.68</b>	<b>0.68</b>
Short-term solvency	Service-level solvency	<b>1.95</b>	<b>1.95</b>
Short-term solvency	Financial flexibility	<b>1.16</b>	<b>1.16</b>
Short-term solvency	Financial independence	<b>1.67</b>	<b>1.67</b>
Budgetary solvency	Long-term solvency	<b>0.60</b>	<b>0.60</b>
Budgetary solvency	Service-level solvency	<b>1.43</b>	<b>1.43</b>
Budgetary solvency	Financial flexibility	<b>0.84</b>	<b>0.84</b>
Budgetary solvency	Financial independence	<b>1.17</b>	<b>1.17</b>
Long-term solvency	Service-level solvency	<b>2.09</b>	<b>2.09</b>
Long-term solvency	Financial flexibility	<b>1.39</b>	<b>1.39</b>
Long-term solvency	Financial independence	<b>1.76</b>	<b>1.76</b>
Service-level solvency	Financial flexibility	<b>0.63</b>	<b>0.63</b>
Service-level solvency	Financial independence	<b>0.85</b>	<b>0.85</b>
Financial flexibility	Financial independence	<b>1.50</b>	<b>1.50</b>

Next, the values of the geometric means were put into a matrix to determine the weight of each dimension.

3. Develop a pair-wise comparison matrix. The form of the pair-wise comparison matrix, called matrix A, is shown as follows:

**Matrix A**

	Short-term solvency	Budgetary solvency	Long-term solvency	Service-level solvency	Financial flexibility	Financial independence
Short-term solvency	1.00	1.73	0.68	1.95	1.16	1.67
Budgetary solvency	0.58	1.00	0.60	1.43	0.84	1.17
Long-term solvency	1.47	1.68	1.00	2.09	1.39	1.76
Service-level solvency	0.51	0.70	0.48	1.00	0.63	0.85
Financial flexibility	0.86	1.20	0.72	1.58	1.00	1.50
Financial independence	0.60	0.86	0.57	1.17	0.67	1.00

4. Determine the weight for each dimension using the values of eigenvectors of the pair-wise comparison matrix. The larger the eigenvector value of a dimension, the more important is the dimension. The steps taken to determine the eigenvectors are as follows.

*Step 1: Squaring pair-wise comparison matrix*

The general principle matrix multiplication is done by multiplying the values of the first row of the matrix with the values of the first column of the matrix. The result of squaring the matrix is:

$$\text{Matrix } A \times A = A^2$$

	Short-term solvency	Budgetary solvency	Long-term solvency	Service-level solvency	Financial flexibility	Financial independence
Short-term solvency	6.00	8.78	5.11	11.59	7.06	9.96
Budgetary solvency	4.19	6.00	3.54	7.92	4.86	6.82
Long-term solvency	7.23	10.53	6.00	13.70	8.39	11.79
Service-level solvency	3.19	4.58	2.66	6.00	3.68	5.17
Financial flexibility	5.18	7.48	4.35	9.81	6.00	8.44
Financial independence	3.71	5.32	3.10	6.98	4.28	6.00

*Step 2:* Sum the values of each row of the matrix resulting from step 1, then normalised the total values by dividing the total values of each row with the total values of the matrix to obtain the eigenvector (E1). The result is as follow:

	Total	Eigenvector
16.00	48.499	<b>0.206</b>
4.19	33.323	<b>0.142</b>
7.23	57.638	<b>0.245</b>
3.19	25.277	<b>0.107</b>
5.18	41.251	<b>0.175</b>
3.71	29.390	<b>0.125</b>
Total	235.377	<b>1.000</b>

*Step 3:* To double-check the value of the eigenvector (E1), the results of the squaring matrix in step 1 is squared again and redo step 2 as stated above to obtain the new eigenvector (E2). Then compare the first and second eigenvectors. If both values show no change or only slight change, it means that the value of the first eigenvector is correct. However, if otherwise, then the first eigenvector is wrong; repeat again step 1 to step 3 until the eigenvector is unchanged or only slightly changed. The results of step 3 are as follows:

						<b>Total</b>	<b>Eigenvector</b>
220.17	318.03	184.78	417.44	255.52	359.09	1755.036	<b>0.206</b>
151.52	218.88	127.17	287.29	175.85	247.14	1207.844	<b>0.142</b>
261.70	378.03	219.65	496.21	303.73	426.85	2086.175	<b>0.245</b>
114.92	166.00	96.45	217.89	133.37	187.44	916.073	<b>0.107</b>
187.46	270.79	157.33	355.44	217.56	305.75	1494.333	<b>0.175</b>
133.61	193.00	112.14	253.34	155.07	217.93	1065.082	<b>0.125</b>
<b>Total</b>						8524.543	<b>1.000</b>

The difference of eigenvector 1 (E1) and eigenvector 2 (E2) is as follows:

<b>Eigenvector (E1) – Eigenvector (E2)</b>	<b>E1 - E2</b>	<b>Percentage</b>
Short-term solvency	0.00017	0.02%
Budgetary solvency	-0.00012	-0.01%
Long-term solvency	0.00015	0.01%
Service-level solvency	-0.00007	-0.01%
Financial flexibility	-0.00004	0.00%
Financial independence	-0.00008	-0.01%
<b>Total</b>	0.00000	0.00%

The difference of the two eigenvectors is small, so it can be concluded that the first eigenvector (E1) is correct. Therefore, the weight of each dimension can be determined based on the result of eigenvector 1, as shown in the following table:

<b>Dimensions</b>	<b>Weight</b>
Short-term solvency	0.206
Budgetary solvency	0.142
Long-term solvency	0.245
Service-level solvency	0.107
Financial flexibility	0.175
Financial independence	0.125
<b>Total</b>	<b>1,000</b>

5. Assess the consistency of the respondents' answers.

The steps that must be taken to determine if the assessment results are consistent are described in the following paragraphs.

*Step 1: Determine Weighted Sum Vector (WSV).*

This step is done by multiplying the rows of the priority matrix by the columns of the pair-wise comparison matrix. Then the result is added horizontally for each row as follows:

	Pair-wise comparison matrix						Priority matrix	WSV
Short-term solvency	1	1.73	0.68	1.95	1.16	1.67	0.206	1.239
Budgetary solvency	0.58	1	0.60	1.43	0.84	1.17	0.142	0.853
Long-term solvency	1.47	1.68	1	2.09	1.39	1.76	0.245	1.473
Service-level solvency	0.51	0.70	0.48	1	0.63	0.85	0.107	0.647
Financial flexibility	0.86	1.20	0.72	1.58	1	1.50	0.175	1.055
Financial independence	0.60	0.86	0.57	1.17	0.67	1	0.125	0.752

*Step 2: Calculate Consistency Vector (CV)*

This step is done by dividing each element of the WSV with each element of the priority matrix.

CV =	1.239/0.206 = 6,0072
	0.853/0.142 = 6,0065
	1.473/0.245 = 6,0067
	0.647/0.107 = 6,0081
	1.055/0.175 = 6,0068
	0.752/0.125 = 6,0075

*Step 3: Calculate Lambda and Consistency Index (CI)*

Lambda ( $\lambda$ ) is the average of the consistency vector. In this case, lambda is 6.0071.

The formula to calculate the consistency index is:

$$CI = \frac{\lambda - n}{n - 1}$$

where n is the sum of the dimensions are being compared. In this case, n is six. The result of the consistency index is 0.001425188.

*Step 4: Calculate the Consistency Ratio (CR)*

The consistency ratio is the result of the Consistency Index (CI) divided by the Random Index (RI).

$$CR = \frac{CI}{RI}$$

The random index is a function of the number of alternatives or dimensions being compared. The random indexes are shown in the following table:

**Table I.1**  
**Random indexes for various numbers of alternatives**

Number of alternatives (n)	Random Indexes (RI)
2	0.00
3	0.58
4	0.90
5	1.12
6	1.24
7	1.32
8	1.41

In this study, the number of alternatives compared is six, so the random index is 1.24. Therefore, the consistency ratio is  $0.001425188/1.24 = 0.0011$  or 0.11%. The consistency ratio is less than 10%, so it can be concluded that the assessment in point 4 is consistent. An acceptable consistency ratio is smaller than or equivalent to 0.1, although in some cases ratios greater than ten percent can be considered acceptable (Forman & Selly, 2001).

**Appendix D:**  
**Groups of local government used for developing indicator  
index and dimension index**

### Group of Municipal Local Government

1	Kota Bogor
2	Kota Sukabumi
3	Kota Bandung
4	Kota Cirebon
5	Kota Bekasi
6	Kota Depok
7	Kota Cimahi
8	Kota Tasikmalaya
9	Kota Banjar
10	Kota Magelang
11	Kota Surakarta
12	Kota Salatiga
13	Kota Semarang
14	Kota Pekalongan
15	Kota Tegal
16	Kota Yogyakarta
17	Kota Kediri
18	Kota Blitar
19	Kota Malang
20	Kota Probolinggo
21	Kota Pasuruan
22	Kota Mojokerto
23	Kota Madiun
24	Kota Surabaya
25	Kota Batu
26	Kota Tangerang
27	Kota Cilegon
28	Kota Serang
29	Kota Tangerang Selatan

### Group of District Local Government

1	Kabupaten Bogor	43	Kabupaten Pekalongan
2	Kabupaten Sukabumi	44	Kabupaten Pematang
3	Kabupaten Cianjur	45	Kabupaten Tegal
4	Kabupaten Bandung	46	Kabupaten Brebes
5	Kabupaten Garut	47	Kabupaten Kulon Progo
6	Kabupaten Tasikmalaya	48	Kabupaten Bantul
7	Kabupaten Ciamis	49	Kabupaten Gunung Kidul
8	Kabupaten Kuningan	50	Kabupaten Sleman
9	Kabupaten Cirebon	51	Kabupaten Pacitan
10	Kabupaten Majalengka	52	Kabupaten Ponorogo
11	Kabupaten Sumedang	53	Kabupaten Trenggalek
12	Kabupaten Indramayu	54	Kabupaten Tulungagung
13	Kabupaten Subang	55	Kabupaten Blitar
14	Kabupaten Purwakarta	56	Kabupaten Kediri
15	Kabupaten Karawang	57	Kabupaten Malang
16	Kabupaten Bekasi	58	Kabupaten Lumajang
17	Kabupaten Bandung Barat	59	Kabupaten Jember
18	Kabupaten Cilacap	60	Kabupaten Banyuwangi
19	Kabupaten Banyumas	61	Kabupaten Bondowoso
20	Kabupaten Purbalingga	62	Kabupaten Situbondo
21	Kabupaten Banjarnegara	63	Kabupaten Probolinggo
22	Kabupaten Kebumen	64	Kabupaten Pasuruan
23	Kabupaten Purworejo	65	Kabupaten Sidoarjo
24	Kabupaten Wonosobo	66	Kabupaten Mojokerto
25	Kabupaten Magelang	67	Kabupaten Jombang
26	Kabupaten Boyolali	68	Kabupaten Nganjuk
27	Kabupaten Klaten	69	Kabupaten Madiun
28	Kabupaten Sukoharjo	70	Kabupaten Magetan
29	Kabupaten Wonogiri	71	Kabupaten Ngawi
30	Kabupaten Karanganyar	72	Kabupaten Bojonegoro
31	Kabupaten Sragen	73	Kabupaten Tuban
32	Kabupaten Grobogan	74	Kabupaten Lamongan
33	Kabupaten Blora	75	Kabupaten Gresik
34	Kabupaten Rembang	76	Kabupaten Bangkalan
35	Kabupaten Pati	77	Kabupaten Sampang
36	Kabupaten Kudus	78	Kabupaten Pamekasan
37	Kabupaten Jepara	79	Kabupaten Sumenep
38	Kabupaten Demak	80	Kabupaten Pandeglang
39	Kabupaten Semarang	81	Kabupaten Lebak
40	Kabupaten Temanggung	82	Kabupaten Tangerang
41	Kabupaten Kendal	83	Kabupaten Serang
42	Kabupaten Batang		

**Appendix E:**  
**Indicator indexes and dimension indexes for municipal local  
government**

**E1. Municipal local governments' indicator indexes for short-term solvency from 2007 to 2010**

No.	Municipal local government	Indicator index A				Indicator index B				Indicator index C				Short-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
1	Kota Bogor	1	0.39	0.4	0.36	1	0.37	0.4	0.36	1	0.37	0.4	0.36	1	0.38	0.4	0.36
2	Kota Sukabumi	0.38	0.3	0.08	0.01	0.37	0.28	0.07	0.02	0.37	0.29	0.07	0.02	0.37	0.29	0.07	0.01
3	Kota Bandung	0.32	0.09	0.13	0.15	0.32	0.07	0.13	0.15	0.32	0.07	0.12	0.15	0.32	0.08	0.13	0.15
4	Kota Cirebon	0.53	0.11	0.14	0	0.53	0.08	0.13	0	0.53	0.08	0.12	0.01	0.53	0.09	0.13	0
5	Kota Bekasi	0.33	0.1	0.11	0.01	0.35	0.08	0.1	0.01	0.35	0.08	0.1	0.01	0.34	0.09	0.11	0.01
6	Kota Depok	0.33	0.11	0.15	0.2	0.33	0.09	0.14	0.19	0.32	0.09	0.13	0.19	0.33	0.1	0.14	0.19
7	Kota Cimahi	0.5	0.08	0.13	0.07	0.49	0.05	0.12	0.06	0.49	0.04	0.11	0.06	0.49	0.06	0.12	0.06
8	Kota Tasikmalaya	0.31	0.05	0.1	0.01	0.31	0.02	0.1	0.02	0.31	0.02	0.1	0.02	0.31	0.03	0.1	0.02
9	Kota Banjar	0.44	0.11	0.18	0.17	0.43	0.1	0.17	0.17	0.43	0.1	0.16	0.16	0.44	0.11	0.17	0.17
10	Kota Magelang	0.34	0.13	0.11	0.09	0.34	0.1	0.1	0.09	0.34	0.1	0.1	0.09	0.34	0.11	0.1	0.09
11	Kota Surakarta	0.19	0.06	0	0	0.19	0.04	0	0	0.2	0.04	0	0	0.19	0.05	0	0
12	Kota Salatiga	0.43	0.14	0.13	0.09	0.42	0.11	0.13	0.08	0.42	0.11	0.12	0.08	0.42	0.12	0.13	0.08
13	Kota Semarang	0.5	0.15	0.15	0.07	0.5	0.12	0.14	0.06	0.5	0.12	0.14	0.05	0.5	0.13	0.14	0.06
14	Kota Pekalongan	0.55	0.33	0.98	0.24	0.54	0.31	0.98	0.23	0.55	0.31	0.98	0.23	0.55	0.32	0.98	0.23
15	Kota Tegal	0.52	0.14	0.15	0.21	0.51	0.11	0.14	0.21	0.51	0.11	0.13	0.2	0.51	0.12	0.14	0.21
16	Kota Yogyakarta	0.44	0.13	0.15	0.12	0.43	0.1	0.15	0.12	0.43	0.1	0.14	0.12	0.43	0.11	0.15	0.12
17	Kota Kediri	0.39	0.13	0.25	0.11	0.39	0.1	0.25	0.11	0.39	0.1	0.24	0.1	0.39	0.11	0.25	0.11
18	Kota Blitar	0.47	0.09	0.17	0.18	0.47	0.06	0.17	0.18	0.47	0.06	0.17	0.18	0.47	0.07	0.17	0.18

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No.	Municipal local government	Indicator index A				Indicator index B				Indicator index C				Short-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
19	Kota Malang	0	0.06	0.05	0.04	0	0.03	0.04	0.04	0	0.03	0.04	0.04	0	0.04	0.04	0.04
20	Kota Probolinggo	0.24	0.1	0.14	0.13	0.23	0.07	0.13	0.13	0.23	0.07	0.13	0.12	0.23	0.08	0.14	0.13
21	Kota Pasuruan	0.86	0.29	0.35	0.21	0.86	0.27	0.35	0.21	0.86	0.27	0.34	0.21	0.86	0.27	0.35	0.21
22	Kota Mojokerto	0.67	1	0.34	1	0.66	1	0.34	1	0.66	1	0.33	1	0.66	1	0.34	1
23	Kota Madiun	0.1	0.36	1	0.42	0.1	0.34	1	0.41	0.1	0.34	1	0.41	0.1	0.34	1	0.41
24	Kota Surabaya	0.31	0.11	0.11	0.05	0.3	0.08	0.1	0.05	0.29	0.07	0.09	0.04	0.3	0.09	0.1	0.05
25	Kota Batu	0.52	0.25	0.24	0.23	0.52	0.23	0.23	0.23	0.51	0.22	0.23	0.22	0.52	0.23	0.23	0.23
26	Kota Tangerang	0.44	0.14	0.3	0.16	0.44	0.11	0.29	0.16	0.44	0.11	0.29	0.15	0.44	0.12	0.29	0.16
27	Kota Cilegon	0.16	0	0.1	0.24	0.2	0	0.12	0.23	0.2	0	0.11	0.23	0.19	0	0.11	0.23
28	Kota Serang	N.A.	0.17	0.08	0.12	N.A.	0.14	0.07	0.12	N.A.	0.15	0.07	0.12	N.A.	0.15	0.07	0.12
29	Kota Tangerang Selatan	N.A.	N.A.	0.29	0.19	N.A.	N.A.	0.28	0.19	N.A.	N.A.	0.28	0.19	N.A.	N.A.	0.29	0.19

## E2. Municipal local governments' indicator indexes for long-term solvency from 2007 to 2010

No.	Municipal local government	Indicator index A				Indicator index B				Long-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10
1	Kota Bogor	1.00	0.39	0.40	0.36	1.00	1.00	0.94	0.94	1.00	0.70	0.67	0.65
2	Kota Sukabumi	0.25	0.31	0.10	0.03	0.95	0.99	0.89	0.89	0.60	0.65	0.50	0.46
3	Kota Bandung	0.37	0.12	0.16	0.18	0.22	0.25	1.00	1.00	0.30	0.19	0.58	0.59
4	Kota Cirebon	0.26	0.06	0.12	0.04	0.07	0.07	0.09	0.07	0.17	0.07	0.11	0.06
5	Kota Bekasi	0.04	0.07	0.11	0.02	0.00	0.11	0.11	0.11	0.02	0.09	0.11	0.07
6	Kota Depok	0.13	0.05	0.12	0.16	0.05	0.06	0.12	0.93	0.09	0.06	0.12	0.55
7	Kota Cimahi	0.21	0.00	0.05	0.00	0.06	0.00	0.00	0.00	0.14	0.00	0.03	0.00
8	Kota Tasikmalaya	0.09	0.03	0.10	0.05	0.18	0.23	0.26	0.92	0.14	0.13	0.18	0.49
9	Kota Banjar	0.24	0.08	0.16	0.14	0.94	0.95	0.89	0.89	0.59	0.52	0.53	0.52
10	Kota Magelang	0.27	0.10	0.12	0.10	0.97	0.97	0.91	0.91	0.62	0.54	0.52	0.51
11	Kota Surakarta	0.08	0.03	0.08	0.05	0.02	0.02	0.05	0.05	0.05	0.03	0.07	0.05
12	Kota Salatiga	0.26	0.09	0.13	0.08	0.95	0.96	0.90	0.90	0.61	0.53	0.52	0.49
13	Kota Semarang	0.16	0.06	0.10	0.04	0.04	0.06	0.06	0.08	0.10	0.06	0.08	0.06
14	Kota Pekalongan	0.50	0.34	0.99	0.24	0.96	0.97	0.91	0.91	0.73	0.66	0.95	0.58
15	Kota Tegal	0.17	0.05	0.09	0.10	0.05	0.05	0.06	0.07	0.11	0.05	0.08	0.09
16	Kota Yogyakarta	0.22	0.08	0.14	0.11	0.07	0.09	0.10	0.12	0.15	0.09	0.12	0.12
17	Kota Kediri	0.31	0.08	0.25	0.09	0.97	0.97	0.91	0.91	0.64	0.53	0.58	0.50
18	Kota Blitar	0.44	0.15	0.24	0.21	0.99	0.97	0.91	0.91	0.72	0.56	0.58	0.56
19	Kota Malang	0.00	0.05	0.06	0.06	0.07	0.07	0.04	0.11	0.04	0.06	0.05	0.09

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No.	Municipal local government	Indicator index A				Indicator index B				Long-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10
20	Kota Probolinggo	0.19	0.10	0.14	0.11	0.95	0.95	0.92	0.89	0.57	0.53	0.53	0.50
21	Kota Pasuruan	0.73	0.22	0.31	0.18	0.95	0.95	0.89	0.89	0.84	0.59	0.60	0.54
22	Kota Mojokerto	0.47	1.00	0.35	1.00	0.17	0.95	0.92	0.89	0.32	0.98	0.64	0.95
23	Kota Madiun	0.00	0.34	1.00	0.40	0.95	0.95	0.92	0.92	0.48	0.65	0.96	0.66
24	Kota Surabaya	0.16	0.05	0.10	0.06	0.06	0.06	0.07	0.08	0.11	0.06	0.09	0.07
25	Kota Batu	0.44	0.22	0.22	0.21	0.95	0.95	0.86	0.87	0.70	0.59	0.54	0.54
26	Kota Tangerang	0.17	0.05	0.27	0.12	0.05	0.05	0.94	0.94	0.11	0.05	0.61	0.53
27	Kota Cilegon	0.00	0.01	0.13	0.28	0.00	0.06	0.91	0.91	0.00	0.04	0.52	0.60
28	Kota Serang	N.A.	0.07	0.00	0.06	N.A.	0.76	0.77	0.85	N.A.	0.42	0.39	0.46
29	Kota Tangerang Selatan	N.A.	N.A.	0.20	0.13	N.A.	N.A.	0.79	0.91	N.A.	N.A.	0.50	0.52

**E3: Municipal local governments' indicator indexes for budgetary solvency from 2007 to 2010**

No.	Municipal local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Budgetary solvency index			
		7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10
1	Kota Bogor	0.28	0.42	0.53	0.19	0.32	0.49	0.56	0.22	0.4	0.39	0.35	0.31	0.43	0.64	0.6	0.26	0.36	0.49	0.51	0.24
2	Kota Sukabumi	0.19	0.22	0	0.05	0.15	0.22	0	0.05	0.34	0.16	0.35	0.12	0.5	0.22	0.13	0.42	0.29	0.21	0.12	0.16
3	Kota Bandung	0.15	0.34	0.6	0.21	0.12	0.34	0.6	0.21	0.22	0.38	0.34	0.38	0.41	0.23	0.62	0.78	0.23	0.33	0.54	0.4
4	Kota Cirebon	0	0.36	0.45	0.12	0.12	0.36	0.44	0.11	0.31	0.33	0.27	0.26	0.24	0.51	0.49	0.19	0.17	0.39	0.41	0.17
5	Kota Bekasi	0.6	0.66	0.59	0.33	0.58	0.66	0.59	0.32	0.48	0.61	0.24	0.17	0.39	0.36	0.36	0.42	0.51	0.57	0.44	0.31
6	Kota Depok	0.34	0.72	0.77	0.41	0.33	0.73	0.84	0.4	0.49	0.74	0.41	0.68	0.35	0.34	0.58	0.48	0.38	0.63	0.65	0.49
7	Kota Cimahi	0.14	0.3	0.58	0.13	0.12	0.31	0.58	0.13	0.25	0.16	0.27	0.28	0.19	0.24	0.68	0.37	0.18	0.25	0.53	0.23
8	Kota Tasikmalaya	0.1	0.22	0.49	0.08	0.06	0.22	0.49	0.07	0.02	0.04	0.17	0.09	0.27	0.21	0.5	0.29	0.11	0.17	0.41	0.13
9	Kota Banjar	1	0.32	0.44	0.39	1	0.32	0.44	0.39	1	0.44	0.36	0.46	0.51	0.02	0.15	0.58	0.88	0.27	0.35	0.46
10	Kota Magelang	0.12	0.08	0.39	0.09	0.08	0.12	0.39	0.09	0.11	0.09	0.13	0.03	0.24	0	0.17	0.38	0.14	0.07	0.27	0.15
11	Kota Surakarta	0.12	0.42	0.31	0.18	0.08	0.42	0.31	0.17	0	0.18	0.12	0.09	0.22	0.27	0.34	0.53	0.11	0.32	0.27	0.24
12	Kota Salatiga	0.41	0.97	0.54	0.32	0.38	0.97	0.54	0.31	0.17	0.43	0.2	0.2	0.71	0.61	0	0.39	0.42	0.75	0.32	0.31
13	Kota Semarang	0.03	0.23	0.47	0.06	0	0.23	0.47	0.06	0.3	0.29	0.28	0.22	0.28	0.37	0.47	0.27	0.15	0.28	0.42	0.15
14	Kota Pekalongan	0.17	0.41	0.49	0.14	0.14	0.52	0.55	0.2	0.45	0.48	0.29	0.3	0.31	0.21	0.52	0.41	0.27	0.41	0.46	0.26
15	Kota Tegal	0.18	0.38	0.46	0.1	0.15	0.38	0.46	0.09	0.17	0.14	0.27	0.28	0.24	0.25	0.19	0.36	0.19	0.29	0.34	0.21
16	Kota Yogyakarta	0.08	0.32	0.29	0	0.05	0.32	0.29	0	0.03	0.04	0.12	0	0.4	0.48	0.28	0.36	0.14	0.29	0.24	0.09
17	Kota Kediri	0.43	0.79	0.59	0.49	0.4	0.79	0.59	0.48	0.6	0.72	0.4	0.53	0	0.82	0.26	0.44	0.36	0.78	0.46	0.48
18	Kota Blitar	0.06	0.53	0.63	0.47	0.02	0.54	0.63	0.46	0.17	0.26	0.31	0.46	0.03	0.23	0.44	0.51	0.07	0.39	0.5	0.48
19	Kota Malang	0.28	0.6	0.67	0.46	0.25	0.61	0.67	0.47	0.25	0.34	0.3	0.4	0.32	0.58	0.37	0.48	0.27	0.53	0.5	0.46

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No.	Municipal local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Budgetary solvency index			
		7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10
20	Kota Probolinggo	0.32	0.39	0.7	0.44	0.3	0.39	0.69	0.43	0.55	0.51	0.38	0.5	0.17	0.21	0.52	0.52	0.33	0.38	0.57	0.47
21	Kota Pasuruan	0.29	0.46	0.4	0.04	0.26	0.47	0.4	0.04	0.51	0.51	0.26	0.15	0.23	0.71	0.08	0.17	0.32	0.53	0.29	0.1
22	Kota Mojokerto	0.28	0.37	0.51	0.32	0.25	0.37	0.51	0.31	0.63	0.62	0.42	0.61	0.7	0.52	0.1	0.35	0.47	0.47	0.38	0.4
23	Kota Madiun	0.27	0.45	0.55	0.49	0.23	0.45	0.54	0.48	0.01	0	0.13	0.2	0.69	0.59	0.61	0.46	0.3	0.37	0.46	0.41
24	Kota Surabaya	0.62	0.99	0.86	0.25	0.6	0.99	0.86	0.24	0.69	1	0.67	0.63	1	1	0.35	0	0.73	0.99	0.69	0.28
25	Kota Batu	0.57	0.73	0.66	0.5	0.55	0.73	0.67	0.49	0.4	0.57	0.4	0.59	0.5	0.72	0.2	0.57	0.5	0.69	0.49	0.54
26	Kota Tangerang	0.79	1	0.73	0.4	0.77	1	0.73	0.38	0.42	0.47	0.35	0.2	0.54	0.88	0.62	0.33	0.63	0.84	0.61	0.33
27	Kota Cilegon	0.64	0.65	0.65	0.42	0.63	0.65	0.66	0.41	0.58	0.56	0.41	0.54	0.16	0.06	0.55	0.47	0.5	0.48	0.57	0.46
28	Kota Serang	N.A.	0	0.38	0.31	N.A.	0	0.38	0.3	N.A.	0.76	0	0.19	N.A.	0.04	0.52	0.61	N.A.	0.2	0.32	0.35
29	Kota Tangerang Selatan	N.A.	N.A.	1	1	N.A.	N.A.	1	1												

#### E4. Municipal local governments' indicator indexes for financial independence from 2007 to 2010

No.	Municipal local government	Indicator index A				Indicator index B				Financial independence index			
		2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
1	Kota Bogor	0.52	0.81	0.63	0.62	0.47	0.8	0.69	0.63	0.5	0.8	0.66	0.62
2	Kota Sukabumi	0.46	0.82	0.59	0.68	0.42	0.79	0.56	0.74	0.44	0.81	0.58	0.71
3	Kota Bandung	0.69	0.84	0.67	0.74	0.62	0.81	0.73	0.9	0.66	0.82	0.7	0.82
4	Kota Cirebon	0.51	0.77	0.55	0.59	0.43	0.76	0.59	0.57	0.47	0.76	0.57	0.58
5	Kota Bekasi	0.64	0.83	0.7	0.76	0.57	0.81	0.71	0.83	0.6	0.82	0.7	0.79
6	Kota Depok	0.46	0.79	0.55	0.56	0.4	0.77	0.6	0.62	0.43	0.78	0.58	0.59
7	Kota Cimahi	0.52	0.79	0.57	0.61	0.43	0.77	0.65	0.65	0.48	0.78	0.61	0.63
8	Kota Tasikmalaya	0.43	0.75	0.48	0.56	0.36	0.72	0.52	0.56	0.39	0.74	0.5	0.56
9	Kota Banjar	0.12	0.67	0.24	0.42	0.11	0.64	0.23	0.48	0.11	0.65	0.23	0.45
10	Kota Magelang	0.45	0.76	0.57	0.64	0.37	0.73	0.55	0.68	0.41	0.74	0.56	0.66
11	Kota Surakarta	0.62	0.81	0.63	0.58	0.52	0.78	0.64	0.65	0.57	0.8	0.63	0.62
12	Kota Salatiga	0.5	0.77	0.63	0.55	0.49	0.76	0.58	0.58	0.49	0.76	0.61	0.57
13	Kota Semarang	0.79	0.9	0.83	0.8	0.69	0.87	0.86	0.84	0.74	0.88	0.85	0.82
14	Kota Pekalongan	0.26	0.64	0.31	0.5	0.21	0.62	0.36	0.53	0.24	0.63	0.34	0.52
15	Kota Tegal	0.73	0.87	0.88	0.84	0.63	0.84	0.85	0.91	0.68	0.86	0.86	0.87
16	Kota Yogyakarta	0.74	0.88	0.88	0.84	0.66	0.86	0.87	0.91	0.7	0.87	0.88	0.87
17	Kota Kediri	0.59	0.79	0.6	0.57	0.46	0.79	0.59	0.61	0.53	0.79	0.59	0.59
18	Kota Blitar	0.36	0.77	0.45	0.49	0.26	0.75	0.48	0.54	0.31	0.76	0.46	0.51

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No.	Municipal local government	Indicator index A				Indicator index B				Financial independence index			
		2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
19	Kota Malang	0.56	0.77	0.52	0.51	0.49	0.76	0.54	0.55	0.53	0.76	0.53	0.53
20	Kota Probolinggo	0.36	0.72	0.34	0.37	0.28	0.69	0.39	0.41	0.32	0.71	0.37	0.39
21	Kota Pasuruan	0.12	0.68	0.42	0.39	0.07	0.68	0.38	0.34	0.09	0.68	0.4	0.37
22	Kota Mojokerto	0.3	0.68	0.29	0.33	0.31	0.67	0.27	0.32	0.3	0.68	0.28	0.32
23	Kota Madiun	0.19	0.66	0.47	0.33	0.21	0.66	0.53	0.35	0.2	0.66	0.5	0.34
24	Kota Surabaya	1	1	1	1	1	1	1	1	1	1	1	1
25	Kota Batu	0	0.55	0	0	0	0.56	0	0	0	0.56	0	0
26	Kota Tangerang	0.69	0.85	0.72	0.72	0.64	0.85	0.78	0.76	0.66	0.85	0.75	0.74
27	Kota Cilegon	0.78	0.93	0.87	0.84	0.66	0.89	0.91	0.93	0.72	0.91	0.89	0.89
28	Kota Serang	N.A.	0	0.21	0.06	N.A.	0	0.26	0.08	N.A.	0	0.24	0.07
29	Kota Tangerang Selatan	N.A.	N.A.	0.53	0.62	N.A.	N.A.	0.66	0.81	N.A.	N.A.	0.59	0.71

### E5. Municipal local governments' indicator indexes for financial flexibility from 2007 to 2010

No.	Municipal local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Financial flexibility index			
		7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10
1	Kota Bogor	1	0.04	1	0.98	1	0.37	0.37	0.34	1	0.36	0.38	0.34	1	1	0.96	0.96	1	0.44	0.68	0.66
2	Kota Sukabumi	0.22	0.96	0.98	0.95	0.35	0.28	0.07	0.03	0.35	0.26	0.08	0.03	0.98	0.97	0.94	0.93	0.48	0.62	0.52	0.49
3	Kota Bandung	0.21	0.14	0.12	0.27	0.28	0.08	0.09	0.13	0.27	0.07	0.1	0.14	0.19	0.21	1	1	0.24	0.12	0.33	0.38
4	Kota Cirebon	0.18	0.21	0.06	0.17	0.29	0.06	0.08	0.03	0.29	0.05	0.09	0.04	0.08	0.07	0.09	0.06	0.21	0.1	0.08	0.07
5	Kota Bekasi	0.02	0.06	0.14	0.04	0.13	0.08	0.09	0.02	0.15	0.07	0.1	0.02	0.03	0.12	0.12	0.11	0.08	0.08	0.11	0.05
6	Kota Depok	0.04	1	0.06	0.07	0.18	0.06	0.1	0.15	0.2	0.05	0.12	0.16	0.07	0.07	0.14	0.98	0.12	0.3	0.11	0.34
7	Kota Cimahi	0.07	0.15	0.1	0.04	0.29	0.02	0.03	0	0.29	0	0.04	0.01	0.08	0.01	0.01	0	0.18	0.04	0.04	0.01
8	Kota Tasikmalaya	0.35	0.29	0.26	0.26	0.31	0.05	0.07	0.05	0.28	0.03	0.07	0.05	0.24	0.25	0.27	0.95	0.29	0.15	0.17	0.32
9	Kota Banjar	0.99	0.05	0.1	0.95	0.35	0.08	0.14	0.14	0.38	0.07	0.15	0.15	0.99	0.96	0.92	0.93	0.68	0.29	0.33	0.54
10	Kota Magelang	0.96	0.95	0.95	0.94	0.28	0.09	0.07	0.07	0.27	0.07	0.07	0.07	0.96	0.96	0.91	0.91	0.62	0.52	0.5	0.5
11	Kota Surakarta	0.05	0.07	0.02	0.01	0.07	0.02	0	0	0.05	0	0	0	0	0	0	0	0.04	0.02	0	0
12	Kota Salatiga	0.12	0.96	0.95	0.94	0.3	0.09	0.08	0.06	0.29	0.08	0.09	0.07	0.96	0.97	0.92	0.92	0.42	0.53	0.51	0.5
13	Kota Semarang	0.1	0.12	0.11	0.09	0.2	0.06	0.07	0.03	0.2	0.05	0.08	0.04	0.05	0.05	0.07	0.07	0.14	0.07	0.08	0.06
14	Kota Pekalongan	0.06	0.96	0.15	0.95	0.54	0.34	1	0.22	0.55	0.33	1	0.22	0.97	0.97	0.92	0.92	0.53	0.65	0.77	0.58
15	Kota Tegal	0.11	0.16	0.09	0.1	0.2	0.04	0.05	0.05	0.19	0.03	0.06	0.06	0.05	0.04	0.06	0.03	0.14	0.07	0.06	0.06
16	Kota Yogyakarta	0.1	0.13	0.06	0.09	0.25	0.07	0.09	0.09	0.23	0.05	0.09	0.09	0.07	0.07	0.08	0.09	0.16	0.08	0.08	0.09
17	Kota Kediri	0.99	0.22	0.99	0.24	0.36	0.09	0.22	0.09	0.38	0.08	0.24	0.1	0.99	1	0.95	0.96	0.68	0.35	0.6	0.34
18	Kota Blitar	0.14	0.18	0.09	0.96	0.36	0.13	0.19	0.18	0.35	0.12	0.2	0.19	0.96	0.96	0.92	0.93	0.46	0.35	0.35	0.56
19	Kota Malang	0.06	0	0.05	0	0	0.04	0.01	0.04	0	0.03	0.02	0.05	0.06	0.06	0.02	0.1	0.03	0.03	0.03	0.05

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No.	Municipal local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Financial flexibility index			
		7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10
20	Kota Probolinggo	0.98	0.96	0.97	0.96	0.28	0.11	0.09	0.11	0.29	0.11	0.1	0.12	0.98	0.98	0.93	0.94	0.63	0.54	0.53	0.53
21	Kota Pasuruan	0.13	0.95	0.2	0.18	0.79	0.23	0.29	0.18	0.79	0.22	0.3	0.18	0.97	0.97	0.92	0.92	0.67	0.59	0.43	0.36
22	Kota Mojokerto	0	0.09	0.96	0.96	0.53	1	0.3	1	0.55	1	0.32	1	0.19	0.97	0.93	0.93	0.32	0.76	0.63	0.97
23	Kota Madiun	0.96	0	0.95	0.95	0.05	0.34	1	0.37	0.03	0.32	0.99	0.37	0.96	0.96	0.92	0.93	0.5	0.41	0.97	0.66
24	Kota Surabaya	0.06	0.1	0.05	0.06	0.04	0	0.01	0	0.07	0	0.04	0.02	0.02	0.02	0.04	0.04	0.05	0.03	0.04	0.03
25	Kota Batu	0.09	0.03	0.96	0.96	0.47	0.22	0.23	0.22	0.47	0.21	0.24	0.24	0.96	0.97	0.92	0.93	0.5	0.36	0.59	0.59
26	Kota Tangerang	0.1	0.14	0.01	1	0.21	0.05	0.24	0.11	0.22	0.05	0.25	0.12	0.06	0.05	0.97	0.97	0.15	0.07	0.37	0.55
27	Kota Cilegon	0.15	0.06	0	0.06	0.07	0.02	0.13	0.28	0.09	0.01	0.14	0.29	0.03	0.07	0.98	0.95	0.08	0.04	0.31	0.39
28	Kota Serang	N.A.	0.89	0.92	0.1	N.A.	0.2	0.08	0.11	N.A.	0.19	0.06	0.11	N.A.	0.91	0.89	0.93	N.A.	0.55	0.49	0.31
29	Kota Tangerang Selatan	N.A.	N.A.	0.96	1	N.A.	N.A.	0.25	0.14	N.A.	N.A.	0.28	0.16	N.A.	N.A.	0.92	0.97	N.A.	N.A.	0.6	0.57

**E6. Municipal local governments' indicator indexes for service level solvency index from 2007 to 2010**

No.	Municipal local government	Indicator index A				Indicator index B				Indicator index C				Service-level solvency index			
		7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10
1	Kota Bogor	0.46	0.09	0.27	0.55	0.46	0.09	0.27	0.55	0.14	0.02	0.03	0.32	0.35	0.07	0.19	0.47
2	Kota Sukabumi	0.43	0.19	0.27	0.56	0.43	0.19	0.27	0.57	0.61	0.08	0.09	0.67	0.49	0.16	0.21	0.6
3	Kota Bandung	0.71	0.18	0.31	0.8	0.71	0.18	0.33	0.8	0.19	0.04	0.05	0.25	0.54	0.13	0.23	0.61
4	Kota Cirebon	0.63	0.15	0.31	0.76	0.63	0.16	0.31	0.76	0.72	0.09	0.1	0.83	0.66	0.13	0.24	0.78
5	Kota Bekasi	0.14	0	0.21	0.28	0.15	0	0.21	0.28	0	0	0.02	0.11	0.1	0	0.15	0.22
6	Kota Depok	0.25	0.02	0.23	0.33	0.25	0.02	0.22	0.33	0.01	0	0.04	0.06	0.17	0.01	0.16	0.24
7	Kota Cimahi	0.27	0.02	0.23	0.41	0.27	0.03	0.23	0.42	0.27	0.03	0.04	0.4	0.27	0.03	0.17	0.41
8	Kota Tasikmalaya	0	0.04	0.26	0.53	0	0.05	0.26	0.53	0.4	0.06	0.07	0.49	0.13	0.05	0.2	0.52
9	Kota Banjar	0.55	0.14	0.31	0.69	0.55	0.14	0.3	0.69	0.92	0.11	0.12	0.71	0.68	0.13	0.24	0.7
10	Kota Magelang	0.82	0.22	0.36	0.98	0.82	0.22	0.35	0.98	1	0.14	0.14	1	0.88	0.19	0.28	0.99
11	Kota Surakarta	0.65	0.16	0.35	0.93	0.65	0.16	0.35	0.93	0.54	0.08	0.08	0.59	0.61	0.14	0.26	0.82
12	Kota Salatiga	0.63	0.17	0.32	0.8	0.63	0.17	0.32	0.8	0.69	0.11	0.12	0.81	0.65	0.15	0.25	0.8
13	Kota Semarang	0.42	0.09	0.26	0.5	0.42	0.09	0.26	0.5	0.28	0.04	0.05	0.37	0.37	0.07	0.19	0.46
14	Kota Pekalongan	0.53	0.15	0.31	0.7	0.53	0.15	0.3	0.7	0.54	0.08	0.08	0.54	0.53	0.12	0.23	0.64
15	Kota Tegal	0.61	0.15	0.31	0.94	0.61	0.15	0.31	0.94	0.66	0.09	0.1	0.69	0.63	0.13	0.24	0.86
16	Kota Yogyakarta	0.59	0.16	0.32	0.79	0.59	0.16	0.31	0.79	0.6	0.09	0.09	0.74	0.6	0.14	0.24	0.77
17	Kota Kediri	0.64	0.16	0.32	0.78	0.64	0.17	0.32	0.78	0.89	0.11	0.13	0.85	0.72	0.15	0.26	0.81
18	Kota Blitar	1	0.24	0.37	1	1	0.24	0.37	1	0.97	0.13	0.14	0.95	0.99	0.21	0.29	0.98
19	Kota Malang	0.51	0.11	0.29	0.62	0.51	0.11	0.29	0.62	0.28	0.03	0.05	0.41	0.43	0.09	0.21	0.55

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No.	Municipal local government	Indicator index A				Indicator index B				Indicator index C				Service-level solvency index			
		7	8	9	10	7	8	9	10	7	8	9	10	7	8	9	10
20	Kota Probolinggo	0.52	0.12	0.34	0.69	0.52	0.12	0.34	0.69	0.78	0.1	0.11	0.77	0.61	0.11	0.26	0.72
21	Kota Pasuruan	0.58	0.14	0.31	0.68	0.58	0.14	0.3	0.68	0.79	0.1	0.12	0.76	0.65	0.13	0.24	0.71
22	Kota Mojokerto	0.72	0.19	0.4	0.88	0.72	0.19	0.4	0.88	0.98	0.14	0.15	0.98	0.81	0.17	0.32	0.91
23	Kota Madiun	0.62	0.16	0.36	0.98	0.63	0.16	0.36	0.98	0.73	0.11	0.11	0.91	0.66	0.14	0.28	0.96
24	Kota Surabaya	0.81	0.22	0.35	0.9	0.81	0.22	0.35	0.91	0.13	0.03	0.07	0.47	0.59	0.16	0.26	0.76
25	Kota Batu	0.6	0.15	0.25	0.54	0.6	0.15	0.24	0.54	0.63	0.09	0.11	0.71	0.61	0.13	0.2	0.6
26	Kota Tangerang	0.33	0.05	0.25	0.39	0.33	0.05	0.24	0.39	0.08	0.01	0.03	0.18	0.24	0.04	0.17	0.32
27	Kota Cilegon	0.51	0.13	0.3	0.65	0.51	0.13	0.3	0.65	0.65	0.09	0.15	0.64	0.55	0.12	0.25	0.65
28	Kota Serang	N.A.	1	0	0	N.A.	1	0	0	N.A.	1	0	0.21	N.A.	1	0	0.07
29	Kota Tangerang Selatan	N.A.	N.A.	1	0.23	N.A.	N.A.	1	0.23	N.A.	N.A.	1	0	N.A.	N.A.	1	0.15

**APPENDIX F:**  
**Indicator indexes and dimension indexes for district local  
government**

**F1: District local governments' indicator indexes for short-term solvency from 2007 to 2010**

No.	District local government	Indicator index A				Indicator index B				Indicator index C				Short-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
1	Kabupaten Bogor	0.18	0.31	0.26	0.21	0.17	0.31	0.26	0.21	0.16	0.3	0.26	0.21	0.17	0.31	0.26	0.21
2	Kabupaten Sukabumi	0.17	0.33	0.3	0.15	0.17	0.33	0.3	0.15	0.15	0.33	0.3	0.15	0.16	0.33	0.3	0.15
3	Kabupaten Cianjur	0.09	0.08	0.04	0.08	0.08	0.07	0.04	0.08	0.07	0.06	0.04	0.08	0.08	0.07	0.04	0.08
4	Kabupaten Bandung	0.3	0.13	0.08	0.18	0.29	0.13	0.08	0.17	0.28	0.12	0.08	0.17	0.29	0.13	0.08	0.17
5	Kabupaten Garut	0.16	0.12	0.14	0.07	0.16	0.13	0.14	0.07	0.15	0.13	0.14	0.07	0.16	0.13	0.14	0.07
6	Kabupaten Tasikmalaya	0.4	0.16	0.31	0.08	0.39	0.16	0.31	0.08	0.38	0.15	0.3	0.07	0.39	0.16	0.31	0.07
7	Kabupaten Ciamis	0.12	0.13	0.14	0.05	0.11	0.13	0.14	0.05	0.09	0.13	0.14	0.04	0.1	0.13	0.14	0.05
8	Kabupaten Kuningan	0.12	0.1	0.12	0.01	0.11	0.12	0.12	0.01	0.1	0.12	0.12	0.01	0.11	0.11	0.12	0.01
9	Kabupaten Cirebon	0.17	0.17	0.22	0.13	0.17	0.18	0.22	0.13	0.16	0.18	0.22	0.13	0.17	0.18	0.22	0.13
10	Kabupaten Majalengka	0.07	0.09	0.03	0.02	0.07	0.09	0.03	0.03	0.05	0.08	0.03	0.02	0.06	0.09	0.03	0.02
11	Kabupaten Sumedang	0.08	0.11	0.05	0	0.07	0.11	0.05	0	0.06	0.1	0.05	0	0.07	0.11	0.05	0
12	Kabupaten Indramayu	0.23	0.2	0.02	0.17	0.22	0.2	0.02	0.17	0.21	0.19	0.02	0.16	0.22	0.2	0.02	0.17
13	Kabupaten Subang	0.18	0.12	0.23	0.02	0.17	0.12	0.23	0.07	0.16	0.12	0.23	0.07	0.17	0.12	0.23	0.06
14	Kabupaten Purwakarta	0.14	0.15	0.09	0.06	0.14	0.16	0.09	0.07	0.12	0.14	0.09	0.07	0.13	0.15	0.09	0.07
15	Kabupaten Karawang	0.14	0.18	0.12	0.1	0.13	0.18	0.12	0.1	0.12	0.17	0.12	0.09	0.13	0.17	0.12	0.1
16	Kabupaten Bekasi	0.25	1	1	1	0.24	1	1	1	0.23	1	1	1	0.24	1	1	1
17	Kabupaten Bandung Barat	N.A.	0.94	0.12	0.12	N.A.	0.94	0.12	0.12	N.A.	0.94	0.12	0.11	N.A.	0.94	0.12	0.11
18	Kabupaten Cilacap	0.14	0.14	0.11	0.14	0.13	0.13	0.11	0.14	0.12	0.12	0.11	0.14	0.13	0.13	0.11	0.14
19	Kabupaten Banyumas	0.15	0.15	0.09	0.1	0.21	0.14	0.09	0.1	0.19	0.13	0.08	0.09	0.18	0.14	0.09	0.1

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Short-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
20	Kabupaten Purbalingga	0.17	0.13	0.04	0.11	0.17	0.13	0.04	0.12	0.15	0.12	0.05	0.11	0.16	0.12	0.04	0.11
21	Kabupaten Banjarnegara	0.18	0.27	0.21	0.2	0.17	0.26	0.21	0.2	0.15	0.26	0.21	0.2	0.17	0.26	0.21	0.2
22	Kabupaten Kebumen	0.22	0.21	0.21	0.19	0.22	0.21	0.21	0.19	0.2	0.2	0.21	0.2	0.22	0.21	0.21	0.19
23	Kabupaten Purworejo	0.2	0.21	0.14	0.15	0.19	0.2	0.14	0.15	0.18	0.19	0.13	0.15	0.19	0.2	0.14	0.15
24	Kabupaten Wonosobo	0.13	0.15	0	0.12	0.12	0.14	0	0.13	0.1	0.13	0	0.13	0.12	0.14	0	0.13
25	Kabupaten Magelang	0.16	0.22	0.17	0.16	0.16	0.22	0.17	0.16	0.14	0.2	0.16	0.15	0.15	0.21	0.17	0.15
26	Kabupaten Boyolali	0.13	0.28	0.25	0.26	0.12	0.28	0.25	0.26	0.11	0.27	0.25	0.26	0.12	0.27	0.25	0.26
27	Kabupaten Klaten	N.A.	0.15	0.03	0.09	N.A.	0.15	0.02	0.09	N.A.	0.14	0.02	0.08	N.A.	0.15	0.02	0.09
28	Kabupaten Sukoharjo	0.24	0.25	0.22	0.24	0.23	0.25	0.22	0.24	0.22	0.24	0.22	0.23	0.23	0.25	0.22	0.23
29	Kabupaten Wonogiri	0.2	0.21	0.22	0.27	0.19	0.2	0.22	0.27	0.17	0.19	0.22	0.26	0.19	0.2	0.22	0.26
30	Kabupaten Karanganyar	0.16	0.15	0.08	0.09	0.16	0.14	0.08	0.09	0.14	0.13	0.07	0.08	0.15	0.14	0.08	0.08
31	Kabupaten Sragen	0.12	0.17	0.14	0.1	0.11	0.17	0.14	0.1	0.1	0.15	0.14	0.1	0.11	0.16	0.14	0.1
32	Kabupaten Grobogan	0.08	0.06	0	0.03	0.08	0.06	0.01	0.03	0.06	0.05	0.01	0.03	0.07	0.06	0	0.03
33	Kabupaten Blora	0.13	0.24	0.16	0.24	0.13	0.24	0.16	0.24	0.11	0.22	0.16	0.24	0.12	0.23	0.16	0.24
34	Kabupaten Rembang	0.12	0.08	0.19	0.06	0.11	0.08	0.2	0.07	0.1	0.08	0.2	0.07	0.11	0.08	0.2	0.07
35	Kabupaten Pati	1	0.95	0.95	0.13	1	0.95	0.95	0.13	1	0.95	0.96	0.12	1	0.95	0.95	0.13
36	Kabupaten Kudus	0.19	0.2	0.13	0.14	0.18	0.2	0.12	0.14	0.17	0.18	0.12	0.14	0.18	0.19	0.12	0.14
37	Kabupaten Jepara	0.15	0.16	0.08	0.08	0.14	0.16	0.08	0.09	0.13	0.15	0.08	0.08	0.14	0.15	0.08	0.09
38	Kabupaten Demak	0.15	0.21	0.16	0.93	0.14	0.21	0.16	0.93	0.13	0.2	0.17	0.93	0.14	0.2	0.16	0.93

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Short-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
39	Kabupaten Semarang	0.16	0.21	0.09	0.12	0.15	0.21	0.09	0.12	0.14	0.2	0.09	0.12	0.15	0.21	0.09	0.12
40	Kabupaten Temanggung	0.12	0.13	0.09	0.12	0.11	0.12	0.09	0.12	0.1	0.11	0.09	0.11	0.11	0.12	0.09	0.11
41	Kabupaten Kendal	0.14	0.17	0.1	0.09	0.13	0.17	0.1	0.09	0.11	0.16	0.1	0.09	0.13	0.16	0.1	0.09
42	Kabupaten Batang	0.22	0.25	0.18	0.17	0.21	0.24	0.18	0.17	0.2	0.23	0.18	0.16	0.21	0.24	0.18	0.17
43	Kabupaten Pekalongan	0.17	0.21	0.13	0.08	0.16	0.21	0.13	0.07	0.15	0.2	0.13	0.07	0.16	0.2	0.13	0.08
44	Kabupaten Pemasang	0.19	0.2	0.09	0.12	0.18	0.2	0.09	0.12	0.17	0.19	0.1	0.12	0.18	0.2	0.09	0.12
45	Kabupaten Tegal	0.19	NA	0.09	0.19	0.19	NA	0.09	0.2	0.17	NA	0.09	0.2	0.18	NA	0.09	0.2
46	Kabupaten Brebes	0.14	0.16	0.09	0.1	0.13	0.15	0.09	0.1	0.11	0.14	0.09	0.1	0.13	0.15	0.09	0.1
47	Kabupaten Kulon Progo	0.16	0.13	0.08	0.14	0.16	0.13	0.08	0.14	0.14	0.12	0.08	0.14	0.15	0.13	0.08	0.14
48	Kabupaten Bantul	0.16	0.17	0.19	0.17	0.15	0.16	0.19	0.18	0.14	0.15	0.19	0.18	0.15	0.16	0.19	0.18
49	Kabupaten Gunung Kidul	0.26	0.26	0.16	0.16	0.25	0.26	0.16	0.16	0.24	0.25	0.17	0.15	0.25	0.26	0.16	0.16
50	Kabupaten Sleman	0.15	0.21	0.14	0.15	0.14	0.21	0.14	0.15	0.13	0.19	0.14	0.15	0.14	0.2	0.14	0.15
51	Kabupaten Pacitan	0.25	0.25	0.18	0.2	0.25	0.24	0.17	0.2	0.23	0.23	0.17	0.19	0.24	0.24	0.17	0.19
52	Kabupaten Ponorogo	0.15	0.12	0.04	0.05	0.14	0.11	0.04	0.05	0.12	0.1	0.04	0.04	0.14	0.11	0.04	0.05
53	Kabupaten Trenggalek	0.22	0.2	0.12	0.12	0.22	0.2	0.11	0.12	0.2	0.19	0.11	0.12	0.22	0.19	0.11	0.12
54	Kabupaten Tulungagung	0.05	0.26	0.22	0.24	0.04	0.25	0.22	0.24	0.02	0.24	0.22	0.23	0.04	0.25	0.22	0.23
55	Kabupaten Blitar	0.18	0.12	0.12	0.11	0.17	0.14	0.14	0.13	0.16	0.12	0.13	0.12	0.17	0.13	0.13	0.12
56	Kabupaten Kediri	0.21	0.2	0.05	0.13	0.2	0.19	0.05	0.13	0.19	0.18	0.05	0.12	0.2	0.19	0.05	0.12
57	Kabupaten Malang	0.12	0.14	0.07	0.09	0.11	0.14	0.07	0.09	0.1	0.13	0.07	0.08	0.11	0.14	0.07	0.09

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Short-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
58	Kabupaten Lumajang	0.15	0.27	0.2	0.24	0.14	0.27	0.2	0.24	0.14	0.26	0.2	0.23	0.14	0.26	0.2	0.24
59	Kabupaten Jember	0.12	0.19	0.11	0.11	0.15	0.22	0.14	0.13	0.14	0.21	0.14	0.13	0.14	0.2	0.13	0.12
60	Kabupaten Banyuwangi	0.17	0.32	0.2	0.24	0.17	0.32	0.2	0.24	0.15	0.31	0.2	0.24	0.16	0.31	0.2	0.24
61	Kabupaten Bondowoso	0.17	0.24	0.13	0.2	0.16	0.24	0.14	0.2	0.14	0.23	0.14	0.2	0.16	0.24	0.14	0.2
62	Kabupaten Situbondo	0.19	0.25	0.19	0.09	0.18	0.25	0.19	0.09	0.17	0.24	0.19	0.09	0.18	0.25	0.19	0.09
63	Kabupaten Probolinggo	0.28	0.23	0.28	0.17	0.27	0.23	0.28	0.17	0.26	0.22	0.28	0.17	0.27	0.23	0.28	0.17
64	Kabupaten Pasuruan	0.1	0.22	0.21	0.18	0.09	0.22	0.21	0.18	0.08	0.2	0.21	0.18	0.09	0.21	0.21	0.18
65	Kabupaten Sidoarjo	0.07	0.11	0.12	0.11	0.07	0.11	0.13	0.11	0.05	0.1	0.13	0.11	0.06	0.11	0.13	0.11
66	Kabupaten Mojokerto	0.24	0.18	0.08	0.09	0.23	0.17	0.08	0.09	0.22	0.16	0.08	0.08	0.23	0.17	0.08	0.09
67	Kabupaten Jombang	0.14	0.17	0.11	0.09	0.13	0.17	0.12	0.09	0.11	0.16	0.11	0.09	0.13	0.17	0.11	0.09
68	Kabupaten Nganjuk	0.19	0.23	0.14	0.18	0.19	0.23	0.14	0.18	0.17	0.22	0.14	0.18	0.18	0.22	0.14	0.18
69	Kabupaten Madiun	0.08	0.22	0.16	0.09	0.08	0.22	0.16	0.09	0.06	0.21	0.16	0.08	0.07	0.22	0.16	0.09
70	Kabupaten Magetan	0.09	0.17	0.12	0.18	0.09	0.17	0.12	0.18	0.07	0.15	0.12	0.18	0.08	0.16	0.12	0.18
71	Kabupaten Ngawi	0.17	0.15	0.15	0.17	0.16	0.16	0.16	0.18	0.15	0.16	0.16	0.18	0.16	0.15	0.16	0.18
72	Kabupaten Bojonegoro	0.02	0.14	0.05	0.06	0.02	0.13	0.05	0.06	0.01	0.12	0.05	0.05	0.02	0.13	0.05	0.06
73	Kabupaten Tuban	0.18	0.16	0.11	0.09	0.17	0.16	0.11	0.1	0.15	0.15	0.1	0.09	0.17	0.16	0.11	0.09
74	Kabupaten Lamongan	0.27	0.29	0.22	0.25	0.26	0.29	0.21	0.25	0.25	0.28	0.21	0.25	0.26	0.29	0.21	0.25
75	Kabupaten Gresik	0.15	0.18	0.07	0.08	0.15	0.18	0.08	0.1	0.14	0.17	0.09	0.09	0.15	0.17	0.08	0.09
76	Kabupaten Bangkalan	0.21	0.89	0.9	0.17	0.2	0.9	0.91	0.17	0.19	0.9	0.92	0.16	0.2	0.9	0.91	0.17

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Short-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
77	Kabupaten Sampang	0.39	0.34	0.29	0.94	0.38	0.33	0.29	0.94	0.37	0.32	0.29	0.94	0.38	0.33	0.29	0.94
78	Kabupaten Pamekasan	0.28	0.31	0.25	0.09	0.27	0.31	0.25	0.09	0.26	0.3	0.25	0.08	0.27	0.3	0.25	0.08
79	Kabupaten Sumenep	0.22	0.19	0.08	0.27	0.21	0.18	0.08	0.27	0.19	0.17	0.07	0.26	0.21	0.18	0.08	0.26
80	Kabupaten Pandeglang	0	0	0.91	0.91	0	0	0.91	0.91	0	0	0.91	0.92	0	0	0.91	0.91
81	Kabupaten Lebak	0.28	0.14	0.03	0.03	0.28	0.14	0.03	0.03	0.27	0.13	0.03	0.02	0.28	0.13	0.03	0.03
82	Kabupaten Tangerang	0.16	0.26	0.13	0.11	0.15	0.25	0.13	0.12	0.14	0.24	0.13	0.11	0.15	0.25	0.13	0.11
83	Kabupaten Serang	0.17	0.34	0.29	0.29	0.17	0.34	0.29	0.29	0.15	0.33	0.29	0.29	0.16	0.33	0.29	0.29

**F2: District local governments' indicator indexes for long-term solvency from 2007 to 2010**

No.	District local government	Indicator index A				Indicator index B				Long-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10
1	Kabupaten Bogor	0.2	0.27	0.27	0.21	1	0.97	0.97	1	0.6	0.62	0.62	0.6
2	Kabupaten Sukabumi	0.2	0.33	0.3	0.14	0.98	0.94	0.95	0.94	0.59	0.64	0.62	0.54
3	Kabupaten Cianjur	0.12	0.03	0.05	0.07	0.24	0.03	0.94	0.94	0.18	0.03	0.49	0.51
4	Kabupaten Bandung	0.33	0.09	0.08	0.15	0.99	0.96	0.96	0.95	0.66	0.52	0.52	0.55
5	Kabupaten Garut	0.14	0.11	0.11	0.03	0.14	0.09	0.13	0.1	0.14	0.1	0.12	0.07
6	Kabupaten Tasikmalaya	0.4	0.1	0.31	0.06	0.96	0.93	0.93	0.93	0.68	0.52	0.62	0.49
7	Kabupaten Ciamis	0.12	0.12	0.1	0.05	0.15	0.09	0.08	0.95	0.14	0.11	0.09	0.5
8	Kabupaten Kuningan	0.13	0.1	0.12	0.03	0.14	0.08	0.12	0.11	0.14	0.09	0.12	0.07
9	Kabupaten Cirebon	0.23	0.18	0.22	0.11	0.29	0.24	0.25	0.21	0.26	0.21	0.23	0.16
10	Kabupaten Majalengka	0.13	0.09	0.06	0.03	0.96	0.93	0.93	0.93	0.55	0.51	0.5	0.48
11	Kabupaten Sumedang	0.12	0.09	0.03	0.01	0.15	0.08	0.03	0.01	0.13	0.08	0.03	0.01
12	Kabupaten Indramayu	0.27	0.2	0.04	0.17	0.97	0.94	0.95	0.94	0.62	0.57	0.49	0.56
13	Kabupaten Subang	0.22	0.15	0.25	0.14	0.98	0.94	0.27	0.94	0.6	0.55	0.26	0.54
14	Kabupaten Purwakarta	0.11	0.08	0.06	0.04	0.12	0.05	0.07	0.03	0.12	0.07	0.06	0.04
15	Kabupaten Karawang	0.13	0.1	0.09	0.05	0.16	0.1	0.14	0.93	0.14	0.1	0.11	0.49
16	Kabupaten Bekasi	0.23	1	1	1	0.97	0.95	0.95	0.96	0.6	0.97	0.98	0.98
17	Kabupaten Bandung Barat	N.A.	0.9	0.04	0.05	N.A.	0.84	0.87	0.94	NA	0.87	0.45	0.49
18	Kabupaten Cilacap	0.16	0.1	0.1	0.11	0.23	0.18	0.14	0.18	0.2	0.14	0.12	0.15
19	Kabupaten Banyumas	0.19	0.1	0.1	0.08	0.98	0.94	0.94	0.94	0.58	0.52	0.52	0.51

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No.	District local government	Indicator index A				Indicator index B				Long-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10
20	Kabupaten Purbalingga	0.17	0.08	0.06	0.06	0.21	0.15	0.17	0.02	0.19	0.11	0.11	0.04
21	Kabupaten Banjarnegara	0.21	0.27	0.26	0.24	0.97	0.95	0.95	0.95	0.59	0.61	0.61	0.59
22	Kabupaten Kebumen	0.28	0.24	0.31	0.22	0.28	1	1	0.91	0.28	0.62	0.65	0.57
23	Kabupaten Purworejo	0.18	0.13	0.13	0.12	0.19	0.13	0.15	0.13	0.19	0.13	0.14	0.13
24	Kabupaten Wonosobo	0.16	0.12	0.04	0.14	0.96	0.92	0.92	0.92	0.56	0.52	0.48	0.53
25	Kabupaten Magelang	0.16	0.17	0.16	0.13	0.21	0.92	0.92	0.92	0.19	0.54	0.54	0.52
26	Kabupaten Boyolali	0.13	0.22	0.21	0.2	0.23	0.18	0.2	0.17	0.18	0.2	0.2	0.18
27	Kabupaten Klaten	N.A.	0.18	0.09	0.12	N.A.	0.97	0.97	0.96	NA	0.57	0.53	0.54
28	Kabupaten Sukoharjo	0.18	0.16	0.22	0.15	0.18	0.12	0.91	0.12	0.18	0.14	0.57	0.14
29	Kabupaten Wonogiri	0.11	0.07	0.06	0.27	0.1	0.03	0.03	0.93	0.1	0.05	0.04	0.6
30	Kabupaten Karanganyar	0.21	0.1	0.1	0.05	0.24	0.07	0.1	0.05	0.23	0.09	0.1	0.05
31	Kabupaten Sragen	0.14	0.13	0.16	0.12	0.95	0.92	0.92	0.92	0.55	0.52	0.54	0.52
32	Kabupaten Grobogan	0.07	0	0	0	0.09	0	0.01	0.01	0.08	0	0.01	0
33	Kabupaten Blora	0.14	0.18	0.15	0.17	0.24	0.18	0.16	0.14	0.19	0.18	0.15	0.16
34	Kabupaten Rembang	0.14	0.04	0.17	0.06	0.19	0.14	0.15	0.14	0.17	0.09	0.16	0.1
35	Kabupaten Pati	1	0.96	0.96	0.08	0.96	0.91	0.91	0.91	0.98	0.93	0.94	0.5
36	Kabupaten Kudus	0.19	0.14	0.12	0.13	0.19	0.15	0.15	0.13	0.19	0.15	0.13	0.13
37	Kabupaten Jepara	0.23	0.17	0.14	0.1	0.99	0.96	0.96	0.95	0.61	0.56	0.55	0.53
38	Kabupaten Demak	0.16	0.17	0.18	0.96	0.94	0.91	0.91	0.91	0.55	0.54	0.55	0.93

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No.	District local government	Indicator index A				Indicator index B				Long-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10
39	Kabupaten Semarang	0.18	0.18	0.12	0.13	0.27	0.21	0.23	0.21	0.22	0.2	0.17	0.17
40	Kabupaten Temanggung	0.16	0.12	0.13	0.13	0.96	0.93	0.93	0.92	0.56	0.52	0.53	0.52
41	Kabupaten Kendal	0.15	0.14	0.12	0.1	0.18	0.14	0.15	0.13	0.17	0.14	0.14	0.12
42	Kabupaten Batang	0.18	0.16	0.15	0.13	0.18	0.12	0.13	0.12	0.18	0.14	0.14	0.12
43	Kabupaten Pekalongan	0.2	0.17	0.13	0.08	0.2	0.14	0.13	0.11	0.2	0.16	0.13	0.09
44	Kabupaten Pemalang	0.15	0.12	0.09	0.1	0.15	0.08	0.1	0.08	0.15	0.1	0.1	0.09
45	Kabupaten Tegal	0.17	0.18	0.1	0.15	0.18	0.13	0.14	0.12	0.18	0.15	0.12	0.14
46	Kabupaten Brebes	0.12	0.09	0.08	0.07	0.2	0.14	0.92	0.92	0.16	0.12	0.5	0.5
47	Kabupaten Kulon Progo	0.16	0.1	0.08	0.1	0.18	0.12	0.13	0.12	0.17	0.11	0.11	0.11
48	Kabupaten Bantul	0.16	0.13	0.18	0.17	0.21	0.15	0.17	0.16	0.18	0.14	0.18	0.16
49	Kabupaten Gunung Kidul	0.2	0.17	0.15	0.14	0.19	0.13	0.16	0.15	0.19	0.15	0.16	0.14
50	Kabupaten Sleman	0.14	0.14	0.13	0.13	0.2	0.14	0.16	0.14	0.17	0.14	0.14	0.13
51	Kabupaten Pacitan	0.26	0.22	0.21	0.2	0.3	0.24	0.25	0.91	0.28	0.23	0.23	0.55
52	Kabupaten Ponorogo	0.15	0.06	0.08	0.06	0.18	0.05	0.15	0.15	0.17	0.06	0.12	0.11
53	Kabupaten Trenggalek	0.22	0.14	0.11	0.09	0.94	0.91	0.91	0.91	0.58	0.52	0.51	0.5
54	Kabupaten Tulungagung	0.07	0.18	0.18	0.19	0.18	0.14	0.17	0.17	0.13	0.16	0.18	0.18
55	Kabupaten Blitar	0.25	0.1	0.14	0.11	0.28	0.92	0.93	0.92	0.27	0.51	0.53	0.52
56	Kabupaten Kediri	0.15	0.1	0.03	0.08	0.15	0.09	0.12	0.11	0.15	0.1	0.08	0.09
57	Kabupaten Malang	0.15	0.12	0.09	0.08	0.25	0.21	0.24	0.95	0.2	0.16	0.17	0.52

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No.	District local government	Indicator index A				Indicator index B				Long-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10
58	Kabupaten Lumajang	0.15	0.18	0.18	0.18	0.2	0.15	0.17	0.16	0.18	0.16	0.17	0.17
59	Kabupaten Jember	0.17	0.16	0.14	0.1	0.25	0.2	0.22	0.21	0.21	0.18	0.18	0.15
60	Kabupaten Banyuwangi	0.19	0.25	0.19	0.22	0.27	0.24	0.95	0.95	0.23	0.25	0.57	0.58
61	Kabupaten Bondowoso	0.17	0.17	0.15	0.17	0.2	0.14	0.17	0.19	0.19	0.16	0.16	0.18
62	Kabupaten Situbondo	0.2	0.2	0.19	0.07	0.25	0.2	0.22	0.22	0.22	0.2	0.21	0.14
63	Kabupaten Probolinggo	0.28	0.2	0.31	0.16	0.3	0.28	0.92	0.94	0.29	0.24	0.62	0.55
64	Kabupaten Pasuruan	0.11	0.16	0.2	0.16	0.28	0.92	0.93	0.93	0.2	0.54	0.57	0.55
65	Kabupaten Sidoarjo	0.08	0.08	0.16	0.1	0.11	0.13	0.97	0.97	0.1	0.11	0.56	0.54
66	Kabupaten Mojokerto	0.22	0.12	0.1	0.07	0.24	0.19	0.21	0.21	0.23	0.16	0.16	0.14
67	Kabupaten Jombang	0.16	0.14	0.15	0.09	0.26	0.23	0.95	0.94	0.21	0.18	0.55	0.52
68	Kabupaten Nganjuk	0.22	0.2	0.17	0.17	0.96	0.93	0.94	0.94	0.59	0.57	0.56	0.55
69	Kabupaten Madiun	0.14	0.2	0.2	0.1	0.23	0.17	0.19	0.2	0.19	0.19	0.2	0.15
70	Kabupaten Magetan	0.11	0.12	0.13	0.16	0.17	0.15	0.93	0.92	0.14	0.14	0.53	0.54
71	Kabupaten Ngawi	0.17	0.16	0.17	0.17	0.18	0.13	0.16	0.15	0.17	0.15	0.16	0.16
72	Kabupaten Bojonegoro	0.09	0.04	0.01	0.01	0.25	0	0	0	0.17	0.02	0.01	0.01
73	Kabupaten Tuban	0.17	0.1	0.1	0.07	0.28	0.23	0.26	0.25	0.23	0.17	0.18	0.16
74	Kabupaten Lamongan	0.28	0.26	0.26	0.26	0.28	0.23	0.24	0.24	0.28	0.24	0.25	0.25
75	Kabupaten Gresik	0.19	0.16	0.14	0.07	0.97	0.94	0.94	0.06	0.58	0.55	0.54	0.07
76	Kabupaten Bangkalan	0.25	0.98	0.97	0.13	0.96	0.92	0.93	0.92	0.6	0.95	0.95	0.53

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No.	District local government	Indicator index A				Indicator index B				Long-term solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10
77	Kabupaten Sampang	0.4	0.3	0.31	0.98	0.97	0.94	0.94	0.94	0.68	0.62	0.63	0.96
78	Kabupaten Pamekasan	0.24	0.22	0.21	0.04	0.23	0.18	0.2	0.08	0.23	0.2	0.21	0.06
79	Kabupaten Sumenep	0.2	0.12	0.07	0.24	0.24	0.2	0.94	0.96	0.22	0.16	0.5	0.6
80	Kabupaten Pandeglang	0	0	0.35	0.27	0	0.33	0.32	0.23	0	0.17	0.33	0.25
81	Kabupaten Lebak	0.3	0.11	0.06	0.02	0.33	0.91	0.05	0.05	0.32	0.51	0.05	0.04
82	Kabupaten Tangerang	0.16	0.2	0.14	0.1	0.99	0.97	0.97	0.96	0.57	0.58	0.55	0.53
83	Kabupaten Serang	0.19	0.3	0.28	0.27	0.98	0.93	0.93	0.92	0.59	0.61	0.61	0.6

**F3: District local governments' indicator indexes for budgetary solvency from 2007 to 2010**

No.	District local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Budgetary solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
1	Kabupaten Bogor	0.85	0.93	0.81	0.75	0.87	0.93	0.84	0.63	0.87	0.95	0.78	0.92	0.85	0.9	0.57	0.19	0.86	0.93	0.75	0.62
2	Kabupaten Sukabumi	0.74	0.82	0.63	0.34	0.73	0.8	0.66	0.33	0.8	0.83	0.52	0.43	0.67	0.86	0.98	0.1	0.73	0.83	0.7	0.3
3	Kabupaten Cianjur	0.73	0.85	0.53	0.63	0.73	0.83	0.54	0.51	0.8	0.9	0.56	0.61	0.58	0.86	0.8	0.53	0.71	0.86	0.61	0.57
4	Kabupaten Bandung	0.79	0.86	0.62	0.21	0.82	0.85	0.86	0.22	0.72	0.84	0.65	0.53	0.63	0.87	0.89	0.26	0.74	0.86	0.75	0.31
5	Kabupaten Garut	0.73	0.86	0.38	0.27	0.77	0.88	0.49	0.21	0.69	0.83	0.33	0.33	0.57	0.86	0.83	0.42	0.69	0.86	0.51	0.31
6	Kabupaten Tasikmalaya	0.77	0.88	0.52	0.39	0.78	0.87	0.54	0.34	0.69	0.82	0.49	0.33	0.59	0.87	0.49	0.22	0.71	0.86	0.51	0.32
7	Kabupaten Ciamis	0.72	0.84	0.48	0.08	0.72	0.82	0.48	0.05	0.69	0.81	0.34	0.23	0.21	0.82	0.96	0.18	0.59	0.82	0.57	0.14
8	Kabupaten Kuningan	0.71	0.8	0.42	0.31	0.74	0.8	0.52	0.36	0.72	0.8	0.19	0.25	0.63	0.86	0.81	0.35	0.7	0.81	0.49	0.32
9	Kabupaten Cirebon	0.74	0.85	0.58	0.32	0.76	0.85	0.67	0.36	0.73	0.85	0.39	0.38	0.55	0.86	0.78	0.38	0.69	0.85	0.6	0.36
10	Kabupaten Majalengka	0.76	0.86	0.56	0.52	0.76	0.86	0.7	0.41	0.69	0.81	0.27	0.3	0.48	0.87	0.71	0.35	0.67	0.85	0.56	0.39
11	Kabupaten Sumedang	0.69	0.83	0.43	0.19	0.69	0.81	0.42	0.14	0.67	0.81	0.18	0.28	0.57	0.87	0.63	0.26	0.65	0.83	0.41	0.22
12	Kabupaten Indramayu	0.8	0.89	0.54	0.48	0.8	0.88	0.56	0.38	0.75	0.85	0.43	0.53	0.59	0.86	0.61	0.65	0.74	0.87	0.54	0.51
13	Kabupaten Subang	0.74	0.83	0.54	0.3	0.74	0.81	0.54	0.23	0.73	0.83	0.36	0.4	0.56	0.84	0.69	0.2	0.69	0.83	0.53	0.28
14	Kabupaten Purwakarta	0.68	0	0.71	0.35	0.69	0	0.79	0.36	0.7	0	0.47	0.38	0.49	0	0.74	0.2	0.64	0	0.68	0.32
15	Kabupaten Karawang	0.77	0.86	0.69	0.66	0.77	0.84	0.76	0.57	0.86	0.94	0.72	0.77	0.62	0.87	0.79	0.61	0.76	0.88	0.74	0.65
16	Kabupaten Bekasi	0.94	1	0.83	1	0.95	1	0.86	0.84	0.97	1	1	1	0.61	1	0	0.49	0.87	1	0.67	0.83
17	Kabupaten Bandung Barat	N.A.	0.95	0.75	0.59	N.A.	0.95	0.83	0.54	N.A.	0.9	0.63	0.67	N.A.	0.95	0.92	0.47	N.A.	0.94	0.78	0.57
18	Kabupaten Cilacap	0.8	0.89	0.51	0.47	0.84	0.9	0.65	0.53	0.75	0.85	0.32	0.35	0.39	0.87	0.66	0.52	0.69	0.88	0.54	0.47
19	Kabupaten Banyumas	0.73	0.88	0.48	0.4	0.73	0.86	0.48	0.32	0.69	0.84	0.23	0.18	0.52	0.87	0.55	0.56	0.67	0.86	0.43	0.37

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Budgetary solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
20	Kabupaten Purbalingga	0.82	0.92	0.6	0.11	0.87	0.94	0.79	0.29	0.78	0.91	0.51	0.24	0.71	0.86	0.52	0.33	0.8	0.91	0.6	0.24
21	Kabupaten Banjarnegara	0.76	0.88	0.27	0.56	0.75	0.86	0.27	0.44	0.71	0.86	0.22	0.35	0.64	0.85	0.58	0.32	0.71	0.87	0.34	0.42
22	Kabupaten Kebumen	0.77	0.86	0.28	0.26	0.76	0.84	0.28	0.2	0.7	0.81	0.02	0.09	0.32	0.87	0.32	0.25	0.64	0.85	0.23	0.2
23	Kabupaten Purworejo	0.8	0.86	0.35	0.14	0.79	0.84	0.35	0.1	0.7	0.8	0.05	0.06	0.88	0.88	0.54	0.32	0.79	0.84	0.32	0.16
24	Kabupaten Wonosobo	0.81	0.88	0.71	0.28	0.81	0.86	0.71	0.21	0.76	0.85	0.45	0.46	0.74	0.86	0.47	0.62	0.78	0.86	0.58	0.39
25	Kabupaten Magelang	0.74	0.84	0.38	0.36	0.73	0.82	0.38	0.28	0.71	0.83	0.16	0.14	0.67	0.86	0.66	0.62	0.71	0.84	0.4	0.35
26	Kabupaten Boyolali	0.72	0.9	0.37	0.39	0.71	0.88	0.39	0.32	0.67	0.81	0.18	0.23	0.38	0.99	0.69	0.43	0.62	0.89	0.41	0.34
27	Kabupaten Klaten	N.A.	0.87	0.22	0.13	N.A.	0.85	0.22	0.09	N.A.	0.79	0	0	N.A.	0.89	0.58	0.47	N.A.	0.85	0.26	0.17
28	Kabupaten Sukoharjo	0.7	0.83	0.28	0.32	0.7	0.81	0.28	0.25	0.67	0.8	0.15	0.22	0.42	0.85	0.68	0.49	0.62	0.82	0.34	0.32
29	Kabupaten Wonogiri	0.77	0.85	0.12	0.3	0.82	0.87	0.18	0.29	0.69	0.82	0.03	0.08	1	0.87	0.37	0.39	0.82	0.85	0.18	0.26
30	Kabupaten Karanganyar	0.73	0.12	0.15	0.39	0.77	0.12	0.15	0.3	0.68	0.05	0.1	0.16	0.65	0.22	0.5	0.38	0.71	0.13	0.22	0.31
31	Kabupaten Sragen	0.81	0.88	0.37	0.24	0.81	0.86	0.37	0.18	0.71	0.82	0.12	0.14	0.72	0.87	0.52	0.29	0.76	0.86	0.35	0.21
32	Kabupaten Grobogan	0.79	0.87	0.55	0.46	0.78	0.85	0.63	0.36	0.71	0.84	0.27	0.38	0.58	0.84	0.7	0.61	0.72	0.85	0.54	0.45
33	Kabupaten Blora	0.81	0.83	0	0.1	0.85	0.84	0	0.06	0.71	0.82	0.16	0.19	0.97	0.84	0.19	0.47	0.83	0.83	0.09	0.21
34	Kabupaten Rembang	0.78	0.86	0.32	0.42	0.77	0.84	0.32	0.33	0.74	0.84	0.29	0.33	0.34	0.86	0.69	0.39	0.65	0.85	0.4	0.37
35	Kabupaten Pati	0.77	0.85	0.4	0.23	0.76	0.84	0.4	0.18	0.73	0.84	0.29	0.25	0.66	0.86	0.47	0.45	0.73	0.85	0.39	0.28
36	Kabupaten Kudus	0.8	0.92	1	0.48	0.81	0.9	1	0.39	0.82	0.92	0.78	0.56	0.88	0.9	0.72	0.04	0.83	0.91	0.87	0.37
37	Kabupaten Jepara	0.79	0.88	0.31	0.5	0.79	0.88	0.41	0.52	0.78	0.88	0.37	0.55	0.63	0.88	0.62	0.49	0.75	0.88	0.43	0.52
38	Kabupaten Demak	0.8	0.85	0.5	0.63	0.79	0.83	0.51	0.51	0.76	0.87	0.46	0.73	0.64	0.87	0.53	0.54	0.75	0.85	0.5	0.6

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Budgetary solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
39	Kabupaten Semarang	0.74	0.85	0.29	0.28	0.78	0.85	0.43	0.36	0.74	0.83	0.33	0.31	0.55	0.85	0.53	0.39	0.7	0.84	0.39	0.33
40	Kabupaten Temanggung	0.75	0.84	0.5	0.24	0.81	0.87	0.72	0.4	0.72	0.83	0.33	0.3	0.66	0.85	0.66	0.49	0.74	0.85	0.55	0.36
41	Kabupaten Kendal	0.78	0.82	0.37	0.48	0.77	0.8	0.36	0.38	0.77	0.85	0.4	0.49	0.82	0.85	0.59	0.36	0.79	0.83	0.43	0.43
42	Kabupaten Batang	0.73	0.87	0.3	0.24	0.76	0.89	0.52	0.4	0.68	0.83	0.1	0.19	0.54	0.87	0.51	0.62	0.67	0.86	0.36	0.36
43	Kabupaten Pekalongan	0.69	0.84	0.33	0.19	0.74	0.84	0.46	0.28	0.71	0.85	0.14	0.15	0.57	0.87	0.49	0.35	0.68	0.85	0.36	0.24
44	Kabupaten Pemasang	0.83	0.88	0.47	0.26	0.83	0.86	0.48	0.21	0.75	0.84	0.21	0.23	0.71	0.87	0.51	0.42	0.78	0.86	0.42	0.28
45	Kabupaten Tegal	0.79	0.87	0.58	0.42	0.81	0.85	0.58	0.33	0.72	0.84	0.27	0.29	0.57	0.84	0.62	0.33	0.72	0.85	0.51	0.34
46	Kabupaten Brebes	0.77	0.88	0.6	0.42	0.76	0.86	0.6	0.33	0.74	0.85	0.33	0.37	0.41	0.85	0.72	0.41	0.67	0.86	0.56	0.38
47	Kabupaten Kulon Progo	0.75	0.83	0.24	0.33	0.74	0.81	0.24	0.26	0.66	0.8	0.03	0.11	0.74	0.86	0.68	0.55	0.72	0.82	0.3	0.31
48	Kabupaten Bantul	0.74	0.92	0.32	0.32	0.74	0.9	0.32	0.26	0.65	0.9	0.19	0.19	0.78	0.86	0.48	0.28	0.73	0.9	0.33	0.27
49	Kabupaten Gunung Kidul	0.75	0.84	0.38	0.19	0.79	0.86	0.56	0.32	0.69	0.81	0.09	0.06	0.69	0.85	0.66	0.59	0.73	0.84	0.42	0.29
50	Kabupaten Sleman	0.78	0.87	0.38	0.16	0.8	0.87	0.49	0.23	0.7	0.84	0.23	0.21	0.85	0.89	0.5	0.25	0.78	0.87	0.4	0.21
51	Kabupaten Pacitan	0.75	0.84	0.38	0.35	0.75	0.83	0.39	0.28	0.72	0.82	0.16	0.22	0.7	0.85	0.55	0.5	0.73	0.83	0.37	0.34
52	Kabupaten Ponorogo	0.74	0.84	0.49	0.4	0.73	0.83	0.49	0.32	0.68	0.82	0.21	0.24	0.7	0.84	0.58	0.47	0.71	0.83	0.44	0.36
53	Kabupaten Trenggalek	0	0.85	0.33	0.28	0	0.83	0.34	0.23	0	0.84	0.27	0.2	0.94	0.85	0.49	0.36	0.24	0.84	0.36	0.27
54	Kabupaten Tulungagung	0.7	0.85	0.45	0.45	0.7	0.83	0.46	0.37	0.66	0.83	0.27	0.34	0.53	0.88	0.69	0.41	0.65	0.85	0.46	0.39
55	Kabupaten Blitar	0.81	0.9	0.63	0.56	0.81	0.88	0.63	0.45	0.72	0.85	0.28	0.34	0.77	0.85	0.64	0.37	0.78	0.87	0.54	0.43
56	Kabupaten Kediri	0.87	0.93	0.87	0.68	0.87	0.91	0.89	0.56	0.76	0.86	0.47	0.44	0.92	0.87	0.54	0.63	0.85	0.89	0.69	0.58
57	Kabupaten Malang	0.83	0.89	0.68	0.61	0.84	0.87	0.7	0.5	0.78	0.89	0.49	0.51	0.5	0.86	0.67	0.4	0.74	0.88	0.64	0.51

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Budgetary solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
58	Kabupaten Lumajang	0.78	0.87	0.27	0.36	0.78	0.85	0.27	0.28	0.78	0.88	0.27	0.38	0.62	0.87	0.57	0.53	0.74	0.86	0.35	0.39
59	Kabupaten Jember	0.74	0.9	0.54	0.43	0.78	0.9	0.55	0.34	0.71	0.87	0.35	0.41	0.54	0.88	0.57	0.51	0.69	0.89	0.5	0.42
60	Kabupaten Banyuwangi	0.77	0.91	0.71	0.32	0.76	0.89	0.71	0.26	0.76	0.9	0.57	0.47	0.5	0.91	0.49	0.35	0.7	0.9	0.62	0.35
61	Kabupaten Bondowoso	0.73	0.83	0.39	0.72	0.73	0.81	0.38	0.57	0.7	0.8	0.28	0.47	0.67	0.86	0.43	0.71	0.71	0.83	0.37	0.62
62	Kabupaten Situbondo	0.82	0.9	0.43	0.39	0.81	0.87	0.43	0.3	0.77	0.86	0.27	0.32	0.74	0.88	0.47	0.34	0.79	0.88	0.4	0.34
63	Kabupaten Probolinggo	0.74	0.87	0.62	0.59	0.81	0.91	0.89	0.48	0.81	0.89	0.47	0.51	0.51	0.87	0.52	0.62	0.72	0.88	0.63	0.55
64	Kabupaten Pasuruan	0.7	0.9	0.47	0.2	0.72	0.89	0.47	0.21	0.78	0.91	0.55	0.44	0.64	0.91	0.18	0.34	0.71	0.9	0.42	0.3
65	Kabupaten Sidoarjo	0.85	0.9	0.7	0.79	0.85	0.88	0.72	0.65	0.9	0.94	0.82	0.91	0.71	0.86	0.66	0.65	0.83	0.89	0.72	0.75
66	Kabupaten Mojokerto	0.81	0.86	0.33	0.47	0.81	0.84	0.34	0.38	0.77	0.83	0.18	0.3	0.95	0.83	0.38	0.58	0.84	0.84	0.31	0.43
67	Kabupaten Jombang	0.8	0.86	0.37	0.35	0.79	0.84	0.37	0.41	0.79	0.86	0.39	0.46	0.91	0.86	0.41	0.48	0.83	0.85	0.39	0.43
68	Kabupaten Nganjuk	0.81	0.87	0.64	0.36	0.81	0.85	0.64	0.28	0.7	0.8	0.3	0.2	0.62	0.87	0.55	0.54	0.74	0.85	0.53	0.34
69	Kabupaten Madiun	0.74	0.84	0.57	0.74	0.78	0.83	0.56	0.6	0.7	0.8	0.29	0.46	0.59	0.87	0.55	0.75	0.7	0.83	0.49	0.64
70	Kabupaten Magetan	0.78	0.86	0.46	0.37	0.83	0.84	0.66	0.46	0.68	0.81	0.17	0.25	0.71	0.88	0.53	0.52	0.75	0.85	0.45	0.4
71	Kabupaten Ngawi	0.7	0.85	0.31	0.15	0.7	0.84	0.31	0.15	0.65	0.81	0.15	0.1	0.52	0.85	0.54	0.4	0.64	0.84	0.33	0.2
72	Kabupaten Bojonegoro	0.74	0.95	0.71	0.76	0.74	0.93	0.7	0.6	0.81	0.93	0.47	0.67	0.3	0.86	0.52	0.86	0.65	0.91	0.6	0.72
73	Kabupaten Tuban	0.89	0.98	0.76	0.95	0.88	0.96	0.77	1	0.85	0.93	0.48	0.54	0.87	0.87	0.4	0.3	0.87	0.94	0.6	0.7
74	Kabupaten Lamongan	0.72	0.88	0.49	0.41	0.71	0.86	0.49	0.32	0.75	0.9	0.39	0.39	0.53	0.88	0.44	0.47	0.68	0.88	0.45	0.4
75	Kabupaten Gresik	0.72	0.84	0.29	0.4	0.71	0.88	0.28	0.31	0.79	0.91	0.63	0.71	0.59	0.86	0.43	0.43	0.71	0.87	0.41	0.47
76	Kabupaten Bangkalan	0.72	0.89	0.59	1	0.71	0.87	0.59	0.8	0.78	0.89	0.3	0.51	0.34	0.86	0.59	1	0.64	0.88	0.52	0.83

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Budgetary solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
77	Kabupaten Sampang	0.87	0.94	0.69	0.92	0.86	0.91	0.69	0.74	0.81	0.91	0.52	0.7	0.75	0.86	0.19	0.35	0.82	0.91	0.52	0.67
78	Kabupaten Pamekasan	0.75	0.85	0.56	0.6	0.78	0.84	0.57	0.49	0.76	0.86	0.41	0.6	0.58	0.85	0.58	0.61	0.72	0.85	0.53	0.58
79	Kabupaten Sumenep	0.78	0.87	0.4	0.38	0.78	0.85	0.4	0.3	0.75	0.85	0.28	0.41	0.65	0.84	0.32	0.42	0.74	0.85	0.35	0.38
80	Kabupaten Pandeglang	0.73	0.86	0.66	0.14	0.73	0.84	0.65	0.1	0.69	0.81	0.15	0.02	0	0.91	1	0.42	0.54	0.86	0.62	0.17
81	Kabupaten Lebak	0.87	0.93	0.74	0.8	0.88	0.92	0.79	0.69	0.78	0.89	0.35	0.44	0.5	0.87	0.48	0.7	0.76	0.9	0.59	0.66
82	Kabupaten Tangerang	1	0.97	0.98	0.79	1	0.96	0.98	0.63	1	1	0.88	0.85	0.99	0.92	0.4	0	1	0.96	0.81	0.57
83	Kabupaten Serang	0.77	0.86	0.53	0	0.77	0.84	0.54	0	0.75	0.84	0.32	0.17	0.79	0.86	0.71	0.18	0.77	0.85	0.53	0.09

**F4: District local governments' indicator indexes for financial independence from 2007 to 2010**

No.	District local government	Indicator index A				Indicator index B				Financial independence index			
		07	08	09	10	07	08	09	10	07	08	09	10
1	Kabupaten Bogor	0.95	0.53	0.86	0.85	0.95	0.86	0.84	0.8	0.95	0.7	0.85	0.82
2	Kabupaten Sukabumi	0.35	0.25	0.31	0.38	0.35	0.4	0.37	0.34	0.35	0.33	0.34	0.36
3	Kabupaten Cianjur	0.39	0.22	0.43	0.47	0.38	0.35	0.46	0.48	0.39	0.29	0.45	0.48
4	Kabupaten Bandung	0.52	0.36	0.49	0.59	0.5	0.56	0.53	0.56	0.51	0.46	0.51	0.58
5	Kabupaten Garut	0.39	0.2	0.38	0.38	0.37	0.32	0.42	0.37	0.38	0.26	0.4	0.37
6	Kabupaten Tasikmalaya	0.04	0.1	0.13	0.09	0.05	0.19	0.12	0.07	0.05	0.15	0.12	0.08
7	Kabupaten Ciamis	0.26	0.07	0.09	0.11	0.19	0.07	0.16	0.08	0.22	0.07	0.12	0.1
8	Kabupaten Kuningan	0.31	0.14	0.4	0.35	0.31	0.22	0.43	0.34	0.31	0.18	0.42	0.34
9	Kabupaten Cirebon	0.65	0.33	0.56	0.57	0.62	0.51	0.59	0.56	0.63	0.42	0.58	0.57
10	Kabupaten Majalengka	0.32	0.16	0.43	0.41	0.3	0.27	0.45	0.39	0.31	0.22	0.44	0.4
11	Kabupaten Sumedang	0.58	0.36	0.66	0.61	0.55	0.56	0.66	0.58	0.56	0.46	0.66	0.59
12	Kabupaten Indramayu	0.23	0.17	0.44	0.45	0.22	0.27	0.44	0.47	0.23	0.22	0.44	0.46
13	Kabupaten Subang	0.36	0.2	0.35	0.37	0.35	0.29	0.36	0.34	0.35	0.24	0.36	0.36
14	Kabupaten Purwakarta	0.58	1	0.51	0.55	0.55	0.55	0.53	0.52	0.56	0.77	0.52	0.53
15	Kabupaten Karawang	0.72	0.39	0.62	0.74	0.7	0.61	0.64	0.75	0.71	0.5	0.63	0.74
16	Kabupaten Bekasi	0.97	0.55	0.93	0.81	0.93	1	0.83	0.8	0.95	0.78	0.88	0.81
17	Kabupaten Bandung Barat	N.A.	0.12	0.2	0.25	N.A.	0.3	0.25	0.25	N.A.	0.21	0.23	0.25
18	Kabupaten Cilacap	0.52	0.32	0.62	0.67	0.47	0.51	0.63	0.66	0.49	0.41	0.62	0.66
19	Kabupaten Banyumas	0.72	0.4	0.69	0.76	0.67	0.62	0.67	0.76	0.7	0.51	0.68	0.76

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No.	District local government	Indicator index A				Indicator index B				Financial independence index			
		07	08	09	10	07	08	09	10	07	08	09	10
20	Kabupaten Purbalingga	0.59	0.34	0.69	0.66	0.59	0.52	0.67	0.63	0.59	0.43	0.68	0.64
21	Kabupaten Banjarnegara	0.45	0.23	0.51	0.45	0.44	0.36	0.51	0.43	0.44	0.3	0.51	0.44
22	Kabupaten Kebumen	0.43	0.24	0.44	0.34	0.37	0.38	0.39	0.32	0.4	0.31	0.42	0.33
23	Kabupaten Purworejo	0.43	0.26	0.5	0.53	0.47	0.42	0.49	0.51	0.45	0.34	0.5	0.52
24	Kabupaten Wonosobo	0.41	0.21	0.42	0.45	0.42	0.33	0.4	0.46	0.42	0.27	0.41	0.45
25	Kabupaten Magelang	0.6	0.35	0.54	0.49	0.59	0.55	0.55	0.5	0.6	0.45	0.54	0.49
26	Kabupaten Boyolali	0.63	0.29	0.52	0.57	0.57	0.61	0.53	0.56	0.6	0.45	0.53	0.57
27	Kabupaten Klaten	N.A.	0.06	0.21	0.27	N.A.	0.13	0.21	0.27	N.A.	0.09	0.21	0.27
28	Kabupaten Sukoharjo	0.43	0.2	0.4	0.5	0.39	0.31	0.41	0.49	0.41	0.25	0.4	0.49
29	Kabupaten Wonogiri	0.43	0.22	0.4	0.39	0.48	0.35	0.37	0.38	0.46	0.29	0.38	0.39
30	Kabupaten Karanganyar	0.58	0.64	0.54	0.56	0.57	0.26	0.53	0.54	0.58	0.45	0.53	0.55
31	Kabupaten Sragen	0.58	0.3	0.57	0.55	0.57	0.47	0.55	0.53	0.58	0.38	0.56	0.54
32	Kabupaten Grobogan	0.45	0.26	0.57	0.51	0.43	0.39	0.58	0.52	0.44	0.33	0.58	0.51
33	Kabupaten Blora	0.39	0.25	0.41	0.33	0.44	0.36	0.35	0.33	0.41	0.31	0.38	0.33
34	Kabupaten Rembang	0.54	0.32	0.58	0.59	0.48	0.5	0.59	0.57	0.51	0.41	0.59	0.58
35	Kabupaten Pati	0.58	0.33	0.6	0.67	0.57	0.52	0.58	0.66	0.58	0.42	0.59	0.66
36	Kabupaten Kudus	0.54	0.34	0.57	0.67	0.57	0.56	0.59	0.61	0.55	0.45	0.58	0.64
37	Kabupaten Jepara	0.61	0.33	0.56	0.57	0.59	0.53	0.56	0.57	0.6	0.43	0.56	0.57
38	Kabupaten Demak	0.31	0.21	0.41	0.4	0.31	0.35	0.4	0.4	0.31	0.28	0.4	0.4
39	Kabupaten Semarang	0.7	0.4	0.7	0.69	0.66	0.59	0.68	0.67	0.68	0.49	0.69	0.68

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No.	District local government	Indicator index A				Indicator index B				Financial independence index			
		07	08	09	10	07	08	09	10	07	08	09	10
40	Kabupaten Temanggung	0.41	0.23	0.47	0.5	0.41	0.34	0.48	0.5	0.41	0.28	0.47	0.5
41	Kabupaten Kendal	0.75	0.34	0.6	0.58	0.75	0.51	0.6	0.57	0.75	0.42	0.6	0.57
42	Kabupaten Batang	0.36	0.25	0.44	0.42	0.34	0.41	0.43	0.44	0.35	0.33	0.44	0.43
43	Kabupaten Pekalongan	0.49	0.3	0.54	0.55	0.47	0.48	0.52	0.53	0.48	0.39	0.53	0.54
44	Kabupaten Pemalang	0.53	0.32	0.61	0.5	0.53	0.5	0.59	0.49	0.53	0.41	0.6	0.5
45	Kabupaten Tegal	0.59	0.26	0.51	0.47	0.56	0.38	0.52	0.45	0.57	0.32	0.51	0.46
46	Kabupaten Brebes	0.51	0.28	0.52	0.38	0.46	0.43	0.53	0.37	0.48	0.35	0.53	0.37
47	Kabupaten Kulon Progo	0.47	0.26	0.39	0.47	0.48	0.4	0.41	0.47	0.47	0.33	0.4	0.47
48	Kabupaten Bantul	0.51	0.24	0.62	0.51	0.52	0.37	0.6	0.48	0.51	0.31	0.61	0.49
49	Kabupaten Gunung Kidul	0.21	0.12	0.28	0.28	0.22	0.19	0.3	0.29	0.22	0.16	0.29	0.29
50	Kabupaten Sleman	0.88	0.49	0.87	0.81	0.89	0.79	0.84	0.78	0.88	0.64	0.85	0.79
51	Kabupaten Pacitan	0.15	0.08	0.2	0.16	0.17	0.13	0.2	0.17	0.16	0.11	0.2	0.17
52	Kabupaten Ponorogo	0.34	0.17	0.33	0.27	0.35	0.25	0.33	0.27	0.34	0.21	0.33	0.27
53	Kabupaten Trenggalek	0.26	0.15	0.31	0.4	0.31	0.23	0.29	0.39	0.28	0.19	0.3	0.39
54	Kabupaten Tulungagung	0.42	0.24	0.51	0.52	0.39	0.4	0.52	0.51	0.4	0.32	0.52	0.52
55	Kabupaten Blitar	0.27	0.17	0.35	0.33	0.29	0.26	0.36	0.32	0.28	0.21	0.36	0.32
56	Kabupaten Kediri	0.43	0.25	0.47	0.36	0.47	0.4	0.47	0.38	0.45	0.32	0.47	0.37
57	Kabupaten Malang	0.46	0.28	0.66	0.48	0.43	0.43	0.66	0.47	0.44	0.35	0.66	0.47
58	Kabupaten Lumajang	0.54	0.27	0.53	0.54	0.53	0.44	0.52	0.55	0.53	0.35	0.53	0.55
59	Kabupaten Jember	0.44	0.38	0.62	0.6	0.42	0.61	0.62	0.59	0.43	0.5	0.62	0.59

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No.	District local government	Indicator index A				Indicator index B				Financial independence index			
		07	08	09	10	07	08	09	10	07	08	09	10
60	Kabupaten Banyuwangi	0.4	0.26	0.47	0.46	0.38	0.46	0.45	0.44	0.39	0.36	0.46	0.45
61	Kabupaten Bondowoso	0.33	0.2	0.33	0.35	0.33	0.31	0.31	0.37	0.33	0.25	0.32	0.36
62	Kabupaten Situbondo	0.32	0.16	0.3	0.41	0.33	0.28	0.28	0.39	0.33	0.22	0.29	0.4
63	Kabupaten Probolinggo	0.32	0.17	0.29	0.26	0.3	0.28	0.28	0.27	0.31	0.22	0.29	0.27
64	Kabupaten Pasuruan	0.61	0.39	0.6	0.54	0.6	0.66	0.53	0.52	0.6	0.52	0.57	0.53
65	Kabupaten Sidoarjo	1	0.56	1	1	0.97	0.84	1	1	0.99	0.7	1	1
66	Kabupaten Mojokerto	0.49	0.27	0.47	0.46	0.53	0.39	0.43	0.47	0.51	0.33	0.45	0.47
67	Kabupaten Jombang	0.73	0.42	0.63	0.64	0.75	0.65	0.6	0.63	0.74	0.54	0.61	0.64
68	Kabupaten Nganjuk	0.49	0.28	0.5	0.5	0.48	0.44	0.49	0.51	0.49	0.36	0.49	0.5
69	Kabupaten Madiun	0.22	0.07	0.15	0.29	0.22	0.12	0.15	0.32	0.22	0.1	0.15	0.3
70	Kabupaten Magetan	0.37	0.19	0.41	0.38	0.38	0.33	0.4	0.39	0.37	0.26	0.4	0.38
71	Kabupaten Ngawi	0	0	0	0	0	0	0	0	0	0	0	0
72	Kabupaten Bojonegoro	0.48	0.23	0.47	0.39	0.41	0.35	0.45	0.43	0.45	0.29	0.46	0.41
73	Kabupaten Tuban	0.74	0.42	0.73	0.65	0.75	0.65	0.69	0.62	0.75	0.53	0.71	0.63
74	Kabupaten Lamongan	0.47	0.27	0.46	0.55	0.44	0.45	0.44	0.54	0.46	0.36	0.45	0.55
75	Kabupaten Gresik	0.92	0.5	0.92	0.83	0.88	0.77	0.88	0.81	0.9	0.63	0.9	0.82
76	Kabupaten Bangkalan	0.21	0.11	0.22	0.2	0.17	0.18	0.22	0.26	0.19	0.15	0.22	0.23
77	Kabupaten Sampang	0.23	0.12	0.29	0.2	0.25	0.2	0.23	0.18	0.24	0.16	0.26	0.19
78	Kabupaten Pamekasan	0.33	0.19	0.33	0.36	0.32	0.3	0.33	0.38	0.33	0.25	0.33	0.37
79	Kabupaten Sumenep	0.34	0.19	0.29	0.24	0.34	0.28	0.25	0.23	0.34	0.23	0.27	0.24

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No.	District local government	Indicator index A				Indicator index B				Financial independence index			
		07	08	09	10	07	08	09	10	07	08	09	10
80	Kabupaten Pandeglang	0.35	0.09	0.1	0.05	0.24	0.21	0.17	0.05	0.29	0.15	0.14	0.05
81	Kabupaten Lebak	0.45	0.21	0.43	0.4	0.42	0.35	0.41	0.42	0.43	0.28	0.42	0.41
82	Kabupaten Tangerang	0.98	0.55	0.98	1	1	0.91	0.94	0.93	0.99	0.73	0.96	0.97
83	Kabupaten Serang	0.81	0.45	0.76	0.79	0.8	0.7	0.77	0.75	0.8	0.58	0.77	0.77

**F5: District local governments' indicator indexes for financial flexibility from 2007 to 2010**

No.	District local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Financial flexibility index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
1	Kabupaten Bogor	0.17	0.18	0.09	1	0.17	0.25	0.26	0.18	0.18	0.26	0.26	0.19	0.99	1	1	1	0.38	0.42	0.4	0.59
2	Kabupaten Sukabumi	0.18	0.05	0.98	0	0.17	0.32	0.3	0.15	0.18	0.32	0.3	0.14	0.97	0.96	0.98	0.97	0.38	0.41	0.64	0.31
3	Kabupaten Cianjur	0.25	0.16	0.13	0.08	0.11	0.02	0.06	0.07	0.11	0.02	0.07	0.08	0.23	0.04	0.97	0.97	0.18	0.06	0.31	0.3
4	Kabupaten Bandung	1	0.99	0.13	0.98	0.32	0.08	0.08	0.16	0.32	0.08	0.09	0.16	0.99	0.97	0.99	0.98	0.66	0.53	0.32	0.57
5	Kabupaten Garut	0.27	0.28	0.27	0.24	0.17	0.13	0.15	0.06	0.17	0.12	0.14	0.06	0.17	0.13	0.17	0.13	0.2	0.16	0.18	0.12
6	Kabupaten Tasikmalaya	0.97	0.02	0.1	0.36	0.4	0.1	0.33	0.07	0.4	0.09	0.33	0.06	0.96	0.96	0.97	0.96	0.68	0.29	0.43	0.36
7	Kabupaten Ciamis	0.14	0.15	0.13	0.13	0.1	0.1	0.09	0.04	0.1	0.09	0.09	0.03	0.13	0.08	0.09	0.95	0.11	0.11	0.1	0.29
8	Kabupaten Kuningan	0.07	0.26	0.26	0.95	0.14	0.12	0.12	0.01	0.14	0.11	0.11	0	0.16	0.1	0.13	0.08	0.13	0.15	0.15	0.26
9	Kabupaten Cirebon	0.29	0.21	0.11	0.96	0.23	0.18	0.23	0.13	0.23	0.17	0.23	0.12	0.29	0.25	0.27	0.23	0.26	0.2	0.21	0.36
10	Kabupaten Majalengka	0.18	0.15	0.19	0.95	0.12	0.07	0.06	0.03	0.12	0.07	0.05	0.03	0.95	0.95	0.95	0.95	0.34	0.31	0.31	0.49
11	Kabupaten Sumedang	0.07	0.25	0.14	0.09	0.11	0.09	0.05	0.03	0.11	0.08	0.04	0.02	0.14	0.09	0.05	0.02	0.11	0.13	0.07	0.04
12	Kabupaten Indramayu	0.98	0.97	0.13	0.19	0.25	0.19	0.04	0.17	0.26	0.19	0.04	0.17	0.97	0.96	0.97	0.96	0.61	0.58	0.3	0.37
13	Kabupaten Subang	0.97	0.97	0.96	0.96	0.2	0.13	0.26	0.14	0.2	0.12	0.25	0.14	0.96	0.95	0.29	0.95	0.58	0.54	0.44	0.55
14	Kabupaten Purwakarta	0.95	0.95	0.12	0.12	0.12	0.09	0.09	0.06	0.12	0.08	0.08	0.06	0.12	0.07	0.11	0.05	0.33	0.3	0.1	0.08
15	Kabupaten Karawang	0.21	0.21	0.19	0.19	0.12	0.11	0.1	0.06	0.13	0.12	0.11	0.07	0.16	0.13	0.17	0.98	0.16	0.14	0.14	0.32
16	Kabupaten Bekasi	1	1	1	0.99	0.22	1	1	1	0.24	1	1	1	0.99	0.99	0.99	0.99	0.61	1	1	0.99
17	Kabupaten Bandung Barat	N.A.	0.97	0.96	0.96	N.A.	0.97	0.11	0.05	N.A.	0.97	0.11	0.05	N.A.	0.95	0.96	0.96	N.A.	0.96	0.54	0.5
18	Kabupaten Cilacap	0.26	0.26	0.15	0.15	0.14	0.08	0.1	0.11	0.15	0.08	0.09	0.1	0.22	0.18	0.14	0.18	0.19	0.15	0.12	0.14
19	Kabupaten Banyumas	0.13	0.15	0.96	0.14	0.15	0.08	0.1	0.08	0.15	0.08	0.09	0.06	0.96	0.96	0.96	0.94	0.35	0.32	0.52	0.31

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Financial flexibility index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
20	Kabupaten Purbalingga	0.14	0.13	0.08	0.12	0.17	0.07	0.07	0.06	0.17	0.08	0.07	0.05	0.2	0.17	0.2	0.02	0.17	0.11	0.1	0.06
21	Kabupaten Banjarnegara	0.96	0.16	0.94	0.16	0.17	0.23	0.23	0.22	0.18	0.23	0.22	0.21	0.95	0.95	0.94	0.94	0.56	0.39	0.58	0.38
22	Kabupaten Kebumen	0.1	0.13	0.1	0.11	0.19	0.15	0.24	0.23	0.19	0.14	0.22	0.21	0.19	0.95	0.94	0.93	0.17	0.34	0.37	0.37
23	Kabupaten Purworejo	0.08	0.11	0.1	0.11	0.18	0.14	0.14	0.13	0.18	0.13	0.12	0.11	0.19	0.14	0.16	0.12	0.16	0.13	0.13	0.12
24	Kabupaten Wonosobo	0.08	0.95	0.95	0.04	0.13	0.11	0.03	0.14	0.14	0.11	0.03	0.14	0.94	0.94	0.94	0.94	0.32	0.53	0.49	0.31
25	Kabupaten Magelang	0.15	0.12	0.12	0.12	0.15	0.16	0.17	0.14	0.16	0.16	0.15	0.12	0.2	0.95	0.94	0.93	0.17	0.35	0.34	0.33
26	Kabupaten Boyolali	0.13	0.14	0.11	0.12	0.13	0.21	0.22	0.21	0.13	0.2	0.2	0.2	0.23	0.19	0.21	0.18	0.15	0.18	0.19	0.18
27	Kabupaten Klaten	N.A.	0.96	0.18	0.04	N.A.	0.14	0.05	0.09	N.A.	0.13	0.03	0.06	N.A.	0.95	0.94	0.92	N.A.	0.54	0.3	0.28
28	Kabupaten Sukoharjo	0.12	0.13	0.11	0.12	0.18	0.17	0.24	0.17	0.18	0.16	0.22	0.16	0.18	0.14	0.94	0.13	0.17	0.15	0.38	0.14
29	Kabupaten Wonogiri	0.15	0.11	0.12	0.12	0.07	0.05	0.05	0.26	0.07	0.04	0.03	0.24	0.07	0.02	0.02	0.93	0.09	0.05	0.05	0.39
30	Kabupaten Karanganyar	0.1	0.18	0.06	0.09	0.15	0.05	0.06	0.07	0.15	0.04	0.05	0.05	0.18	0.03	0.06	0.05	0.15	0.08	0.06	0.06
31	Kabupaten Sragen	0.12	0.11	0.12	0.17	0.13	0.12	0.17	0.13	0.13	0.12	0.15	0.11	0.95	0.95	0.94	0.93	0.33	0.32	0.35	0.33
32	Kabupaten Grobogan	0.12	0.07	0	0.04	0.07	0	0.01	0.01	0.07	0	0.01	0.01	0.09	0.01	0.03	0.02	0.09	0.02	0.01	0.02
33	Kabupaten Blora	0.24	0.24	0.23	0.23	0.1	0.15	0.16	0.18	0.1	0.15	0.14	0.16	0.2	0.16	0.17	0.14	0.16	0.18	0.17	0.18
34	Kabupaten Rembang	0.27	0.13	0.03	0.14	0.14	0.05	0.19	0.08	0.14	0.05	0.18	0.07	0.2	0.16	0.18	0.15	0.19	0.1	0.14	0.11
35	Kabupaten Pati	0.11	0.1	0.14	0.1	1	0.98	0.98	0.11	1	0.96	0.96	0.09	0.96	0.95	0.95	0.94	0.77	0.75	0.76	0.31
36	Kabupaten Kudus	0.05	0.24	0.24	0.23	0.17	0.13	0.12	0.13	0.18	0.14	0.13	0.13	0.18	0.17	0.18	0.14	0.15	0.17	0.17	0.16
37	Kabupaten Jepara	0.96	0.96	0.95	0.95	0.18	0.12	0.1	0.07	0.19	0.12	0.1	0.08	0.96	0.95	0.95	0.95	0.57	0.54	0.53	0.51
38	Kabupaten Demak	0.96	0.96	0.95	0.95	0.16	0.17	0.19	0.97	0.16	0.17	0.19	0.97	0.95	0.95	0.95	0.95	0.56	0.56	0.57	0.96

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Financial flexibility index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
39	Kabupaten Semarang	0.3	0.3	0.29	0.3	0.16	0.17	0.12	0.13	0.16	0.16	0.11	0.12	0.25	0.21	0.24	0.21	0.22	0.21	0.19	0.19
40	Kabupaten Temanggung	0.49	0.38	0.94	0.93	0.13	0.1	0.12	0.12	0.13	0.09	0.12	0.11	0.94	0.93	0.94	0.93	0.42	0.37	0.53	0.52
41	Kabupaten Kendal	0.21	0.21	0.2	0.22	0.12	0.12	0.11	0.09	0.13	0.12	0.1	0.09	0.16	0.13	0.15	0.12	0.16	0.14	0.14	0.13
42	Kabupaten Batang	0.2	0.23	0.12	0.22	0.16	0.14	0.14	0.12	0.15	0.13	0.13	0.11	0.15	0.11	0.13	0.1	0.16	0.15	0.13	0.14
43	Kabupaten Pekalongan	0.2	0.2	0.18	0.22	0.14	0.13	0.13	0.08	0.14	0.13	0.11	0.06	0.15	0.11	0.13	0.09	0.16	0.14	0.14	0.11
44	Kabupaten Pemasang	0.11	0.12	0.16	0.11	0.13	0.1	0.1	0.1	0.13	0.1	0.09	0.09	0.13	0.08	0.11	0.08	0.12	0.1	0.11	0.09
45	Kabupaten Tegal	0.14	0.23	0.22	0.23	0.17	0.18	0.12	0.16	0.17	0.18	0.11	0.16	0.18	0.14	0.16	0.12	0.16	0.18	0.15	0.17
46	Kabupaten Brebes	0.18	0.11	0.08	0.1	0.12	0.1	0.09	0.09	0.13	0.1	0.09	0.09	0.2	0.17	0.96	0.95	0.16	0.12	0.31	0.31
47	Kabupaten Kulon Progo	0.22	0.22	0.09	0.21	0.16	0.09	0.1	0.12	0.15	0.08	0.08	0.1	0.17	0.13	0.15	0.11	0.18	0.13	0.1	0.13
48	Kabupaten Bantul	0.23	0.25	0.22	0.23	0.14	0.12	0.18	0.17	0.14	0.13	0.17	0.16	0.18	0.17	0.18	0.15	0.17	0.17	0.19	0.18
49	Kabupaten Gunung Kidul	0.24	0.24	0.21	0.17	0.2	0.18	0.16	0.13	0.2	0.17	0.15	0.11	0.19	0.15	0.17	0.13	0.2	0.18	0.17	0.13
50	Kabupaten Sleman	0.23	0.15	0.22	0.22	0.12	0.12	0.13	0.13	0.12	0.12	0.12	0.11	0.18	0.14	0.17	0.13	0.17	0.13	0.16	0.15
51	Kabupaten Pacitan	0.95	0.94	0.93	0.93	0.25	0.21	0.21	0.2	0.25	0.2	0.19	0.19	0.29	0.24	0.26	0.92	0.43	0.4	0.4	0.56
52	Kabupaten Ponorogo	0.18	0.18	0.06	0.07	0.13	0.05	0.08	0.06	0.13	0.04	0.06	0.05	0.15	0.04	0.16	0.14	0.15	0.08	0.09	0.08
53	Kabupaten Trenggalek	0.95	0.95	0.94	0.93	0.21	0.14	0.12	0.11	0.22	0.14	0.12	0.09	0.95	0.94	0.94	0.93	0.58	0.54	0.53	0.52
54	Kabupaten Tulungagung	0.22	0.07	0.22	0.28	0.08	0.19	0.21	0.21	0.07	0.19	0.2	0.21	0.19	0.17	0.21	0.2	0.14	0.16	0.21	0.23
55	Kabupaten Blitar	0.12	0.27	0.13	0.95	0.24	0.09	0.15	0.12	0.24	0.09	0.14	0.11	0.27	0.95	0.95	0.95	0.22	0.35	0.34	0.53
56	Kabupaten Kediri	0.18	0.18	0.17	0.18	0.15	0.1	0.04	0.09	0.15	0.1	0.04	0.08	0.16	0.11	0.15	0.12	0.16	0.13	0.1	0.12
57	Kabupaten Malang	0.05	0.25	0.24	0.22	0.13	0.1	0.09	0.07	0.14	0.1	0.09	0.08	0.24	0.21	0.25	0.97	0.14	0.17	0.17	0.34

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Financial flexibility index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
58	Kabupaten Lumajang	0.25	0.22	0.2	0.22	0.14	0.18	0.18	0.19	0.15	0.18	0.17	0.18	0.2	0.16	0.18	0.17	0.18	0.18	0.19	0.19
59	Kabupaten Jember	0.19	0.15	0.22	0.25	0.15	0.15	0.14	0.1	0.15	0.15	0.13	0.1	0.23	0.21	0.23	0.21	0.18	0.16	0.18	0.17
60	Kabupaten Banyuwangi	0.24	0.23	0.24	0.18	0.16	0.23	0.19	0.21	0.17	0.24	0.19	0.21	0.25	0.24	0.97	0.96	0.2	0.24	0.4	0.39
61	Kabupaten Bondowoso	0.21	0.11	0.19	0.21	0.15	0.16	0.15	0.18	0.15	0.15	0.14	0.18	0.18	0.14	0.19	0.2	0.17	0.14	0.17	0.19
62	Kabupaten Situbondo	0.28	0.28	0.26	0.27	0.18	0.19	0.19	0.07	0.19	0.19	0.18	0.07	0.24	0.21	0.24	0.22	0.22	0.21	0.22	0.16
63	Kabupaten Probolinggo	0.21	0.28	0.28	0.47	0.26	0.19	0.31	0.14	0.27	0.19	0.31	0.14	0.28	0.29	0.95	0.95	0.26	0.24	0.46	0.43
64	Kabupaten Pasuruan	0.3	0.09	0.25	0.21	0.1	0.16	0.17	0.16	0.11	0.16	0.17	0.16	0.28	0.96	0.92	0.95	0.2	0.34	0.38	0.37
65	Kabupaten Sidoarjo	0.07	0.07	0.06	0.16	0.04	0.04	0.14	0.09	0.05	0.06	0.15	0.1	0.08	0.12	0.98	0.99	0.06	0.07	0.33	0.33
66	Kabupaten Mojokerto	0.26	0.25	0.11	0.08	0.2	0.1	0.09	0.07	0.2	0.1	0.08	0.06	0.23	0.19	0.21	0.2	0.22	0.16	0.12	0.1
67	Kabupaten Jombang	0.11	0.12	0.21	0.95	0.12	0.11	0.13	0.08	0.13	0.11	0.13	0.08	0.24	0.22	0.95	0.95	0.15	0.14	0.36	0.52
68	Kabupaten Nganjuk	0.15	0.95	0.95	0.94	0.19	0.18	0.16	0.16	0.2	0.17	0.15	0.15	0.95	0.94	0.95	0.94	0.37	0.56	0.56	0.55
69	Kabupaten Madiun	0.14	0.18	0.18	0.19	0.07	0.15	0.16	0.07	0.07	0.14	0.16	0.07	0.16	0.12	0.17	0.16	0.11	0.15	0.17	0.13
70	Kabupaten Magetan	0.24	0.09	0.11	0.14	0.09	0.1	0.13	0.16	0.09	0.09	0.12	0.15	0.15	0.14	0.94	0.93	0.14	0.11	0.32	0.35
71	Kabupaten Ngawi	0.2	0.2	0.18	0.2	0.16	0.15	0.17	0.18	0.16	0.14	0.16	0.16	0.17	0.14	0.17	0.14	0.17	0.16	0.17	0.17
72	Kabupaten Bojonegoro	0.25	0.28	0.06	0.05	0.06	0.02	0	0.01	0.07	0.03	0	0.02	0.23	0	0	0	0.15	0.08	0.02	0.02
73	Kabupaten Tuban	0.3	0.3	0.28	0.3	0.15	0.08	0.09	0.07	0.16	0.08	0.09	0.07	0.27	0.24	0.26	0.25	0.22	0.18	0.18	0.17
74	Kabupaten Lamongan	0.28	0.29	0.27	0.28	0.25	0.23	0.24	0.25	0.25	0.24	0.24	0.24	0.25	0.22	0.24	0.23	0.26	0.24	0.25	0.25
75	Kabupaten Gresik	0.97	0.97	0.97	0.18	0.16	0.14	0.13	0.07	0.17	0.14	0.13	0.08	0.96	0.96	0.96	0.06	0.56	0.55	0.55	0.1
76	Kabupaten Bangkalan	0.96	0.96	0.94	0.95	0.23	0.97	0.97	0.14	0.23	0.96	0.95	0.14	0.95	0.95	0.94	0.95	0.59	0.96	0.95	0.54

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Indicator index D				Financial flexibility index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
77	Kabupaten Sampang	0.25	0.96	0.95	0.29	0.36	0.26	0.29	0.97	0.37	0.27	0.29	0.96	0.95	0.95	0.95	0.95	0.48	0.61	0.62	0.79
78	Kabupaten Pamekasan	0.25	0.25	0.24	0.26	0.22	0.21	0.22	0.05	0.23	0.21	0.21	0.05	0.23	0.19	0.22	0.09	0.23	0.21	0.22	0.11
79	Kabupaten Sumenep	0.21	0.22	0.2	0.22	0.17	0.1	0.07	0.21	0.18	0.1	0.06	0.21	0.22	0.2	0.95	0.95	0.2	0.15	0.32	0.4
80	Kabupaten Pandeglang	0	0	0.13	0.92	0	0.01	0.36	0.31	0	0	0.35	0.28	0	0.36	0.34	0.24	0	0.09	0.29	0.44
81	Kabupaten Lebak	0.3	0.3	0.31	0.1	0.31	0.11	0.03	0	0.31	0.11	0.03	0	0.34	0.95	0.04	0.03	0.32	0.37	0.1	0.03
82	Kabupaten Tangerang	0.05	0.2	1	0.98	0.14	0.18	0.13	0.09	0.16	0.19	0.14	0.1	1	1	1	0.98	0.34	0.4	0.57	0.54
83	Kabupaten Serang	0.97	0.97	0.95	0.93	0.17	0.3	0.29	0.28	0.17	0.29	0.28	0.26	0.97	0.96	0.95	0.93	0.57	0.63	0.62	0.6

**F6: District local governments' indicator indexes for service-level solvency from 2007 to 2010**

No.	District local government	Indicator index A				Indicator index B				Indicator index C				Service-level solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
1	Kabupaten Bogor	0.42	0.63	0.49	0.62	0.41	0.54	0.49	0.62	0	0.04	0.37	0.2	0.28	0.4	0.45	0.48
2	Kabupaten Sukabumi	0.46	0.6	0.46	0.3	0.46	0.5	0.45	0.3	0.09	0.23	0.41	0.39	0.34	0.44	0.44	0.33
3	Kabupaten Cianjur	0.33	0.59	0.39	0.38	0.33	0.5	0.39	0.38	0.09	0.24	0.41	0.43	0.25	0.44	0.39	0.4
4	Kabupaten Bandung	0.41	0.62	0.48	0	0.41	0.53	0.48	0	0.19	0.18	0.47	0.07	0.33	0.44	0.47	0.02
5	Kabupaten Garut	0	0.45	0.26	0.05	0	0.32	0.26	0.06	0.11	0.29	0.48	0.47	0.04	0.35	0.33	0.19
6	Kabupaten Tasikmalaya	0.33	0.58	0.41	0.18	0.33	0.48	0.41	0.18	0.14	0.29	0.56	0.36	0.27	0.45	0.46	0.24
7	Kabupaten Ciamis	0.54	0.7	0.59	0.63	0.54	0.63	0.59	0.63	0.24	0.54	0.6	0.64	0.44	0.62	0.6	0.63
8	Kabupaten Kuningan	0.24	0.51	0.55	0.84	0.24	0.39	0.55	0.85	0.21	0.5	0.62	0.76	0.23	0.46	0.57	0.82
9	Kabupaten Cirebon	0.29	0.56	0.4	0.18	0.29	0.46	0.39	0.18	0.09	0.2	0.41	0.4	0.22	0.41	0.4	0.25
10	Kabupaten Majalengka	0.45	0.65	0.53	0.54	0.45	0.57	0.53	0.54	0.2	0.43	0.59	0.69	0.37	0.55	0.55	0.59
11	Kabupaten Sumedang	0.41	0.62	0.48	0.4	0.41	0.53	0.48	0.41	0.24	0.55	0.68	0.72	0.35	0.57	0.55	0.51
12	Kabupaten Indramayu	0.44	0.64	0.51	0.5	0.44	0.55	0.51	0.5	0.13	0.29	0.51	0.54	0.34	0.49	0.51	0.52
13	Kabupaten Subang	0.52	0.69	0.47	0.51	0.52	0.62	0.46	0.51	0.18	0.44	0.58	0.59	0.41	0.58	0.5	0.54
14	Kabupaten Purwakarta	0.3	0.58	0.44	0.34	0.3	0.48	0.44	0.35	0.23	0.48	0.7	0.73	0.28	0.51	0.53	0.47
15	Kabupaten Karawang	0.31	0.54	0.39	0.29	0.31	0.44	0.39	0.29	0.12	0.29	0.47	0.5	0.24	0.42	0.42	0.36
16	Kabupaten Bekasi	0.33	0.63	0.49	0.16	0.33	0.54	0.49	0.16	0.12	0.1	0.64	0	0.26	0.42	0.54	0.11
17	Kabupaten Bandung Barat	N.A.	0	0	0.48	N.A.	0	0	0.48	N.A.	0	0.38	0.44	N.A.	0	0.13	0.47
18	Kabupaten Cilacap	0.45	0.66	0.53	0.52	0.45	0.57	0.53	0.52	0.19	0.41	0.55	0.55	0.37	0.55	0.54	0.53
19	Kabupaten Banyumas	0.56	0.66	0.55	0.53	0.56	0.58	0.55	0.53	0.15	0.33	0.54	0.52	0.43	0.53	0.54	0.53

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Service-level solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
20	Kabupaten Purbalingga	0.43	0.65	0.51	0.47	0.42	0.57	0.52	0.47	0.2	0.54	0.68	0.61	0.35	0.58	0.57	0.52
21	Kabupaten Banjarnegara	0.61	0.81	0.74	0.87	0.61	0.77	0.74	0.87	0.21	0.51	0.64	0.7	0.48	0.7	0.7	0.81
22	Kabupaten Kebumen	1	1	1	0.34	1	1	1	0.34	0.21	0.4	0.59	0.61	0.74	0.8	0.86	0.43
23	Kabupaten Purworejo	0.41	0.61	0.52	0.56	0.41	0.52	0.52	0.56	0.26	0.62	0.77	0.81	0.36	0.58	0.6	0.64
24	Kabupaten Wonosobo	0.56	0.69	0.58	0.59	0.56	0.61	0.58	0.59	0.2	0.52	0.69	0.63	0.44	0.6	0.62	0.6
25	Kabupaten Magelang	0.39	0.61	0.46	0.35	0.39	0.52	0.46	0.35	0.18	0.42	0.55	0.47	0.32	0.52	0.49	0.39
26	Kabupaten Boyolali	0.34	0.67	0.44	0.39	0.34	0.59	0.51	0.39	0.25	0.32	0.65	0.69	0.31	0.53	0.53	0.49
27	Kabupaten Klaten	N.A.	0.84	0.78	0.93	N.A.	0.81	0.78	0.93	N.A.	0.52	0.66	0.65	N.A.	0.72	0.74	0.84
28	Kabupaten Sukoharjo	0.35	0.58	0.45	0.36	0.35	0.48	0.45	0.36	0.25	0.55	0.65	0.67	0.31	0.54	0.52	0.47
29	Kabupaten Wonogiri	0.57	0.72	0.62	0.68	0.57	0.66	0.62	0.68	0.19	0.54	0.69	0.74	0.44	0.64	0.64	0.7
30	Kabupaten Karanganyar	0.83	0.89	0.85	0.44	0.83	0.87	0.85	0.44	0.24	0.96	0.72	0.75	0.64	0.91	0.81	0.54
31	Kabupaten Sragen	0.47	0.66	0.53	0.52	0.47	0.58	0.53	0.52	0.26	0.61	0.7	0.74	0.4	0.62	0.59	0.59
32	Kabupaten Grobogan	0.28	0.55	0.38	0.28	0.29	0.46	0.39	0.3	0.14	0.34	0.45	0.46	0.23	0.45	0.4	0.35
33	Kabupaten Blora	0.65	0.78	0.49	0.51	0.65	0.72	0.48	0.51	0.2	0.59	0.72	0.68	0.5	0.7	0.56	0.56
34	Kabupaten Rembang	0.4	0.62	0.49	0.46	0.4	0.54	0.48	0.46	0.31	0.68	0.75	0.8	0.37	0.61	0.57	0.57
35	Kabupaten Pati	0.47	0.55	0.39	0.26	0.47	0.44	0.38	0.26	0.18	0.46	0.62	0.58	0.37	0.48	0.46	0.37
36	Kabupaten Kudus	0.51	0.69	0.6	0.65	0.51	0.62	0.6	0.65	0.25	0.6	0.79	0.8	0.42	0.64	0.67	0.7
37	Kabupaten Jepara	0.7	0.81	0.73	0.82	0.7	0.76	0.73	0.82	0.17	0.37	0.54	0.56	0.53	0.65	0.67	0.74
38	Kabupaten Demak	0.31	0.57	0.42	0.36	0.31	0.47	0.42	0.36	0.15	0.36	0.55	0.54	0.25	0.47	0.46	0.42

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Service-level solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
39	Kabupaten Semarang	0.5	0.68	0.56	0.1	0.5	0.61	0.56	0.1	0.22	0.55	0.65	0	0.41	0.61	0.59	0.07
40	Kabupaten Temanggung	0.58	0.73	0.63	0.67	0.58	0.67	0.63	0.67	0.22	0.55	0.65	0.66	0.46	0.65	0.63	0.67
41	Kabupaten Kendal	0.53	0.72	0.65	0.75	0.53	0.65	0.65	0.75	0.18	0.49	0.62	0.71	0.42	0.62	0.64	0.73
42	Kabupaten Batang	0.53	0.71	0.6	0.6	0.53	0.64	0.59	0.6	0.23	0.53	0.69	0.61	0.43	0.63	0.63	0.6
43	Kabupaten Pekalongan	0.74	0.83	0.56	0.43	0.74	0.79	0.56	0.43	0.19	0.48	0.61	0.45	0.55	0.7	0.58	0.44
44	Kabupaten Pemasang	0.43	0.61	0.45	0.41	0.43	0.52	0.45	0.41	0.08	0.22	0.45	0.5	0.32	0.45	0.45	0.44
45	Kabupaten Tegal	0.3	0.56	0.39	0.22	0.3	0.45	0.39	0.22	0.1	0.3	0.44	0.36	0.23	0.44	0.41	0.27
46	Kabupaten Brebes	0.22	0.5	0.32	0.19	0.22	0.39	0.32	0.19	0.09	0.21	0.35	0.41	0.17	0.37	0.33	0.26
47	Kabupaten Kulon Progo	0.56	0.73	0.61	0.66	0.56	0.67	0.61	0.66	0.42	1	1	1	0.51	0.8	0.74	0.77
48	Kabupaten Bantul	0.51	0.71	0.59	0.63	0.51	0.64	0.59	0.63	0.24	0.76	0.73	0.77	0.42	0.7	0.64	0.68
49	Kabupaten Gunung Kidul	0.4	0.63	0.53	0.68	0.4	0.53	0.53	0.68	0.27	0.69	0.75	0.78	0.36	0.61	0.6	0.72
50	Kabupaten Sleman	0.52	0.71	0.6	0.59	0.52	0.64	0.6	0.58	0.23	0.55	0.72	0.73	0.43	0.63	0.64	0.63
51	Kabupaten Pacitan	0.52	0.71	0.61	0.67	0.52	0.64	0.6	0.67	0.28	0.69	0.78	0.85	0.44	0.68	0.66	0.73
52	Kabupaten Ponorogo	0.53	0.7	0.59	0.64	0.53	0.63	0.59	0.65	0.21	0.58	0.68	0.74	0.42	0.64	0.62	0.68
53	Kabupaten Trenggalek	0.42	0.64	0.52	0.5	0.42	0.55	0.52	0.5	0.25	0.68	0.79	0.82	0.36	0.63	0.61	0.61
54	Kabupaten Tulungagung	0.91	0.55	0.43	0.37	0.92	0.44	0.42	0.37	1	0.53	0.73	0.77	0.94	0.51	0.53	0.5
55	Kabupaten Blitar	0.46	0.65	0.51	0.43	0.46	0.56	0.51	0.43	0.21	0.55	0.66	0.62	0.38	0.59	0.56	0.49
56	Kabupaten Kediri	0.27	0.55	0.44	0.3	0.27	0.45	0.45	0.3	0.1	0.28	0.53	0.39	0.22	0.43	0.48	0.33
57	Kabupaten Malang	0.42	0.63	0.5	0.32	0.42	0.55	0.5	0.32	0.09	0.22	0.41	0.26	0.31	0.47	0.47	0.3

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Service-level solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
58	Kabupaten Lumajang	0.4	0.62	0.47	0.43	0.4	0.53	0.47	0.43	0.17	0.4	0.57	0.59	0.32	0.52	0.51	0.48
59	Kabupaten Jember	0.38	0.61	0.46	0.39	0.38	0.51	0.46	0.39	0.08	0.21	0.41	0.42	0.28	0.44	0.44	0.4
60	Kabupaten Banyuwangi	0.5	0.69	0.57	0.58	0.5	0.61	0.57	0.58	0.17	0.28	0.58	0.54	0.39	0.53	0.57	0.57
61	Kabupaten Bondowoso	0.5	0.68	0.56	0.58	0.5	0.61	0.56	0.58	0.21	0.53	0.74	0.73	0.41	0.61	0.62	0.63
62	Kabupaten Situbondo	0.49	0.69	0.57	0.56	0.49	0.61	0.56	0.56	0.25	0.59	0.75	0.74	0.41	0.63	0.63	0.62
63	Kabupaten Probolinggo	0.46	0.66	0.49	0.6	0.46	0.58	0.48	0.6	0.18	0.38	0.58	0.43	0.37	0.54	0.51	0.54
64	Kabupaten Pasuruan	0.34	0.59	0.45	0.35	0.34	0.49	0.44	0.35	0.11	0.25	0	0.45	0.26	0.45	0.3	0.38
65	Kabupaten Sidoarjo	0.61	0.77	0.68	0.75	0.61	0.71	0.68	0.75	0.15	0.38	0.58	0.57	0.46	0.62	0.65	0.69
66	Kabupaten Mojokerto	0.51	0.68	0.56	0.5	0.5	0.61	0.56	0.5	0.16	0.5	0.63	0.53	0.39	0.6	0.58	0.51
67	Kabupaten Jombang	0.57	0.72	0.61	0.67	0.57	0.65	0.61	0.67	0.1	0.34	0.54	0.58	0.41	0.57	0.58	0.64
68	Kabupaten Nganjuk	0.52	0.7	0.63	0.67	0.52	0.63	0.63	0.67	0.21	0.48	0.68	0.65	0.42	0.6	0.65	0.67
69	Kabupaten Madiun	0.93	0.91	0.88	1	0.93	0.89	0.88	1	0.28	0.68	0.8	0.65	0.71	0.83	0.86	0.88
70	Kabupaten Magetan	0.59	0.74	0.65	0.73	0.59	0.68	0.65	0.73	0.3	0.68	0.84	0.85	0.49	0.7	0.71	0.77
71	Kabupaten Ngawi	0.39	0.66	0.54	0.57	0.39	0.58	0.54	0.57	0.23	0.59	0.72	0.76	0.33	0.61	0.6	0.63
72	Kabupaten Bojonegoro	0.54	0.72	0.61	0.67	0.55	0.66	0.62	0.68	0.18	0.42	0.57	0.64	0.42	0.6	0.6	0.67
73	Kabupaten Tuban	0.51	0.7	0.6	0.63	0.51	0.63	0.6	0.63	0.15	0.42	0.63	0.63	0.39	0.58	0.61	0.63
74	Kabupaten Lamongan	0.58	0.74	0.64	0.71	0.58	0.68	0.64	0.7	0.18	0.42	0.63	0.63	0.45	0.61	0.64	0.68
75	Kabupaten Gresik	0.55	0.7	0.58	0.6	0.54	0.63	0.57	0.6	0.17	0.45	0.63	0.65	0.42	0.59	0.59	0.62
76	Kabupaten Bangkalan	0.48	0.66	0.53	0.55	0.48	0.58	0.52	0.55	0.2	0.44	0.56	0.62	0.39	0.56	0.54	0.57

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No.	District local government	Indicator index A				Indicator index B				Indicator index C				Service-level solvency index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
77	Kabupaten Sampang	0.6	0.75	0.65	0.76	0.6	0.69	0.65	0.76	0.12	0.36	0.63	0.65	0.44	0.6	0.64	0.72
78	Kabupaten Pamekasan	0.43	0.64	0.5	0.52	0.43	0.55	0.5	0.52	0.21	0.47	0.61	0.67	0.35	0.55	0.54	0.57
79	Kabupaten Sumenep	0.53	0.7	0.58	0.92	0.53	0.63	0.58	0.92	0.19	0.49	0.65	0.64	0.42	0.61	0.61	0.83
80	Kabupaten Pandeglang	0.22	0.53	0.38	0.03	0.28	0.44	0.38	0.03	0.23	0.33	0.5	0.57	0.25	0.43	0.42	0.21
81	Kabupaten Lebak	0.26	0.55	0.64	0.73	0.26	0.45	0.64	0.74	0.14	0.34	0.51	0.51	0.22	0.45	0.6	0.66
82	Kabupaten Tangerang	0.36	0.63	0.49	0.24	0.36	0.54	0.49	0.24	0.04	0.1	0.39	0.08	0.26	0.42	0.46	0.19
83	Kabupaten Serang	0.47	0.55	0.47	0.21	0.47	0.45	0.46	0.21	0.09	0.26	0.49	0.25	0.35	0.42	0.47	0.22

**Appendix G**  
**Financial condition indexes for municipal local government**  
**from 2007 to 2010**

## Financial condition indexes for municipal local governments from 2007 to 2010

No.	Municipal local government	Service level solvency index				Long-term solvency Index				Financial flexibility index				Budgetary solvency index				Short-term solvency index				Financial independence index				Financial condition index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
1	Kota Bogor	0.35	0.07	0.19	0.47	1.00	0.70	0.67	0.65	1.00	0.44	0.68	0.66	0.36	0.49	0.51	0.24	1.00	0.38	0.40	0.36	0.50	0.80	0.66	0.62	0.69	0.50	0.54	0.52
2	Kota Sukabumi	0.49	0.16	0.21	0.60	0.60	0.65	0.50	0.46	0.48	0.62	0.52	0.49	0.29	0.21	0.12	0.16	0.37	0.29	0.07	0.01	0.44	0.81	0.58	0.71	0.46	0.48	0.37	0.44
3	Kota Bandung	0.54	0.13	0.23	0.61	0.30	0.19	0.58	0.59	0.24	0.12	0.33	0.38	0.23	0.33	0.54	0.40	0.32	0.08	0.13	0.15	0.66	0.82	0.70	0.82	0.41	0.31	0.45	0.52
4	Kota Cirebon	0.66	0.13	0.24	0.78	0.17	0.07	0.11	0.06	0.21	0.10	0.08	0.07	0.17	0.39	0.41	0.17	0.53	0.09	0.13	0.00	0.47	0.76	0.57	0.58	0.40	0.29	0.29	0.32
5	Kota Bekasi	0.10	0.00	0.15	0.22	0.02	0.09	0.11	0.07	0.08	0.08	0.11	0.05	0.51	0.57	0.44	0.31	0.34	0.09	0.11	0.01	0.60	0.82	0.70	0.79	0.31	0.31	0.30	0.28
6	Kota Depok	0.17	0.01	0.16	0.24	0.09	0.06	0.12	0.55	0.12	0.30	0.11	0.34	0.38	0.63	0.65	0.49	0.33	0.10	0.14	0.19	0.43	0.78	0.58	0.59	0.28	0.34	0.32	0.41
7	Kota Cimahi	0.27	0.03	0.17	0.41	0.14	0.00	0.03	0.00	0.18	0.04	0.04	0.01	0.18	0.25	0.53	0.23	0.49	0.06	0.12	0.06	0.48	0.78	0.61	0.63	0.31	0.23	0.28	0.25
8	Kota Tasikmalaya	0.13	0.05	0.20	0.52	0.14	0.13	0.18	0.49	0.29	0.15	0.17	0.32	0.11	0.17	0.41	0.13	0.31	0.03	0.10	0.02	0.39	0.74	0.50	0.56	0.23	0.25	0.29	0.38
9	Kota Banjar	0.68	0.13	0.24	0.70	0.59	0.52	0.53	0.52	0.68	0.29	0.33	0.54	0.88	0.27	0.35	0.46	0.44	0.11	0.17	0.17	0.11	0.65	0.23	0.45	0.56	0.35	0.34	0.49
10	Kota Magelang	0.88	0.19	0.28	0.99	0.62	0.54	0.52	0.51	0.62	0.52	0.50	0.50	0.14	0.07	0.27	0.15	0.34	0.11	0.10	0.09	0.41	0.74	0.56	0.66	0.51	0.39	0.40	0.51
11	Kota Surakarta	0.61	0.14	0.26	0.82	0.05	0.03	0.07	0.05	0.04	0.02	0.00	0.00	0.11	0.32	0.27	0.24	0.19	0.05	0.00	0.00	0.57	0.80	0.63	0.62	0.30	0.26	0.24	0.33
12	Kota Salatiga	0.65	0.15	0.25	0.80	0.61	0.53	0.52	0.49	0.42	0.53	0.51	0.50	0.42	0.75	0.32	0.31	0.42	0.12	0.13	0.08	0.49	0.76	0.61	0.57	0.50	0.49	0.42	0.47
13	Kota Semarang	0.37	0.07	0.19	0.46	0.10	0.06	0.08	0.06	0.14	0.07	0.08	0.06	0.15	0.28	0.42	0.15	0.50	0.13	0.14	0.06	0.74	0.88	0.85	0.82	0.37	0.29	0.33	0.30
14	Kota Pekalongan	0.53	0.12	0.23	0.64	0.73	0.66	0.95	0.58	0.53	0.65	0.77	0.58	0.27	0.41	0.46	0.26	0.55	0.32	0.98	0.23	0.24	0.63	0.34	0.52	0.48	0.49	0.62	0.49
15	Kota Tegal	0.63	0.13	0.24	0.86	0.11	0.05	0.08	0.09	0.14	0.07	0.06	0.06	0.19	0.29	0.34	0.21	0.51	0.12	0.14	0.21	0.68	0.86	0.86	0.87	0.38	0.28	0.32	0.40
16	Kota Yogyakarta	0.60	0.14	0.24	0.77	0.15	0.09	0.12	0.12	0.16	0.08	0.08	0.09	0.14	0.29	0.24	0.09	0.43	0.11	0.15	0.12	0.70	0.87	0.88	0.87	0.39	0.29	0.32	0.38
17	Kota Kediri	0.72	0.15	0.26	0.81	0.64	0.53	0.58	0.50	0.68	0.35	0.60	0.34	0.36	0.78	0.46	0.48	0.39	0.11	0.25	0.11	0.53	0.79	0.59	0.59	0.57	0.48	0.48	0.50
18	Kota Blitar	0.99	0.21	0.29	0.98	0.72	0.56	0.58	0.56	0.46	0.35	0.35	0.56	0.07	0.39	0.50	0.48	0.47	0.07	0.17	0.18	0.31	0.76	0.46	0.51	0.52	0.42	0.42	0.57
19	Kota Malang	0.43	0.09	0.21	0.55	0.04	0.06	0.05	0.09	0.03	0.03	0.03	0.05	0.27	0.53	0.50	0.46	0.00	0.04	0.04	0.04	0.53	0.76	0.53	0.53	0.26	0.29	0.26	0.32
20	Kota Probolinggo	0.61	0.11	0.26	0.72	0.57	0.53	0.53	0.50	0.63	0.54	0.53	0.53	0.33	0.38	0.57	0.47	0.23	0.08	0.14	0.13	0.32	0.71	0.37	0.39	0.47	0.43	0.43	0.48
21	Kota Pasuruan	0.65	0.13	0.24	0.71	0.84	0.59	0.60	0.54	0.67	0.59	0.43	0.36	0.32	0.53	0.29	0.10	0.86	0.27	0.35	0.21	0.09	0.68	0.40	0.37	0.55	0.48	0.40	0.40
22	Kota Mojokerto	0.81	0.17	0.32	0.91	0.32	0.98	0.64	0.95	0.32	0.76	0.63	0.97	0.47	0.47	0.38	0.40	0.66	1.00	0.34	1.00	0.30	0.68	0.28	0.32	0.49	0.67	0.46	0.75
23	Kota Madiun	0.66	0.14	0.28	0.96	0.48	0.65	0.96	0.66	0.50	0.41	0.97	0.66	0.30	0.37	0.46	0.41	0.10	0.34	1.00	0.41	0.20	0.66	0.50	0.34	0.40	0.45	0.69	0.59
24	Kota Surabaya	0.59	0.16	0.26	0.76	0.11	0.06	0.09	0.07	0.05	0.03	0.04	0.03	0.73	0.99	0.69	0.28	0.30	0.09	0.10	0.05	1.00	1.00	1.00	1.00	0.49	0.42	0.40	0.40
25	Kota Batu	0.61	0.13	0.20	0.60	0.70	0.59	0.54	0.54	0.50	0.36	0.59	0.59	0.50	0.69	0.49	0.54	0.52	0.23	0.23	0.23	0.00	0.56	0.00	0.00	0.48	0.45	0.37	0.43
26	Kota Tangerang	0.24	0.04	0.17	0.32	0.11	0.05	0.61	0.53	0.15	0.07	0.37	0.55	0.63	0.84	0.61	0.33	0.44	0.12	0.29	0.16	0.66	0.85	0.75	0.74	0.40	0.36	0.49	0.45
27	Kota Cilegon	0.55	0.12	0.25	0.65	0.00	0.04	0.52	0.60	0.08	0.04	0.31	0.39	0.50	0.48	0.57	0.46	0.19	0.00	0.11	0.23	0.72	0.91	0.89	0.89	0.37	0.30	0.47	0.55
28	Kota Serang	N.A.	1.00	0.00	0.07	N.A.	0.42	0.39	0.46	N.A.	0.55	0.49	0.31	N.A.	0.20	0.32	0.35	N.A.	0.15	0.07	0.12	N.A.	0.00	0.24	0.07	N.A.	0.38	0.25	0.23
29	Kota Tangerang Selatan	N.A.	N.A.	1.00	0.15	N.A.	N.A.	0.50	0.52	N.A.	N.A.	0.60	0.57	N.A.	N.A.	1.00	1.00	N.A.	N.A.	0.29	0.19	N.A.	N.A.	0.59	0.71	N.A.	N.A.	0.65	0.52

**Appendix H**  
**Financial condition indexes for district local government**  
**from 2007 to 2010**

## Financial condition indexes for district local governments from 2007 to 2010

No	District local government	Financial independence index				Short-term solvency index				Budgetary solvency index				Long-term solvency index				Service level solvency index				Financial flexibility index				Financial condition index					
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08
1	Kabupaten Bogor	0.95	0.70	0.85	0.82	0.17	0.31	0.26	0.21	0.86	0.93	0.75	0.62	0.6	0.62	0.62	0.6	0.28	0.40	0.45	0.48	0.38	0.42	0.40	0.59	0.56	0.59	0.58	0.58		
2	Kabupaten Sukabumi	0.35	0.33	0.34	0.36	0.16	0.33	0.30	0.15	0.73	0.83	0.70	0.30	0.59	0.64	0.62	0.54	0.34	0.44	0.44	0.33	0.38	0.41	0.64	0.31	0.45	0.52	0.53	0.36		
3	Kabupaten Cianjur	0.39	0.29	0.45	0.48	0.08	0.07	0.04	0.08	0.71	0.86	0.61	0.57	0.18	0.03	0.49	0.51	0.25	0.44	0.39	0.40	0.18	0.06	0.31	0.30	0.33	0.33	0.42	0.42		
4	Kabupaten Bandung	0.51	0.46	0.51	0.58	0.29	0.13	0.08	0.17	0.74	0.86	0.75	0.31	0.66	0.52	0.52	0.55	0.33	0.44	0.47	0.02	0.66	0.53	0.32	0.57	0.55	0.52	0.48	0.38		
5	Kabupaten Garut	0.38	0.26	0.40	0.37	0.16	0.13	0.14	0.07	0.69	0.86	0.51	0.31	0.14	0.1	0.12	0.07	0.04	0.35	0.33	0.19	0.20	0.16	0.18	0.12	0.29	0.35	0.31	0.21		
6	Kabupaten Tasikmalaya	0.05	0.15	0.12	0.08	0.39	0.16	0.31	0.07	0.71	0.86	0.51	0.32	0.68	0.52	0.62	0.49	0.27	0.45	0.46	0.24	0.68	0.29	0.43	0.36	0.47	0.44	0.43	0.29		
7	Kabupaten Ciamis	0.22	0.07	0.12	0.10	0.10	0.13	0.14	0.05	0.59	0.82	0.57	0.14	0.14	0.11	0.09	0.5	0.44	0.62	0.60	0.63	0.11	0.11	0.10	0.29	0.30	0.35	0.30	0.32		
8	Kabupaten Kuningan	0.31	0.18	0.42	0.34	0.11	0.11	0.12	0.01	0.70	0.81	0.49	0.32	0.14	0.09	0.12	0.07	0.23	0.46	0.57	0.82	0.13	0.15	0.15	0.26	0.30	0.34	0.35	0.34		
9	Kabupaten Cirebon	0.63	0.42	0.58	0.57	0.17	0.18	0.22	0.13	0.69	0.85	0.60	0.36	0.26	0.21	0.23	0.16	0.22	0.41	0.40	0.25	0.26	0.20	0.21	0.36	0.40	0.41	0.40	0.33		
10	Kabupaten Majalengka	0.31	0.22	0.44	0.40	0.06	0.09	0.03	0.02	0.67	0.85	0.56	0.39	0.55	0.51	0.5	0.48	0.37	0.55	0.55	0.59	0.34	0.31	0.31	0.49	0.42	0.46	0.44	0.43		
11	Kabupaten Sumedang	0.56	0.46	0.66	0.59	0.07	0.11	0.05	0.0	0.65	0.83	0.41	0.22	0.13	0.08	0.03	0.01	0.35	0.57	0.55	0.51	0.11	0.13	0.07	0.04	0.35	0.40	0.33	0.26		
12	Kabupaten Indramayu	0.23	0.22	0.44	0.46	0.22	0.20	0.02	0.17	0.74	0.87	0.54	0.51	0.62	0.57	0.49	0.56	0.34	0.49	0.51	0.52	0.61	0.58	0.30	0.37	0.48	0.52	0.42	0.46		
13	Kabupaten Subang	0.35	0.24	0.36	0.36	0.17	0.12	0.23	0.06	0.69	0.83	0.53	0.28	0.6	0.55	0.26	0.54	0.41	0.58	0.50	0.54	0.58	0.54	0.44	0.55	0.50	0.51	0.42	0.42		
14	Kabupaten Purwakarta	0.56	0.77	0.52	0.53	0.13	0.15	0.09	0.07	0.64	0.0	0.68	0.32	0.12	0.07	0.06	0.04	0.28	0.51	0.53	0.47	0.33	0.30	0.10	0.08	0.37	0.34	0.36	0.28		
15	Kabupaten Karawang	0.71	0.50	0.63	0.74	0.13	0.17	0.12	0.10	0.76	0.88	0.74	0.65	0.14	0.1	0.11	0.49	0.24	0.42	0.42	0.36	0.16	0.14	0.14	0.32	0.38	0.40	0.39	0.45		
16	Kabupaten Bekasi	0.95	0.78	0.88	0.81	0.24	1.0	1.0	1.0	0.87	1.0	0.67	0.83	0.6	0.97	0.98	0.98	0.26	0.42	0.54	0.11	0.61	1.0	1.0	0.99	0.58	0.85	0.84	0.76		
17	Kabupaten Bandung Barat	N.A.	0.21	0.23	0.25	N.A.	0.94	0.12	0.11	N.A.	0.94	0.78	0.57	NA	0.87	0.45	0.49	N.A.	0.0	0.13	0.47	N.A.	0.96	0.54	0.50	N.A.	0.62	0.37	0.40		
18	Kabupaten Cilacap	0.49	0.41	0.62	0.66	0.13	0.13	0.11	0.14	0.69	0.88	0.54	0.47	0.2	0.14	0.12	0.15	0.37	0.55	0.54	0.53	0.19	0.15	0.12	0.14	0.37	0.41	0.38	0.37		
19	Kabupaten Banyumas	0.70	0.51	0.68	0.76	0.18	0.14	0.09	0.10	0.67	0.86	0.43	0.37	0.58	0.52	0.52	0.51	0.43	0.53	0.54	0.53	0.35	0.32	0.52	0.31	0.48	0.51	0.50	0.46		
20	Kabupaten Purbalingga	0.59	0.43	0.68	0.64	0.16	0.12	0.04	0.11	0.80	0.91	0.60	0.24	0.19	0.11	0.11	0.04	0.35	0.58	0.57	0.52	0.17	0.11	0.10	0.06	0.40	0.41	0.39	0.30		
21	Kabupaten Banjarnegara	0.44	0.30	0.51	0.44	0.17	0.26	0.21	0.20	0.71	0.87	0.34	0.42	0.59	0.61	0.61	0.59	0.48	0.70	0.70	0.81	0.56	0.39	0.58	0.38	0.52	0.55	0.52	0.50		
22	Kabupaten Kebumen	0.40	0.31	0.42	0.33	0.22	0.21	0.21	0.19	0.64	0.85	0.23	0.20	0.28	0.62	0.65	0.57	0.74	0.80	0.86	0.43	0.17	0.34	0.37	0.37	0.44	0.55	0.49	0.38		
23	Kabupaten Purworejo	0.45	0.34	0.50	0.52	0.19	0.20	0.14	0.15	0.79	0.84	0.32	0.16	0.19	0.13	0.14	0.13	0.36	0.58	0.60	0.64	0.16	0.13	0.13	0.12	0.37	0.40	0.34	0.31		
24	Kabupaten Wonosobo	0.42	0.27	0.41	0.45	0.12	0.14	0.0	0.13	0.78	0.86	0.58	0.39	0.56	0.52	0.48	0.53	0.44	0.60	0.62	0.60	0.32	0.53	0.49	0.31	0.47	0.52	0.47	0.43		
25	Kabupaten Magelang	0.60	0.45	0.54	0.49	0.15	0.21	0.17	0.15	0.71	0.84	0.40	0.35	0.19	0.54	0.54	0.52	0.32	0.52	0.49	0.39	0.17	0.35	0.34	0.33	0.37	0.52	0.44	0.39		
26	Kabupaten Boyolali	0.60	0.45	0.53	0.57	0.12	0.27	0.25	0.26	0.62	0.89	0.41	0.34	0.18	0.2	0.2	0.18	0.31	0.53	0.53	0.49	0.15	0.18	0.19	0.18	0.35	0.45	0.37	0.36		
27	Kabupaten Klaten	N.A.	0.09	0.21	0.27	N.A.	0.15	0.02	0.09	N.A.	0.85	0.26	0.17	NA	0.57	0.53	0.54	N.A.	0.72	0.74	0.84	N.A.	0.54	0.30	0.28	N.A.	0.52	0.38	0.40		
28	Kabupaten Sukoharjo	0.41	0.25	0.40	0.49	0.23	0.25	0.22	0.23	0.62	0.82	0.34	0.32	0.18	0.14	0.57	0.14	0.31	0.54	0.52	0.47	0.17	0.15	0.38	0.14	0.34	0.39	0.43	0.32		
29	Kabupaten Wonogiri	0.46	0.29	0.38	0.39	0.19	0.20	0.22	0.26	0.82	0.85	0.18	0.26	0.1	0.05	0.04	0.6	0.44	0.64	0.64	0.70	0.09	0.05	0.05	0.39	0.37	0.38	0.29	0.46		
30	Kabupaten Karanganyar	0.58	0.45	0.53	0.55	0.15	0.14	0.08	0.08	0.71	0.13	0.22	0.31	0.23	0.09	0.1	0.05	0.64	0.91	0.81	0.54	0.15	0.08	0.06	0.06	0.44	0.33	0.34	0.29		
31	Kabupaten Sragen	0.58	0.38	0.56	0.54	0.11	0.16	0.14	0.10	0.76	0.86	0.35	0.21	0.55	0.52	0.54	0.52	0.40	0.62	0.59	0.59	0.33	0.32	0.35	0.33	0.48	0.51	0.45	0.42		
32	Kabupaten Grobogan	0.44	0.33	0.58	0.51	0.07	0.06	0.0	0.03	0.72	0.85	0.54	0.45	0.08	0	0.01	0	0.23	0.45	0.40	0.35	0.09	0.02	0.01	0.02	0.30	0.32	0.29	0.26		
33	Kabupaten Blora	0.41	0.31	0.38	0.33	0.12	0.23	0.16	0.24	0.83	0.83	0.09	0.21	0.19	0.18	0.15	0.16	0.50	0.70	0.56	0.56	0.16	0.18	0.17	0.18	0.39	0.44	0.29	0.30		
34	Kabupaten Rembang	0.51	0.41	0.59	0.58	0.11	0.08	0.20	0.07	0.65	0.85	0.40	0.37	0.17	0.09	0.16	0.1	0.37	0.61	0.57	0.57	0.19	0.10	0.14	0.11	0.36	0.40	0.38	0.33		
35	Kabupaten Pati	0.58	0.42	0.59	0.66	1.0	0.95	0.95	0.13	0.73	0.85	0.39	0.28	0.98	0.93	0.94	0.5	0.37	0.48	0.46	0.37	0.77	0.75	0.76	0.31	0.70	0.73	0.68	0.38		
36	Kabupaten Kudus	0.55	0.45	0.58	0.64	0.18	0.19	0.12	0.14	0.83	0.91	0.87	0.37	0.19	0.15	0.13	0.13	0.42	0.64	0.67	0.70	0.15	0.17	0.17	0.16	0.42	0.45	0.46	0.39		
37	Kabupaten Jepara	0.60	0.43	0.56	0.57	0.14	0.15	0.08	0.09	0.75	0.88	0.43	0.52	0.61	0.56	0.55	0.53	0.53	0.65	0.67	0.74	0.57	0.54	0.53	0.51	0.57	0.57	0.50	0.52		
38	Kabupaten Demak	0.31	0.28	0.40	0.40	0.14	0.20	0.16	0.93	0.75	0.85	0.50	0.60	0.55	0.54	0.55	0.93	0.25	0.47	0.46	0.42	0.56	0.56	0.57	0.96	0.45	0.52	0.47	0.70		

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No	District local government	Financial independence index				Short-term solvency index				Budgetary solvency index				Long-term solvency index				Service level solvency index				Financial flexibility index				Financial condition index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
		39	Kabupaten Semarang	0.68	0.49	0.69	0.68	0.15	0.21	0.09	0.12	0.70	0.84	0.39	0.33	0.22	0.2	0.17	0.17	0.41	0.61	0.59	0.07	0.22	0.21	0.19	0.19	0.42	0.46
40	Kabupaten Temanggung	0.41	0.28	0.47	0.50	0.11	0.12	0.09	0.11	0.74	0.85	0.55	0.36	0.56	0.52	0.53	0.52	0.46	0.65	0.63	0.67	0.42	0.37	0.53	0.52	0.48	0.50	0.50	0.48
41	Kabupaten Kendal	0.75	0.42	0.60	0.57	0.13	0.16	0.10	0.09	0.79	0.83	0.43	0.43	0.17	0.14	0.14	0.12	0.42	0.62	0.64	0.73	0.16	0.14	0.14	0.13	0.43	0.42	0.38	0.38
42	Kabupaten Batang	0.35	0.33	0.44	0.43	0.21	0.24	0.18	0.17	0.67	0.86	0.36	0.36	0.18	0.14	0.14	0.12	0.43	0.63	0.63	0.60	0.16	0.15	0.13	0.14	0.36	0.42	0.35	0.33
43	Kabupaten Pekalongan	0.48	0.39	0.53	0.54	0.16	0.20	0.13	0.08	0.68	0.85	0.36	0.24	0.2	0.16	0.13	0.09	0.55	0.70	0.58	0.44	0.16	0.14	0.14	0.11	0.40	0.44	0.35	0.28
44	Kabupaten Pemalang	0.53	0.41	0.60	0.50	0.18	0.20	0.09	0.12	0.78	0.86	0.42	0.28	0.15	0.1	0.1	0.09	0.32	0.45	0.45	0.44	0.12	0.10	0.11	0.09	0.37	0.39	0.33	0.28
45	Kabupaten Tegal	0.57	0.32	0.51	0.46	0.18	NUM	0.09	0.20	0.72	0.85	0.51	0.34	0.18	0.15	0.12	0.14	0.23	0.44	0.41	0.27	0.16	0.18	0.15	0.17	0.36	N.A.	0.33	0.29
46	Kabupaten Brebes	0.48	0.35	0.53	0.37	0.13	0.15	0.09	0.10	0.67	0.86	0.56	0.38	0.16	0.12	0.5	0.5	0.17	0.37	0.33	0.26	0.16	0.12	0.31	0.31	0.31	0.36	0.42	0.34
47	Kabupaten Kulon Progo	0.47	0.33	0.40	0.47	0.15	0.13	0.08	0.14	0.72	0.82	0.30	0.31	0.17	0.11	0.11	0.11	0.51	0.80	0.74	0.77	0.18	0.13	0.10	0.13	0.39	0.42	0.32	0.35
48	Kabupaten Bantul	0.51	0.31	0.61	0.49	0.15	0.16	0.19	0.18	0.73	0.90	0.33	0.27	0.18	0.14	0.18	0.16	0.42	0.70	0.64	0.68	0.17	0.17	0.19	0.18	0.38	0.43	0.39	0.36
49	Kabupaten Gunung Kidul	0.22	0.16	0.29	0.29	0.25	0.26	0.16	0.16	0.73	0.84	0.42	0.29	0.19	0.15	0.16	0.14	0.36	0.61	0.60	0.72	0.20	0.18	0.17	0.13	0.34	0.40	0.33	0.31
50	Kabupaten Sleman	0.88	0.64	0.85	0.79	0.14	0.20	0.14	0.15	0.78	0.87	0.40	0.21	0.17	0.14	0.14	0.13	0.43	0.63	0.64	0.63	0.17	0.13	0.16	0.15	0.45	0.47	0.42	0.37
51	Kabupaten Pacitan	0.16	0.11	0.20	0.17	0.24	0.24	0.17	0.19	0.73	0.83	0.37	0.34	0.28	0.23	0.23	0.55	0.44	0.68	0.66	0.73	0.43	0.40	0.40	0.56	0.40	0.45	0.37	0.45
52	Kabupaten Ponorogo	0.34	0.21	0.33	0.27	0.14	0.11	0.04	0.05	0.71	0.83	0.44	0.36	0.17	0.06	0.12	0.11	0.42	0.64	0.62	0.68	0.15	0.08	0.09	0.08	0.35	0.36	0.31	0.29
53	Kabupaten Trenggalek	0.28	0.19	0.30	0.39	0.22	0.19	0.11	0.12	0.24	0.84	0.36	0.27	0.58	0.52	0.51	0.5	0.36	0.63	0.61	0.61	0.58	0.54	0.53	0.52	0.38	0.52	0.44	0.42
54	Kabupaten Tulungagung	0.40	0.32	0.52	0.52	0.04	0.25	0.22	0.23	0.65	0.85	0.46	0.39	0.13	0.16	0.18	0.18	0.94	0.51	0.53	0.50	0.14	0.16	0.21	0.23	0.41	0.41	0.38	0.36
55	Kabupaten Blitar	0.28	0.21	0.36	0.32	0.17	0.13	0.13	0.12	0.78	0.87	0.54	0.43	0.27	0.51	0.53	0.52	0.38	0.59	0.56	0.49	0.22	0.35	0.34	0.53	0.38	0.48	0.44	0.43
56	Kabupaten Kediri	0.45	0.32	0.47	0.37	0.20	0.19	0.05	0.12	0.85	0.89	0.69	0.58	0.15	0.1	0.08	0.09	0.22	0.43	0.48	0.33	0.16	0.13	0.10	0.12	0.34	0.37	0.35	0.28
57	Kabupaten Malang	0.44	0.35	0.66	0.47	0.11	0.14	0.07	0.09	0.74	0.88	0.64	0.51	0.2	0.16	0.17	0.52	0.31	0.47	0.47	0.30	0.14	0.17	0.17	0.34	0.35	0.40	0.40	0.40
58	Kabupaten Lumajang	0.53	0.35	0.53	0.55	0.14	0.26	0.20	0.24	0.74	0.86	0.35	0.39	0.18	0.16	0.17	0.17	0.32	0.52	0.51	0.48	0.18	0.18	0.19	0.19	0.37	0.42	0.35	0.35
59	Kabupaten Jember	0.43	0.50	0.62	0.59	0.14	0.20	0.13	0.12	0.69	0.89	0.50	0.42	0.21	0.18	0.18	0.15	0.28	0.44	0.44	0.40	0.18	0.16	0.18	0.17	0.34	0.43	0.38	0.33
60	Kabupaten Banyuwangi	0.39	0.36	0.46	0.45	0.16	0.31	0.20	0.24	0.70	0.90	0.62	0.35	0.23	0.25	0.57	0.58	0.39	0.53	0.57	0.57	0.20	0.24	0.40	0.39	0.37	0.46	0.50	0.45
61	Kabupaten Bondowoso	0.33	0.25	0.32	0.36	0.16	0.24	0.14	0.20	0.71	0.83	0.37	0.62	0.19	0.16	0.16	0.18	0.41	0.61	0.62	0.63	0.17	0.14	0.17	0.19	0.35	0.40	0.33	0.38
62	Kabupaten Situbondo	0.33	0.22	0.29	0.40	0.18	0.25	0.19	0.09	0.79	0.88	0.40	0.34	0.22	0.2	0.21	0.14	0.41	0.63	0.63	0.62	0.22	0.21	0.22	0.16	0.38	0.43	0.35	0.32
63	Kabupaten Probolinggo	0.31	0.22	0.29	0.27	0.27	0.23	0.28	0.17	0.72	0.88	0.63	0.55	0.29	0.24	0.62	0.55	0.37	0.54	0.51	0.54	0.26	0.24	0.46	0.43	0.39	0.42	0.49	0.44
64	Kabupaten Pasuruan	0.60	0.52	0.57	0.53	0.09	0.21	0.21	0.18	0.71	0.90	0.42	0.30	0.2	0.54	0.57	0.55	0.26	0.45	0.30	0.38	0.20	0.34	0.38	0.37	0.37	0.53	0.43	0.41
65	Kabupaten Sidoarjo	0.99	0.70	1.0	1.0	0.06	0.11	0.13	0.11	0.83	0.89	0.72	0.75	0.1	0.11	0.56	0.54	0.46	0.62	0.65	0.69	0.06	0.07	0.33	0.33	0.45	0.45	0.60	0.60
66	Kabupaten Mojokerto	0.51	0.33	0.45	0.47	0.23	0.17	0.08	0.09	0.84	0.84	0.31	0.43	0.23	0.16	0.16	0.14	0.39	0.60	0.58	0.51	0.22	0.16	0.12	0.10	0.42	0.41	0.32	0.32
67	Kabupaten Jombang	0.74	0.54	0.61	0.64	0.13	0.17	0.11	0.09	0.83	0.85	0.39	0.43	0.21	0.18	0.55	0.52	0.41	0.57	0.58	0.64	0.15	0.14	0.36	0.52	0.44	0.44	0.47	0.50
68	Kabupaten Nganjuk	0.49	0.36	0.49	0.50	0.18	0.22	0.14	0.18	0.74	0.85	0.53	0.34	0.59	0.57	0.56	0.55	0.42	0.60	0.65	0.67	0.37	0.56	0.56	0.55	0.49	0.56	0.52	0.49
69	Kabupaten Madiun	0.22	0.10	0.15	0.30	0.07	0.22	0.16	0.09	0.70	0.83	0.49	0.64	0.19	0.19	0.2	0.15	0.71	0.83	0.86	0.88	0.11	0.15	0.17	0.13	0.37	0.42	0.37	0.40
70	Kabupaten Magetan	0.37	0.26	0.40	0.38	0.08	0.16	0.12	0.18	0.75	0.85	0.45	0.40	0.14	0.14	0.53	0.54	0.49	0.70	0.71	0.77	0.14	0.11	0.32	0.35	0.36	0.40	0.46	0.46
71	Kabupaten Ngawi	0.0	0.0	0.0	0.0	0.16	0.15	0.16	0.18	0.64	0.84	0.33	0.20	0.17	0.15	0.16	0.16	0.33	0.61	0.60	0.63	0.17	0.16	0.17	0.17	0.27	0.35	0.27	0.25
72	Kabupaten Bojonegoro	0.45	0.29	0.46	0.41	0.02	0.13	0.05	0.06	0.65	0.91	0.60	0.72	0.17	0.02	0.01	0.01	0.42	0.60	0.60	0.67	0.15	0.08	0.02	0.02	0.35	0.38	0.33	0.34
73	Kabupaten Tuban	0.75	0.53	0.71	0.63	0.17	0.16	0.11	0.09	0.87	0.94	0.60	0.70	0.23	0.17	0.18	0.16	0.39	0.58	0.61	0.63	0.22	0.18	0.18	0.17	0.45	0.46	0.43	0.42
74	Kabupaten Lamongan	0.46	0.36	0.45	0.55	0.26	0.29	0.21	0.25	0.68	0.88	0.45	0.40	0.28	0.24	0.25	0.25	0.45	0.61	0.64	0.68	0.26	0.24	0.25	0.25	0.42	0.47	0.41	0.42
75	Kabupaten Gresik	0.90	0.63	0.90	0.82	0.15	0.17	0.08	0.09	0.71	0.87	0.41	0.47	0.58	0.55	0.54	0.07	0.42	0.59	0.59	0.62	0.56	0.55	0.55	0.10	0.58	0.60	0.55	0.39
76	Kabupaten Bangkalan	0.19	0.15	0.22	0.23	0.20	0.90	0.91	0.17	0.64	0.88	0.52	0.83	0.6	0.95	0.95	0.53	0.39	0.56	0.54	0.57	0.59	0.96	0.95	0.54	0.46	0.73	0.68	0.49

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No	District local government	Financial independence index				Short-term solvency index				Budgetary solvency index				Long-term solvency index				Service level solvency index				Financial flexibility index				Financial condition index			
		07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10	07	08	09	10
77	Kabupaten Sampang	0.24	0.16	0.26	0.19	0.38	0.33	0.29	0.94	0.82	0.91	0.52	0.67	0.68	0.62	0.63	0.96	0.44	0.60	0.64	0.72	0.48	0.61	0.62	0.79	0.52	0.56	0.52	0.71
78	Kabupaten Pamekasan	0.33	0.25	0.33	0.37	0.27	0.30	0.25	0.08	0.72	0.85	0.53	0.58	0.23	0.2	0.21	0.06	0.35	0.55	0.54	0.57	0.23	0.21	0.22	0.11	0.37	0.42	0.38	0.31
79	Kabupaten Sumenep	0.34	0.23	0.27	0.24	0.21	0.18	0.08	0.26	0.74	0.85	0.35	0.38	0.22	0.16	0.5	0.6	0.42	0.61	0.61	0.83	0.20	0.15	0.32	0.40	0.36	0.40	0.39	0.47
80	Kabupaten Pandeglang	0.29	0.15	0.14	0.05	0.0	0.0	0.91	0.91	0.54	0.86	0.62	0.17	0	0.17	0.33	0.25	0.25	0.43	0.42	0.21	0.0	0.09	0.29	0.44	0.19	0.32	0.48	0.35
81	Kabupaten Lebak	0.43	0.28	0.42	0.41	0.28	0.13	0.03	0.03	0.76	0.90	0.59	0.66	0.32	0.51	0.05	0.04	0.22	0.45	0.60	0.66	0.32	0.37	0.10	0.03	0.41	0.48	0.34	0.34
82	Kabupaten Tangerang	0.99	0.73	0.96	0.97	0.15	0.25	0.13	0.11	1.0	0.96	0.81	0.57	0.57	0.58	0.55	0.53	0.26	0.42	0.46	0.19	0.34	0.40	0.57	0.54	0.57	0.58	0.61	0.50
83	Kabupaten Serang	0.80	0.58	0.77	0.77	0.16	0.33	0.29	0.29	0.77	0.85	0.53	0.09	0.59	0.61	0.61	0.6	0.35	0.42	0.47	0.22	0.57	0.63	0.62	0.60	0.56	0.60	0.57	0.44

## **Appendix I**

### **Data used to estimate the regression model**

No.	District local government	FCI	Population	Revenue base	Population density	Cost of goods sold	Financial efficiency	Age profile	Community wealth
1	Bogor	0.58	4771932	3.2526E+13	1760.46	1056914	2.21	0.51	89.19
2	Sukabumi	0.36	2341409	8.642E+12	564.78	671500	1.74	0.49	88.22
3	Cianjur	0.42	2171281	8.3E+12	565.41	743500	1.76	0.48	85.86
4	Bandung	0.38	3178543	2.1735E+13	1797.86	1060500	1.76	0.51	91.71
5	Garut	0.21	2404121	1.1134E+13	782.06	735000	1.55	0.46	84.3
6	Tasikmalaya	0.29	1675675	5.517E+12	656.82	775000	1.58	0.48	86.5
7	Ciamis	0.32	1532504	7.43E+12	632.04	699815	1.54	0.48	88.77
8	Kuningan	0.34	1035589	3.967E+12	932.49	700000	1.50	0.49	84.09
9	Cirebon	0.33	2067196	8.13E+12	2099.7	825000	1.58	0.5	81.78
10	Majaleng	0.43	1166473	4.428E+12	968.64	720000	1.53	0.5	82.88
11	Sumedang	0.26	1093602	5.609E+12	720.27	1058978	1.54	0.49	86.04
12	Indramayu	0.46	1663737	1.5196E+13	815.51	854145	1.63	0.51	82.01
13	Subang	0.42	1465157	7.42E+12	773.6	746400	1.65	0.51	85.87
14	Purwakar	0.28	852521	7.259E+12	1032.43	890000	1.65	0.5	89.52
15	Karawang	0.45	2127791	2.1768E+13	1287.85	1111000	1.86	0.53	87.1
16	Bekasi	0.76	2630401	5.4989E+13	2147.48	1168974	2.15	0.56	94.03
17	Bandung	0.4	1510284	8.133E+12	1156.62	1105225	1.84	0.5	83.97
18	Cilacap	0.37	1642107	2.3739E+13	772.95	760000	1.54	0.49	80.12
19	Banyumas	0.46	1554527	4.655E+12	1164.18	670000	1.37	0.5	78.48
20	Purbalin	0.3	848952	2.526E+12	1252.97	695000	1.49	0.49	75.03
21	Banjarnegara	0.5	868913	2.889E+12	848.77	662000	1.60	0.5	78.64
22	Kebumen	0.38	1159926	2.946E+12	957.24	700000	1.41	0.46	74.27
23	Purworej	0.31	695427	3.107E+12	637.14	719000	1.37	0.47	82.98
24	Wonosobo	0.43	754883	1.889E+12	769.18	715000	1.60	0.49	74.09
25	Magelang	0.39	1181723	4.116E+12	1071.44	752000	1.39	0.5	84.81
26	Boyolali	0.36	930531	4.248E+12	922.73	748000	1.45	0.49	84.04
27	Klaten	0.4	1130047	4.843E+12	1716.82	735000	1.27	0.5	80.32
28	Sukoharj	0.32	824238	4.978E+12	1685.14	769500	1.43	0.53	88.49
29	Wonogiri	0.46	928904	2.993E+12	517.88	695000	1.36	0.49	80.92
30	Karangan	0.29	813196	5.452E+12	1048.69	761000	1.41	0.52	85.27
31	Sragen	0.42	858266	3.069E+12	911.56	724000	1.42	0.5	80.3
32	Grobogan	0.26	1308696	3.253E+12	649.84	687500	1.53	0.51	83.32
33	Blora	0.3	829728	2.183E+12	459.79	742000	1.47	0.52	82.3
34	Rembang	0.33	591359	2.284E+12	666.6	702000	1.56	0.53	74.14
35	Pati	0.38	1190993	4.58E+12	799.76	733000	1.47	0.51	84.08
36	Kudus	0.39	777437	1.265E+13	1828.62	775000	1.84	0.54	89.2
37	Jepara	0.52	1097280	4.27E+12	1035.9	702000	1.72	0.52	90.4
38	Demak	0.7	1055579	3.021E+12	1172.71	813400	1.87	0.51	80.3
39	Semarang	0.29	930727	5.561E+12	979.5	824000	1.53	0.52	89.34
40	Temanggung	0.48	708546	2.409E+12	845.81	709500	1.50	0.52	84.95
41	Kendal	0.38	900313	5.393E+12	805.2	780000	1.70	0.52	83.98
42	Batang	0.33	706764	2.362E+12	896.17	745000	1.37	0.52	83.39

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No.	District local government	FCI	Population	Revenue base	Population density	Cost of goods sold	Financial efficiency	Age profile	Community wealth
43	Pekalong	0.28	838621	3.23E+12	1001.94	760000	1.45	0.5	82.07
44	Pemalang	0.28	1261353	3.456E+12	1128.19	675000	1.45	0.49	77.83
45	Tegal	0.29	1394839	3.627E+12	1592.1	687500	1.53	0.49	86.02
46	Brebes	0.34	1733869	5.507E+12	911.43	681000	1.57	0.49	75.61
47	Kulon Pr	0.35	388869	1.781E+12	663.28	745694	1.33	0.48	75.35
48	Bantul	0.36	911503	3.968E+12	1793.84	745694	1.47	0.53	82.36
49	Gunung K	0.31	675382	3.33E+12	471.83	745694	1.33	0.47	75.56
50	Sleman	0.37	1093110	6.373E+12	1901.66	745694	1.50	0.54	88.55
51	Pacitan	0.45	540881	1.548E+12	389.15	630000	1.45	0.49	80.99
52	Ponorogo	0.29	855281	3.331E+12	655.04	630000	1.45	0.49	85.37
53	Trenggal	0.42	674411	3.066E+12	587.87	630000	1.47	0.51	81.73
54	Tulungag	0.36	990158	7.83E+12	937.96	630000	1.52	0.51	89.4
55	Blitar	0.43	1116639	5.72E+12	835.51	830000	1.56	0.5	86.81
56	Kediri	0.28	1499768	7.6E+12	1082.04	871000	1.54	0.51	82.95
57	Malang	0.4	2446218	1.4579E+13	692.85	1000005	1.69	0.52	86.43
58	Lumajang	0.35	1006458	6.37E+12	561.98	688000	1.55	0.52	84.17
59	Jember	0.33	2332726	1.1551E+13	754.36	830000	1.56	0.51	84.57
60	Banyuwani	0.45	1556078	1.1015E+13	269.11	824000	1.69	0.51	87.84
61	Bondowos	0.38	736772	3.147E+12	482.82	820000	1.57	0.52	79.82
62	Situbond	0.32	647619	3.522E+12	387.83	820000	1.55	0.53	84.01
63	Probolin	0.44	1096244	6.752E+12	646.29	744000	1.61	0.52	72.31
64	Pasuruan	0.41	1512468	6.791E+12	1026.08	1005000	1.72	0.54	84.42
65	Sidoarjo	0.6	1941497	2.6161E+13	3060.46	1005000	1.88	0.57	93.09
66	Mojokert	0.32	1025443	7.897E+12	1428.53	1009150	1.43	0.54	86.76
67	Jombang	0.5	1202407	6.327E+12	1078.3	790000	1.61	0.51	85.54
68	Nganjuk	0.49	1017030	5.292E+12	830.74	650000	1.39	0.51	82.78
69	Madiun	0.4	662278	3.072E+12	638.29	685000	1.52	0.5	83.03
70	Magetan	0.46	620442	3.271E+12	900.71	650000	1.43	0.49	86.03
71	Ngawi	0.25	817765	3.122E+12	631	665000	1.37	0.5	80.99
72	Bojonego	0.34	1209973	8.128E+12	550.29	825000	1.66	0.53	78.73
73	Tuban	0.42	1118464	8.469E+12	609.8	870000	1.72	0.54	76.99
74	Lamongan	0.42	1179059	6.191E+12	661.63	875000	1.56	0.51	79.53
75	Gresik	0.39	1177042	1.7075E+13	988.07	1010400	1.82	0.54	80.86
76	Bangkala	0.49	906761	3.502E+12	905.46	775000	1.52	0.47	69.55
77	Sampang	0.71	877772	2.907E+12	711.85	690000	1.94	0.48	68.51
78	Pamekasa	0.31	795918	2.172E+12	1004.64	900000	1.71	0.52	75.68
79	Sumenep	0.47	1042312	5.256E+12	521.54	730000	1.58	0.54	73.11
80	Pandegla	0.35	1149610	4.256E+12	418.51	964500	1.34	0.47	87.99
81	Lebak	0.34	1204095	4.016E+12	351.4	959500	1.59	0.48	89.37
82	Tangeran	0.5	2834376	1.8549E+13	2801.15	1117245	2.19	0.54	93.45
83	Serang	0.44	1402818	7.135E+12	808.88	1000000	1.57	0.5	94.2

**Appendix J:**  
**Local government financial management in Indonesia**

# **Local Government Financial Management in Indonesia**

## **J.1 Introduction**

In this Appendix the context of local government financial management in Indonesia will be presented. First, a brief description of local government autonomy and financial decentralisation will be provided. The next section will provide an overview of local government financial management, including local government financial budgeting, budget implementation, local government financial accounting, and local government financial statements.

## **J.2 Local government autonomy and financial decentralization**

Indonesia is a unitary state in the form of a republic. Indonesia consists of 530 autonomous local governments, of which 33 are provincial local governments, 98 municipal local governments and 399 district local governments (Ministry of Home Affairs Regulation No. 18/2013). Local government autonomy was started in 1999, regulated in Act No. 22/1999 about regional autonomy.

Local government autonomy is the delegation of authority and submission of some of the central government's affairs to local governments within the framework of democracy and national development by involving local people's aspirations and participation. Thus, the development in a region will be based on its people's perceptions, both economically and politically. The terms regional autonomy and decentralisation are used interchangeably to describe the delegation of authority and submission of affairs from higher government levels to lower levels of government (Rudini, 1995). Litvack and Seddon (1999) define local government autonomy as the handover of control and accountability of public affairs from higher level government to lower levels of government organisation or to the private sector. In addition, Imawan (2005) states that decentralisation is when a 'superior' government assigns

responsibility, authority or function to a ‘lower’ government unit that is assumed to have some degree of authority.

Based on Act No. 22/1999, which was amended to become Act No. 32/2004 regarding local government, the central government manages the affairs of foreign policy, defence and security, judiciary, monetary and national financial affairs and religion. Local governments conduct affairs others than those matters, such as education, health and infrastructure. The division of governmental affairs is based on the criteria of externality, accountability, and efficiency with regard to harmonious relationship between the level and / or composition of government (Article 4, Act No. 38/2007)

Local government affairs are divided into two types: mandatory affairs and optional affairs. Mandatory affairs are matters that must be held by the provincial, district or municipal local governments relating to basic services (Article 7, Act No. 38/2007). The affairs are: education; health; environment; public works; spatial planning; development planning; housing; youth and sport; investment; cooperatives and small and medium enterprises; population and civil registration; employment; food security; empowerment of women and protection of children; family planning and family welfare; transportation; information and communication; land; domestic politics; decentralization, public administration, financial administration, personnel, and coding; empowerment of communities and villages; social; culture; statistics; archives; and library.

On the other hand, optional affairs are matters that actually exist and have the potential to improve the welfare of the community in accordance with the conditions, uniqueness and potential of the regions (Article 7, Act No. 38/ 2007). Those affairs are: marine and fisheries; agriculture; forestry; energy and mineral resources; tourism; industry; trade; and transmigration.

Granting broad autonomy to local governments is intended to accelerate the realisation of community welfare through service improvement, empowerment and community participation. Local governments have the authority to make policies in service delivery, increased participation, initiative and community empowerment in order to improve community welfare.

One consequence of the submission of mandatory affairs to local government is that the central government is obliged to fund the mandatory matters through the provision of fund balances.

### **J.3 Financial decentralisation**

One of the local government authorities is the authority to manage their own finances (i.e. financial decentralisation). The authority is regulated in Act No. 25/1999, which was amended to become Act No. 33/2004. Financial decentralisation is a process of distribution of the budget from the central government to local governments to support the delegation of authority and submission of some of the central government's affairs to the local governments. financial decentralisation is a logical consequence of the implementation of regional autonomy with respect to the concept of money follows functions, which means that the transfer or delegation of central government authorities must be accompanied by the allocation of the budget needed to exercise these powers. Act No. 33/2004 authorises local governments to:

1. obtain financial resources in the form of assurance from the central government (i.e. decentralisation fund) in accordance with the affairs of the central government handed over to local governments;
2. collect and utilise taxes and levies;
3. get to the results of national resources in the area; and
4. manage regional assets and obtain sources of legitimate income and sources of financing.

To support the implementation of regional autonomy and in accordance with the concept of money follows functions, the central government must allocate funds to finance the activities and affairs of the local governments. The funds are called decentralisation funds. Act 32/2004 about regional autonomy and Act 33/2005 about fiscal balance mandate that the central government has to allocate at least 26% of domestic revenues as decentralisation funds. The funds are intended to provide certainty for local government's funding sources and to minimise the gap in fiscal capacity among regions. Decentralisation funds consist of the general allocation fund, revenue sharing fund and special allocation fund. Since 2002 there have been also the special autonomy fund and the adjustment fund.

**General allocation fund.** The general allocation fund is sourced from the state budget and is intended to reduce the financial imbalance between the regions through the application of a formula that considers the basic needs, fiscal capacity and fiscal need of the regions. The general allocation fund is also used to fund regional needs in the context of decentralisation. In addition, the general allocation fund can be used freely in accordance with local priorities based on the ratification of regional budgets. Therefore, the nature of the general allocation fund is block grant revenue.

**Revenue sharing fund.** The revenue sharing fund is sourced from the state budget and is intended to reduce the vertical fiscal imbalance<sup>33</sup> between central and local governments. The revenue sharing fund consists of two types of revenue-sharing: (1) revenue-sharing from taxes, which are derived from land and building tax, land and building acquisition fees, and personal income taxes; and (2) revenue-sharing from natural resources, which are derived from forestry, mining, fisheries, petroleum, mining, natural gas and geothermal.

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<sup>33</sup> Vertical fiscal imbalance = need for transfer between higher and lower levels of government (Shah, 2006).

The revenue-sharing fund can be used as freely as possible in accordance with an agreement between local government and regional parliament as stated in regional budgets. Therefore, the revenue sharing fund is an unconditional grant and its nature is block grant revenue from the central government.

**Special allocation fund.** The special allocation fund is sourced from the state budget and is allocated to a particular local government in order to help fund a specific activity that is a local government affair in accordance with national priorities. The special allocation fund is devoted to financing facilities and basic community services that have not reached a particular standard or to accelerate regional development.

The special allocation fund has the most specific character among the various decentralisation funds, in that it can be used only in accordance with the list of activities regulated by the central government. According to the classification of Hyman (1990), the special allocation fund can be categorised as a matching grant because of the obligation to provide matching funds. The special allocation fund also can be classified as a restricted grant because of its character as a categorical grant-in-aid.

**Special autonomy fund.** The special autonomy funds are funds that are allocated to finance the implementation of special autonomy in the Aceh Province, Papua Province and Papua Barat Province as provided in Act No. 11/2006 regarding the Government of Aceh and Act No. 21/2001 on special autonomy for Papua Province.

The amount of the fund for the Province of Aceh is 2% of the ceiling of the national general allocation fund. The amount of the fund for the Province of Papua and the Province of Papua Barat is equal to 2% of the national general allocation fund. The fund is divided by the proportion of 70% for the Province of Papua and 30% for the Province of Papua Barat.

**Adjustment fund.** The adjustment fund is a fund for a local government that receives a smaller general allocation fund compared to the previous financial year.

Decentralisation funds have been dominating local governments' total revenue by an average of more than 80% since 2000. Looking from the central government's side, the amount of decentralisation funds is more than 30% of the central government's budget. The following table presents information regarding decentralisation funds from 2000 to 2013.

**Table J.1: Decentralisation funds from 2001 to 2013 (in billion rupiahs)**

Financial year (1)	General allocation fund (2)	Special allocation fund (3)	Revenue-sharing fund (4)	Special autonomy fund (5)	Adjustment fund (6)	Total decentralisation fund (7) = (2) + (3) + (4) + (5) + (6)	State budget (8)	% Total decentralization fund to state budget (9) = (7) / (8)
2001	60.516,69	900,56	20.259,26	0,00	0,00	81.676,51	315.756,06	25,87%
2002	69.114,13	817,28	24.600,35	1.382,28	2.054,72	97.968,75	344.008,80	28,48%
2003	76.978,01	2.616,58	27.895,94	1.539,56	7.847,62	116.877,70	370.591,78	31,54%
2004	82.130,93	3.128,10	26.927,87	1.642,62	5.212,76	119.042,27	374.351,26	31,80%
2005	88.765,60	4.323,12	31.217,79	1.775,26	5.467,28	131.549,05	397.769,31	33,07%
2006	145.664,20	11.569,80	59.358,40	2.913,28	563,84	220.069,52	647.667,82	33,98%
2007	164.787,40	17.094,10	68.461,25	4.045,75	4.406,10	258.794,60	763.570,80	33,89%
2008	179.507,14	21.202,14	66.070,85	7.510,29	6.939,04	281.229,46	854.660,14	32,91%
2009	186.414,10	24.819,59	85.718,73	8.856,56	14.882,01	320.690,99	1.037.067,34	30,92%
2010	203.485,23	21.133,38	81.404,80	9.099,61	8.687,80	323.810,83	1.047.666,04	30,91%
2011	225.532,82	25.232,80	83.558,39	10.421,31	48.234,97	392.980,30	1.229.558,47	31,96%
2012	273.814,44	26.115,95	100.055,20	11.952,58	58.471,30	470.409,46	1.435.406,71	32,77%
2013	311.139,29	31.697,14	101.962,36	13.445,57	70.385,88	528.630,24	1.683.011,10	31,41%

Source: State Budget Act 2000 No. 35; 2001 No. 19; 2002 No. 29; 2003 No.28; 2004 No. 36; 2005 No. 13, 2006 No.18; 2007 No. 45; 2008 No. 41; 2009 No. 47; 2010 No. 10; 2011 No.22; 2012 No. 19

#### J.4 Local government financial budgeting

The local government budget is the basis for local government financial management during a financial year. The financial year starts from 1 January and ends on 31 December each year.

The basis used in preparing the budget is the cash basis. In preparing its budget, a local government has to implement performance-based budgeting principles (Government Regulation, 58/2005). In implementing these principles, local government must ensure that there is a relationship between the amounts of money spent (input) and the output achieved for every activity or program. Efficiency and effectiveness of an activity or program are the focus of these principles.

### **J.3.1 Budgeting process**

In preparing a local government budget, a local government has to take several stages. The stages include preparation of a local government work plan, preparation of a general policy of local government budget, preparation of priority programs and maximum budget, and preparation of a local government's working units' budget (Government Regulation No. 58/2005).

#### **Stage 1: Preparation of Local Government Work Plan (LGWP)**

The Local Government Work Plan is a local government's planning document for a one year period. Local government prepares the LGWP based on the local government medium-term development plan. The LGWP is used to ensure that there is a relationship and consistency between planning, budgeting, implementing and monitoring in local government financial management (Government Regulation No. 58/2005).

The LGWP contains a draft of the regional economy framework, development priorities and regional obligations, the work plan and its financing, either directly conducted by local government or by encouraging community participation (Government Regulation No. 58/2005).

## **Stage 2: Preparation of General Policy of Budget Preparation (GPBP)**

The General Policy of Budget Preparation is a document containing policies in the sectors of revenues, expenditures and finances and also underlying assumptions of the policies for the next one-year period (Government Regulation No. 58/2005).

The Governor/Regent/Mayor prepares a draft of the GPBP based on the local government work plan and guidelines for budget preparation issued by the Minister of Home Affairs. The Governor/Regent/Mayor submits the draft of the GPBP to the regional parliament as a reference for preparing a draft of the local government budget. The draft of the GPBP that has been discussed between the Governor/Regent/Mayor and regional parliament will be agreed as the GPBP (Government Regulation No. 58/2005).

## **Stage 3: Preparation of Tentative Budget Priority and Ceiling (TBPC)**

The Tentative Budget Priority and Ceiling (TBPC) is a document that contains lists of priority programs and the maximum budget provided to local government's working unit for each program. This document is a reference in preparing the local government's working units' budget. The Governor/Regent/Mayor prepares the draft of this document (Government Regulation No. 58/2005).

Based on the TBPC, local government and regional parliament discuss the draft of priority programs and maximum budget. If both parties agree with the content of the draft, then both parties sign a memorandum of understanding (Government Regulation No. 58/2005).

## **Stage 4: Preparation of local government's working unit's budget**

The local government's working units' budget is a planning and budgeting document containing the local government's working units' programs and activities and also the

amount of budget needed to implement the programs and activities (Government Regulation No. 58/2005).

The Governor/Regent/Mayor issues a guideline to prepare the local government's working units' budget to guide the head of local government's working units in preparing their units' budget. The units' budget is prepared by using the medium-term expenditure framework approach and performance-based principles (Government Regulation No. 58/2005).

### **J.5 Budget realisation**

Local governments are granted wide autonomy to execute their budgets. The central government only provides principles, not detailed rules, in implementing budgets. The local governments are free to design the organizational structure pertaining to budget execution. To meet their local characteristics and situation, local governments are also granted the right to establish regulations for the systems and procedures of budget implementation, to develop accounting policies and to develop other necessary policies in local financial management (Government Regulation No. 58/2005). Therefore, the strength of a local government's internal control system depends on the policies of the local government leader.

Regarding organisational structure in budget execution, a mayor or regent delegates their authority to a chief financial officer for the level of local government as a whole and to heads of offices for the level of sub-unit organisations. They have authority to execute their offices' budgets and they have to take responsibility for any financial risks. In executing budgets, both the chief financial officer and heads of offices use a guideline, called the Guideline of Budget Implementation, provided by a mayor or regent (Government Regulation No. 58/2005).

## **J.6 Local government financial accounting**

On 13 June 2005 the central government issued Government Regulation No. 24/2005 about government accounting standards. This was the first time accounting standards for central and local governments had ever been set since the independence of the Republic of Indonesia. The regulation is a reference for local government and stakeholders in the implementation of local government financial accounting. The accounting standards are necessary to ensure consistency in financial reporting. The absence of adequate accounting standards would lead to the negative implications of low reliability and objectivity of financial information, inconsistencies in financial reporting as well as complicating the auditing (Government Regulation 24/2005; 71/2010).

The government accounting standards consist of a conceptual framework and eleven standards. The eleven standards are (Government Regulation 24/2005; 71/2010):

1. Statement Number 01 on the presentation of financial statements;
2. Statement Number 02 on the statement of budget realization;
3. Statement Number 03 on the statement of cash flow;
4. Statement Number 04 on notes to the financial statements;
5. Statement Number 05 on accounting for inventories;
6. Statement Number 06 on accounting for investment;
7. Statement Number 07 on accounting for fixed assets;
8. Statement Number 08 on accounting for construction in progress;
9. Statement Number 09 on accounting for liabilities;
10. Statement Number 10 on correction of errors, changes in accounting policy, and extraordinary events; and
11. Statement Number 11 on consolidated financial statements.

### **Accounting basis**

The accounting basis used in local government financial statements is the cash basis for the recognition of revenues, expenditures, transfers and financing, while accrual basis is used to recognise assets, liabilities and equities. Such an accounting basis is known as a cash basis towards accrual. However, reporting entities are allowed to prepare financial statements using a full accrual basis, in the recognition of revenues, expenditures, transfers, financing and in the recognition of assets, liabilities and equities. Reporting entities that prepare accounting and present financial statements using the accrual basis have to present a statement of budget realisation using the cash basis as well (Government Regulation 24/2005).

### **J.6 Local government financial statements**

Comprehensive local government financial statements consist of the following statements (Government Regulation 24/2005; 71/2010) :

- a) financial position statements;
- b) budget realization statements;
- c) cash flow statements; and
- d) notes to the financial statements.

The following sections provide a brief description for each financial statement.

#### **a) Statement of financial position**

A statement of financial position describes the financial position of a local government concerning assets, liabilities and equity on a certain date. Each local government classifies its assets into current assets and non-current assets and classifies its liabilities into short term liabilities and long term liabilities in the statement of financial position (Government Regulation 24/2005; 71/2010).

### ***Current assets***

An asset will be categorised as a current asset once it is estimated to be realised in, or is owned for sale or used up in, one period of financial year from the day of reporting, or in the form of cash or cash equivalent (Government Regulation 24/2005; 71/2010)

### ***Non-current assets***

Non-current assets comprise assets that are long-term in nature and intangible assets that are directly or indirectly used for government activities or used by the public. In order to simplify the understanding of non-current asset components in the statement of financial position, non-current assets are classified into long-term investments, fixed assets, reserved funds and other assets (Government Regulation 24/2005; 71/2010)

### ***Long-term investments***

Long-term investments refer to investment activities that are planned to be owned for more than 12 months. Long-term investments consist of non-permanent and permanent investments. Non-permanent investments are long-term investments that are not to be permanently owned. Non-permanent investments consist of purchases of government bonds, capital investment in development projects that can be transferred to third parties and other non-permanent investments (Government Regulation 24/2005; 71/2010).

Permanent investments are long-term investments that are planned to be permanently owned. Permanent investments consist of local government investment in central or local government business enterprises, state financial institutions, state owned legal entities, international institutions and other legal institutions that are not owned by the government (Government Regulation 24/2005; 71/2010).

### ***Fixed assets***

Fixed assets refer to tangible assets that have a functional age of more than 12 months for use in local government activities or by the public. Fixed assets consist of (Government Regulation 24/2005; 71/2010):

- a) land;
- b) equipment and machinery;
- c) buildings and properties;
- d) roads, irrigations and transmission networks;
- e) other fixed assets; and
- f) construction in progress.

### ***Reserved funds***

The reserved funds are funds that are reserved to cover local government's programs or activities that require relatively large funds which cannot be fulfilled in one budget year. Reserved funds are detailed according to their purpose (Government Regulation 24/2005; 71/2010).

### ***Other non-current assets***

Other non-current assets are classified as other assets. Included in other assets are intangible assets, receivables from sales by instalments that mature in a period of more than 12 months and joint-operation assets (partnerships) (Government Regulation 24/2005; 71/2010).

### ***Current Liabilities***

A liability will be categorised as a short term liability if such is expected to be paid within one period of financial year after the reporting time. All liabilities other than that are grouped as long-term liabilities.

Short-term liabilities can be categorised by a similar method as current assets. Several short-term liabilities such as local government transfer debts or debts to employees will absorb current assets in the subsequent reporting year. Other short-term liabilities are liabilities that are mature within a period of 12 months after the reporting date. For example: interest payable, short-term debts to third parties, due to the third parties and current portions of long-term debts (Government Regulation 24/2005; 71/2010).

### ***Long-term liabilities***

A local government should classify its liabilities as long term liabilities, even though those liabilities are due and will be paid in one period of financial year after the reporting day, if (Government Regulation 24/2005; 71/2010):

- a. the original period is for more than one period financial year; and
- b. the local government proposes to roll over the liabilities for more than one financial year; and
- c. the purpose is supported by a refinancing contract, or a rescheduling of payment, which will be settled before the financial statements are approved.

### ***Equities***

Local government discloses its equities separately in the statement of financial position into current equity, investment equity and reserved fund equity (Government Regulation 24/2005).

Current equity is the difference between current assets and short-term liabilities. Investment equity reflects local government assets invested in long-term investments, fixed assets and other assets, deducted from long-term liabilities. Reserved fund equity reflects local government assets reserved for certain purposes in compliance with statutory rules. Illustration of the statement of financial position is presented in the following figure.

**Figure J.1: Illustration of the statement of financial position**

The Local Government of XYZ

Statement of financial position

As of 31 December 20X1 and 20X0

DESCRIPTION	20X1	20X0	DESCRIPTION	20X1	20X0
CURRENT ASSETS			CURRENT LIABILITIES		
Cash and cash equivalent			Debt to employees		
Short-term investment			Short-term debt to third party		
Tax receivables			Due to the third parties		
Non-tax receivables			Interest payables		
Other receivables			Current portion of long-term debt		
Inventory			LONG TERM LIABILITIES		
LONG-TERM INVESTMENT			Bond payables		
Non-permanent investment			Domestic long-term debt		
Permanent investment			EQUITIES		
FIXED ASSETS			Current equity		
Land			Investment equity		
Equipment and machinery			Reserved fund equity		
Buildings and property					
Roads, irrigation and transmission networks					
Other fixed assets					
Construction in progress					
(Accumulated depreciation of fixed assets)					
RESERVED FUNDS					
Reserved funds					
OTHER ASSETS					
Intangible assets					
Other assets					

Source: Government Regulation 24/2005

**b) Statement of budget realisation**

The statement of budget realisation discloses financial activities of the local government and shows compliance with the revenue and expenditure budget for local government. The statement illustrates a comparison between the budget and its realisation during one reporting period (Government Regulation 24/2005; 71/2010).

The objective of the budget realisation reporting is to provide comparable information concerning the realisation and the budget of a local government. The comparison between the budget and its realisation shows the levels of achievement of targets, which have been agreed between the legislature and the executive in compliance with the prevailing rules (Government Regulation 24/2005; 71/2010).

The statement of budget realisation provides information concerning the realisation of revenues, expenditures, transfers, surplus or deficit and financing of a local government, where each of them is compared with its respective budget.

The statement of budget realisation includes at least the following accounts (Government Regulation 24/2005; 71/2010):

- (a) revenues;
- (b) expenditures;
- (c) transfers;
- (d) surplus or deficit;
- (e) financing receipt;
- (f) financing disbursement;
- (g) net financing; and
- (h) surplus/deficit after budget financing.

### ***Revenues***

Revenues are classified according to sources of revenues, which are local own revenues, transfer revenues from central government, and other legal revenues (Government Regulation 24/2005; 71/2010).

### ***Expenditures***

Expenditures are classified according to economic classification (types of expenditures), organisations and functions (Government Regulation 24/2005; 71/2010).

Economic classification is the grouping of expenditures based on types of expenditure to conduct an activity. Economic classifications for local government consist of employee expenditure, goods expenditure, capital expenditure, interest, subsidies, grants, social aids and unexpected expenditures (Government Regulation 24/2005; 71/2010)

Operating expenditures are budgeted disbursements for daily activities of local government, which provide short-term benefits. Operating expenditures consist of employee expenditure, goods expenditure, interest, subsidies, grants and social aids (Government Regulation 24/2005; 71/2010).

Capital expenditures are budgeted disbursements for acquisition of fixed assets and other assets, which provide benefits for more than one accounting period. Capital expenditures consist of capital expenditure for acquisition of land, building and property, equipment and intangible assets (Government Regulation 24/2005; 71/2010).

Other/unexpected expenditures are budgeted disbursements for activities of irregular nature and are not expected to recur, such as natural disasters relief, social disaster

relief and other unexpected expenditures that are necessary in order to implement local government programs (Government Regulation 24/2005; 71/2010).

### ***Transfers***

Transfers are disbursement of money from one local government entity to another, such as disbursement of balanced funds by the central government and revenue sharing funds by the local government (Government Regulation 24/2005; 71/2010).

### ***Surplus/deficit***

Surplus refers to a situation when total revenues are larger than total expenditures during one reporting period. Deficit is a condition when total revenues are less than total expenditures during one reporting period (Government Regulation 24/2005; 71/2010).

### ***Financing***

Financing covers all local government financial transactions, either receipts or disbursements, which should be paid or should be re-received, where in the local government budget are primarily intended to cover the deficit and or make use of the budget surplus. Financing receipts can originate from loans and proceeds of divestment. Meanwhile, financing disbursements are utilised to pay back loan principals, provide loans to other entities and for investment placement by the government (Government Regulation 24/2005; 71/2010)

### ***Financing receipts***

Financing receipts are all receipts in the cash account of local government, for example receipts from loans, sales of local government bonds, proceeds of privatisation of local government business enterprises, receipts of repayment of loans provided to third parties, sale of other permanent investments and liquidation of reserved funds (Government Regulation 24/2005; 71/2010).

*Financing disbursements*

Financing disbursements are all disbursements of the account for central/local government cash, such as the granting of loans to third parties, the placement of investment by the government, the payment of loan principal in a certain budget period and the establishment of reserved funds (Government Regulation 24/2005; 71/2010).

*Net financing*

Net Financing is the difference between financing receipts and financing disbursements in a certain budget period (Government Regulation 24/2005; 71/2010).

*Surplus/deficit after budget financing*

Surplus/deficit after budget financing is the surplus/deficit difference between the realisation of all receipts and all disbursements in one reporting period (Government Regulation 24/2005; 71/2010).

Illustration of the statement of budget realisation is presented in the following figure.

**Figure J.2: Illustration of the statement of budget realisation**

The Local Government of XYZ  
 Statement of budget realisation  
 For the Period Ended of 31 December 20X1 and 20X2

DESCRIPTION	Budget 20X1	Realisation 20X1	Difference (%)	Realisation 20X0
REVENUES				
LOCAL OWN REVENUES				
Local tax revenues				
Local retribution revenues				
Dividends from local government's investment				
Other local government own revenues				
TRANSFER REVENUES				
Central government transfer – allocation fund				
Tax sharing fund				
Natural resources sharing fund				
General allocation fund				
Special allocation fund				
Central government transfer – others				
Special autonomy fund				
adjustment fund				
Provincial local government transfer				
Tax sharing revenue				
Others sharing revenues				
OTHER LEGAL REVENUES				
Grant revenues				
Emergency fund revenues				
Other revenues				

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DESCRIPTION	Budget 20X1	Realisation 20X1	Difference (%)	Realisation 20X0
<b>EXPENDITURES</b> <b>OPERATING EXPENDITURES</b> Employee expenditure Goods expenditure Interest expenditure Subsidy expenditure Grant expenditure Social aid expenditure  <b>CAPITAL EXPENDITURES</b> Land expenditures Equipment and machinery expenditure Building and properties expenditure Road, irrigation and transmission network expenditure Other fixed asset expenditure Other asset expenditure  <b>UNEXPECTED EXPENDITURES</b>  <b>TRANSFERS</b> Transfer/revenue sharing to villages Tax revenue sharing Retribution revenues sharing Other revenues sharing				
<b>FINANCING</b> <b>FINANCING RECEIPTS</b> Receipt from last year surplus Liquidation of reserved funds Proceeds from the sale of local government's investment Receipt from loan Receipt of repayment of loans provided to third parties  <b>FINANCING DISBURSEMENTS</b> Establishment of reserved fund Granting of loans to third parties Placement of investment Payment of loan principal				

**Source:** Government Regulation 24/2005

### **c. The cash flow statement**

The objective of cash flow statements is to provide information on sources, uses and changes of cash and cash equivalents during one accounting period and the balance of cash and cash equivalents on the reporting date (Government Regulation 24/2005; 71/2010).

The cash flow statements provides information on cash inflows and cash outflows during a certain period, which are classified based on operating, non-financial assets investing, financing, and non-budgeting activity (Government Regulation 24/2005; 71/2010).

#### ***Operating Activity***

Net cash flow of operating activity is an indicator that shows local government operating capabilities in generating sufficient cash to finance its operating activity in the future without relying on outside financing sources (Government Regulation 24/2005; 71/2010) .

The cash inflows from operating activity are mainly generated from (Government Regulation 24/2005; 71/2010):

- (a) tax revenues;
- (b) non-tax revenues;
- (c) grants;
- (d) income from share of profit (such as dividends) from central or local business enterprise and return from other investment; and
- (e) income transfer.

The cash outflows for operating activity are mainly used for the following disbursements (Government Regulation 24/2005; 71/2010):

- (a) employee expenditures;
- (b) procurement of goods and services;
- (c) interest;
- (d) subsidy;
- (e) grants;
- (f) social aid;
- (g) other or unexpected expenditures; and
- (h) outgoing transfer.

***Non-financial assets investing activity***

The cash flows from non-financial assets investing activity represent gross cash receipts and cash payments for acquisition and from disposal of economic resources aimed at increasing and supporting local government services for the public in the future (Government Regulation 24/2005; 71/2010).

The cash inflows from non-financial assets investing activity consist of:

- (a) sale of fixed assets; and
- (b) sale of other assets.

The cash outflows for non-financial assets investing activity consist of:

- (a) acquisition of fixed assets; and
- (b) acquisition of other assets.

***Financing Activity***

The cash flows from the financing activity reflect gross cash receipts and payments of deficit financing or use of budget surplus, whose purpose is to predict claims from other parties on local government cash flows and local government claims to other parties in the future. The cash inflows from financing activity are among others, receipts of cash from (Government Regulation 24/2005; 71/2010):

- (a) borrowings;
- (b) sale of government bonds;
- (c) divestment;
- (d) receipt of repayment of loans; and
- (e) liquidation of reserved funds.

The cash outflows for financing activities, among others, are (Government Regulation 24/2005; 71/2010):

- (a) investment placement;
- (b) payment of principal of borrowings;
- (c) granting loans to third parties; and
- (d) establishment of reserved funds.

***Non-budgeting activity***

The cash flows from non-budgeting activity represent gross cash receipts and disbursements, which do not affect the local government budgeted revenues, expenditures, and financing. Examples of cash flows from non-budgeting activity are third-party withheld and transfers of funds. Third-party withheld represents cash that is derived from the amount of funds deducted from payment authorisation or received in cash for third parties, for example, pension funds and health insurance deductions. Transfer of funds represents cash transactions between accounts of local governments (Government Regulation 24/2005; 71/2010).

The incoming cash flows from non-budgeting activity include third party withheld receipts and incoming transfers. The outgoing cash flows from non-budgeting activity include third party withheld disbursements and outgoing transfers. The format of the statement of cash flows is presented below in Figure J.3.

**Figure J.3: Illustration of the cash flows statements**

The Local Government of XYZ  
 Cash flow statements  
 For the Period Ended of 31 December 20X1 and 20X2

DESCRIPTION	20X1	20X0
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>		
<b>CASH INFLOWS</b>		
Local tax revenues		
Local Retribution revenues		
Dividends from local government's investment		
Other local own revenues		
Tax sharing fund from the central government		
Natural resources sharing fund from the central government		
General allocation fund from the central government		
Special allocation fund from the central government		
Special autonomy fund from the central government		
Adjustment fund from the central government		
Tax sharing revenue from provincial local government		
Other sharing revenues from provincial local government		
Grant revenues		
Emergency fund revenues		
Other revenues		
<b>CASH OUTFLOWS</b>		
Employee expenditures		
Goods expenditures		
Interest expenditures		
Subsidies expenditures		
Grant expenditures		
Social aid expenditures		
Unexpected expenditures		
Tax revenue sharing to villages		
Retribution revenues sharing to villages		
Other revenues sharing to villages		

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<b>DESCRIPTION</b>	<b>20X1</b>	<b>20X0</b>
<b>CASH FLOWS FROM NON-FINANCIAL ASSETS INVESTING ACTIVITIES</b> <b>CASH INFLOWS</b> Proceeds from sale of land Proceeds from sale of equipment and machinery Proceeds from sale of building and property Proceeds from sale of road, irrigation and transmission networks Proceeds from sale of other fixed assets Proceeds from sale of other assets  <b>CASH OUTFLOWS</b> Acquisition of land Acquisition of equipment and machinery Acquisition of building and property Acquisition of road, irrigation and transmission networks Acquisition of other fixed assets Acquisition of other assets		
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b> <b>CASH INFLOWS</b> Liquidation of reserved funds Proceeds from sale of local government investment Issuance of long-term loans Receipt of repayment of loans provided to third parties  <b>CASH OUTFLOWS</b> Establishment of reserved fund Granting of loans to third parties Placement of investment Payment of principal of borrowing		
<b>CASH FLOWS FROM NON-BUDGETING ACTIVITIES</b> <b>CASH INFLOWS</b> Third-party withheld  <b>CASH OUTFLOWS</b> Third-party disbursement		

**Source:** Government Regulation 24/2005

## **J.8 The process of preparing local government financial statements**

The head of the local government's working unit prepares the financial statements of their working unit as the implementation of budget accountability. Then, they submit it to the head of local government (governor/mayor/regent). The financial statement must be submitted no later than two months after the end of financial year. The chief financial officer will monitor the submission process (Government Regulation, No. 8/2006).

Based on the financial statements of the local government's working unit, the chief financial officer prepares consolidated financial statements. Then the consolidated statements are sent to the Inspectorate Office to be reviewed. The inspector will review whether the statements are in compliance with the government accounting standards and whether the internal control system is reliable. Next, the governor/regent/mayor submits the financial statements to the Supreme Audit Board no later than three months after the end of financial year (Government Regulation, No. 8/2006).

The governor/regent/mayor provides feedback and makes corrections and adjustments to the financial report based on the audit results of the Supreme Audit Board. Based on the financial statements that have been corrected and adjusted, the governor/regent/ mayor and regional parliament establish regional regulations regarding the implementation of budget accountability (Government Regulation, No. 8/2006).

## **J.9 Monitoring and evaluation of local government financial management**

After a local government has prepared financial statements, the provincial government has to evaluate the implementation of all local governments' budgets

within its jurisdiction. Not only the provincial government, but also the Ministry of Home Affairs evaluates the implementation of all provincial governments' budgets across Indonesia. The evaluators (i.e. the provincial government and the Ministry of Home Affairs) have to prepare and submit evaluation reports to the parliament (Government Regulation, No. 8/2006).

The objectives of the evaluation of the implementation of local governments' budget are to assess whether the implementation of the budget conflicts with public interests and higher regulations. Besides that, the results of the evaluation will recommend that the local government establish policies and steps to improve its financial management so that it can achieve its objectives in managing its resources economically, efficiently, effectively, transparently, and accountably (Government Regulation, No. 8/2006).

In addition to financial statements, each head of the local government's working unit has to prepare a performance report. The report explains concisely and comprehensively the performance achieved of each local government program and activity. The report compares the achievement of the local government's programs and activities to its work plan. Local governments have to submit the report to the Ministry of Civil Servant Empowerment two months after the closing date of the financial year (Government Regulation, No. 8/2006).

## **J.9 Financial statements audit**

The Supreme Audit Board has to audit every local government's financial statements annually. There are three types of audit that they can do: financial audit, performance audit and specific purposes audit (Act No. 15/2004).

A financial audit is the examination of the local government's financial statements. The audit is conducted by the Supreme Audit Board in order to provide an opinion regarding the fairness of the financial information provided in the local government financial statements. A performance audit is the examination of the local government performance in economy, efficiency and effectiveness, which is commonly done for the benefit of local government management. A performance audit is intended to make sure that a local government's programs and activities are organised economically, efficiently and effectively in order to meet the targets. A specific purpose audit is an examination conducted with a specific purpose, including investigative examination and other financial related matters (Act No. 15/ 2004)

The implementation of the audits as referred to above is based on an auditing standards. The standards are prepared by the Supreme Audit Board by considering standards in the auditing profession internationally (Act No. 15/2004).

The results of each audit are prepared and presented in an audit report immediately after the audit activities are completed. A financial audit will result in an opinion. A performance audit will result in findings, conclusions and recommendations, while a specific purpose audit will result in a conclusion. Every audit report is submitted to the local parliament and will be discussed with the related parties (Act No. 15/ 2004).

Local government officers must follow the recommendations in the audit report. Accordingly, the Supreme Audit Board needs to monitor and inform the monitoring of follow-up to the parliament (Act No. 15/2004).

In order to increase transparency and public participation, each audit report that has been submitted to the local parliament is declared open to the public. Thus, people can find out the results of the audit through publications and the Supreme Audit Board's websites ([www.bpkri.go.id](http://www.bpkri.go.id)).

