The Determinants of Public Service and Environmental Performance of Local Governments in Indonesia

Muhammad Arif

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Declaration

I, Muhammad Arif, declare that this thesis is my own account of my research and contains as its main content work that has not previously been submitted for a degree at any tertiary education institution.

Name: Muhammad Arif

Abstract

Local governments have significant roles to play with respect to providing high-quality public services and maintaining environmental sustainability. However, local communities in developing countries, including Indonesia, still have less access than those in developed countries to effective public services; and are facing increasing risks from environmental degradation. Given these issues for developing countries, this study focuses on the performance of the Indonesian public sector with respect to both the provision of public services and environmental sustainability.

This study has two objectives. First, it aims to examine the influences of public sector governance and financial management factors on Indonesian districts' service performance, mediated by financial performance. Second, this study aims to investigate the impacts of public sector governance and financial management factors on districts' environmental performance through the mediating role of financial performance. Indonesia was chosen as an exemplar of developing countries. In this study, public sector governance is represented by financial transparency, accountability, and internal control, while financial management factors are measured by financial flexibility, financial independence, and resource management. Several conceptual models are developed, from which the theoretical relationship between public sector governance, financial management factors, and service and environmental performance are hypothesised. These hypotheses are then tested using a quantitative approach and secondary data. The main findings of this study indicate that public sector governance and financial management factors are positively related to service and environmental performance. The study also confirms the mediation effect of financial performance on service and environmental

performance. This study enriches the literature related to the public sectors since it provides incremental evidence regarding the determinant factors of service and environmental performance and develops the theoretical models that investigate the mediating role of financial performance on the performance of local government in a developing country like Indonesia. Future studies in this area could include investigating the effects of other potentially relevant measures, such as innovation and managerial styles.

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Chapter 1
Introduction

1. Research Background

Public services delivered by the local governments aim to meet a wide range of needs and expectations in communities, such as local roads, firefighting, waste management, health services, and water supply (Chattopadhyay 2013; Maksimovska and Stojkov 2016; Dick-Sagoe 2020). In recent years, subnational governments have focused not only on public service provision but also on environmental protection (Štreimikienė 2015). As mandated by Chapter 28 of Agenda 21 of the United Nations, which relates to sustainable development, sub-national governments of all countries have a pivotal role in protecting the biosphere (Williams, Wilmshurst, and Clift 2011; Wiharani and Holzhacker 2016). However, public services and environmental protection efforts by sub-national governments face many obstacles, especially in developing countries; including due to increasing human populations, lack of local government funding, and rising demands on forest areas (Hutton and Chase 2016; Chong et al. 2016; Leblois, Damette, and Wolfersberger 2017; Arshad et al. 2020). To support sub-national governments to implement effective services, including environmental sustainability, a clear understanding is required of the factors that can affect service and environmental performance for local governments to improve their performance.

Previous studies have found that public sector governance factors, such as transparency and accountability, are essential factors that influence organisational performance, including for local governments (Williams 2015; Kis-Katos and Sjahrir 2017; Han and Hong 2019). Transparency and accountability improve a local

government's outcomes (Ott, Bronić, and Petrušić 2014) and preserves its legitimacy since people have more power to monitor its activities (Benito and Bastida 2009). In developed countries, transparency and accountability are factors that have been studied most commonly with respect to their influence on local government's service and environmental performance (Halkos and Tzeremes 2014; Sahide et al. 2016; Han and Hong 2019). Other commonly studied determinants of effective local government service and environmental performance include internal control (Nuswantara and Maulidi 2017; Ong'unya and Abbey 2019; Kareem, AlHassani, and Ali 2019; Huang and Huang 2020), and financial management factors (Kioko et al. 2011; Kis-Katos and Sjahrir 2017; García-Sánchez, Frías-Aceituno, and Rodríguez-Domínguez 2013).

The public sector governance and financial management factors are expected to have an effect on service and environmental performance in different conditions, especially in the local government context in developing countries with different characteristics in terms of socio-demographic and economic factors, local government size, function, revenue, and expenditure structure (Shah and Shah 2006; Rasool and Ogunbode 2015; UN-HABITAT 2015; Lopez Subires et al. 2019; Pina, Bachiller, and Ripoll 2020; Sinervo 2020).

In developing countries, local governments face problems of inefficient practices of financial management (Ningsih, Kusumawati, and Nohong 2019). Such inefficient practices are usually addressed by having sound internal control systems; which are more likely to be found in developed countries (Muskanan 2014; Tackie, Marfo-Yiadom, and Achina 2016; Asaolu, Adedokun, and Monday 2016; Udeh and Nwadialor 2016; Sorunke 2016; Kewo 2017; Ayagre and Aidoo-Buameh 2017;

Gamayuni 2018; Ujkani and Vokshi 2019). Accordingly, local governments in developing countries need to focus on building effective internal control mechanisms to alleviate budget mismanagement (Donelson, Ege, and McInnis 2017; Nuswantara and Maulidi 2017).

2. Gaps in the Existing Research

The existing literature on service and environmental performance by local governments in developing countries is still limited for a number of reasons. First, prior studies focused mainly on producing models to investigate service performance in the context of developed countries (Boyne 2003; Van de Walle 2006; Torres, Pina, and Yetano 2011); and measured environmental performance in the context of the private sector (Ball and Bebbington 2008; Yin and Schmeidler 2009; Khanna and Kumar 2011; Iwata and Okada 2011; Lodhia, Jacobs, and Park 2012; Darnall and Kim 2012; Fujii and Managi 2016; Arimura et al. 2016). Research on local government's service and environmental performance is relatively scant in developing countries, where the local government faces different contextual and institutional environments than in developed countries (Andrews 2012; Liu et al. 2017). Given this gap, the present study's empirical evidence will provide important insights into the application of service and environmental performance in developing countries. This study expects that the empirical results will be similar compared to previous studies conducted in developed countries (Torres, Pina, and Yetano 2011; Kaufmann and Lafarre 2020) because this study focuses on a developing country that has conducted public sector reforms: governance and financial management reform.

There are several examples of different contextual and institutional environments of local government in developing countries than in developed countries. For example, local communities in developing countries have less access than those in developed countries to public health services, such as clean water and hygiene sanitation (O'Donnell 2007; Chudi 2010). These issues can increase the risk of disease and other health risks (Cameron, Shah, and Olivia 2013; Engel and Susilo 2014; Mulumba et al. 2014; Glavey et al. 2015; Chong et al. 2016; Hutton and Chase 2016). In the same vein, widespread deforestation and other major environmental degradation have become a significant concern in developing countries (DeFries et al. 2007; de Lima and Buszynski 2011; Lubowski et al. 2014; Busch et al. 2015; Leblois, Damette, and Wolfersberger 2017; Arshad et al. 2020). Global predictions identify that by 2050, 30 to 60 million ha of tropical rainforest in developing countries will be lost, on top of what has already been destroyed; with associated massive climate and biodiversity impacts (Leblois, Damette, and Wolfersberger 2017). As well, water management in developing countries is becoming increasingly problematic (Playán, Sagardoy, and Castillo 2018), as challenges from harmful environmental changes and increasing demand from human populations add to the challenges maintaining water quality and availability associated with poor irrigation infrastructure (Tibor et al. 2000). Given these challenges for developing countries, this present study will investigate service and environmental performance at the local government level in Indonesia; a developing country in which local governments would benefit greatly from information about factors affecting service and environmental performance. This information is essential in order to evaluate the local governments' capabilities to fulfil their service and environmental

responsibilities. To date, local authorities in Indonesia have had very limited information about their service and environmental performance.

A second gap in the literature is that there are relatively limited studies that address the influences of public sector governance, such as transparency, accountability, and internal control on public sector service and environmental performance in developing countries (Belal 2015; OECD 2017; Usang and Salim 2018; Sofyani, Riyadh, and Fahlevi 2020; de Silva, Yapa, and Vesty 2020). Research on public sectors in developing countries has typically focused on investigating the effects of socio-cultural, demographic, economic, and political factors on local government's performance (Da Cruz and Marques 2014; Tavares 2017). Therefore, research into the influences of public sector governance represented by financial transparency, accountability, and internal control on local governments' service and environmental performance is necessary to help with identifying and understanding the determinants of service and environmental performance. Financial transparency, accountability, and internal control have been suggested in previous studies as important factors for addressing local government inefficiencies that remain problematic in developing countries (Huka, Mchopa, and Kimambo 2014; Ningsih, Kusumawati, and Nohong 2019; Adams et al. 2019). Developing and maintaining strong financial transparency and accountability have direct positive effects on public organisational performance (Kis-Katos and Sjahrir 2017; Rana et al. 2019; Han and Hong 2019; Sofyani, Riyadh, and Fahlevi 2020), with public service delivery failures and environmental degradation linked to weak financial transparency and accountability (Damania 2002; Gaventa and McGee 2013). Likewise, when internal control is adequate in the public sector, this minimises the risk of fraud and other corruption and increases overall compliance and effective organisational

performance (Chenhall 2003; Muraleetharan 2011; Vijayakumar and Nagaraja 2012; Badara and Saidin 2013; Al-Thuneibat, Al-Rehaily, and Basodan 2015).

A third research gap is that although financial management factors, such as financial flexibility, financial independence, and financial resource management are considered very important for local governments, research that examines in detail the influences of these factors on local governments' service and environmental performance remains scant (Scutariu and Scutariu 2015; Sarr 2015; Kis-Katos and Sjahrir 2017). Currently, many local governments in developing countries suffer from financial dependency, relying on fiscal transfer or grants (Psycharis, Zoi, and Iliopoulou 2016). This issue may reduce their capacity to meet the basic needs of people in their jurisdiction (UN-HABITAT 2015; Marlissa and Urasti Blesia 2018).

Another concern regarding the organisational performance of local governments in developing countries is they often face challenges from public service expenditure reductions (Thompson 2017) and lack of financial capacity (Shah 2006; Smoke and Loffler 2013; UN-HABITAT 2015; Dick-Sagoe 2020). This will have implications for the quality of organisational performance. For the reasons stated above, this study needs to investigate the influence of financial management factors, represented by financial independence, financial flexibility, and resources management, on local government's service and environmental performance in a developing country.

A final research gap is that prior studies have not investigated thoroughly the influences of financial performance on local government's service and environmental performance, although financial performance is an essential factor for the functioning of local governments (Singer 2016; Khairudin et al. 2018; Mutiha 2018). Previous studies have not included financial performance as an integral part of environmental

performance analysis, since they have assumed that financial and environmental performance would be in conflict with each other (Aras and Crowther 2008); which is not necessarily the case. This research gap has led to deficiencies in current knowledge of the determinants of local government's performance; particularly as most previous studies have used financial performance as a dependent variable (Handa 2018; Masanja 2018; Awwaliyah, Agriyanto, and Farida 2019; Yasin 2020). As a result, local authorities have a limited understanding of whether their financial performance is capable of meeting their service and environmental obligations.

This study will investigate the mediation effect of financial performance on the relationship between public sector governance, financial management factors, and service, and environmental performance to help fill the aforementioned research gaps. Implementing financial performance as a mediator in this study clarifies whether public sector governance and financial management factors can explain local governments' service and environmental performance through financial performance. In addition, the empirical evidence of this study contributes towards a comprehensive understanding of these issues, to enable policymakers to make effective decisions regarding the effective delivery of public services and environmental responsibilities.

3. Research Problems

Community service and environmental performance of local governments have gained attention in the literature (Greiling, Traxler, and Stötzer 2015; Alpenberg, Wnuk-Pel, and Henebäck 2018; Masiya, Davids, and Mangai 2019); with increasing recognition that performance in these two areas has a major influence on the lives, prosperity, health and wellbeing of local people since those performances have a

critical effect on the daily lives and prosperity of the people (Štreimikienė 2015). However, in developing countries the quality of local governments' service provisions and provision of environmentally sustainable programs remains questionable (Morudu 2017; Sururi 2020; Dick-Sagoe 2020). Local governments need good public sector governance factors, such as financial transparency, accountability, and effective internal control to minimise risks and inefficiencies from poor financial management practices (Baltaci and Yilmaz 2006; Ott, Bronić, and Petrušić 2014; Zagorchev and Gao 2015; Donelson, Ege, and McInnis 2017; Nuswantara and Maulidi 2017; Han and Hong 2019). Financial transparency and accountability reduce the asymmetry of information, which in turn shifts the orientation of the provision of public services from political interests to a public or customer-driven orientation (Lanin and Hermanto 2019).

This present study follows four steps to examine the effects of public sector governance and financial management factors on service and environmental performance in Indonesia. These four steps are described below in turn. The first step involves investigating the influences of public sector governance represented by financial transparency, accountability, and internal control on service performance, as mediated by financial performance. The second step investigates the impact of financial management factors (financial flexibility, financial independence, and resources management) on service performance, mediated by financial performance. With respect to the focal variables in these first two steps, previous research has reported that both transparency and accountability are significant factors influencing the effectiveness of public management (Van der Waldt 2004; Hope 2005; Grimmelikhuijsen 2012; Bauhr and Carlitz 2020), and that financial transparency and accountability enhance public authorities' commitment to meeting

the needs of local communities and helps to maintain services standards and increase community involvement in public service processes (Chigwende, Mukuze, and Musasa 2013; Maksimovska and Stojkov 2016; Kis-Katos and Sjahrir 2017). Likewise, with respect to the variable 'internal control', previous research indicates that local government internal control mechanisms play an essential role in the quality of public service performance, including by helping to maintain public service standards, prevent abuse of power, and generate efficiency of services (Han and Hong 2019; Hutama and Yudianto 2019). These reported relationships between public sector governance and service performance support the inclusion of these variables in this study's first conceptual model.

With regard to the second step in the research – investigating the impact of financial management factors including financial flexibility, financial independence, and resources management on local government service – previous research has reported that for local governments, financial flexibility and financial independence can increase the capability of local governments to fulfil public needs, without undue constraints from external parties (such as higher-level governments) that may otherwise reduce their capacity to shape their budgets, raise local revenues, and spend their expenditures in the best interests of the local community (Almeida and Campello 2007; Sitek 2014; Kotarba and Kolomycew 2014). With sufficient financial flexibility and financial independence, local governments have more opportunities to allocate adequate budgets to important social sectors such as education and health programs to alleviate disparities in public services availability (Martinez-Vazquez, Lago-Peñas, and Sacchi 2017). These relationships between financial management factors and service performance are investigated in this study's second conceptual model.

The third step in this present study is to examine the effects of public sector governance (financial transparency, accountability, and internal control) on environmental performance, as mediated by financial performance; and the final step investigates the impact of the aforementioned financial management factors on environmental performance, again through the mediating role of financial performance. With regard to the third step's focus on financial transparency and accountability as factors in environmental performance, previous researchers (Bernauer and Koubi 2009; Sahide et al. 2016) have reported that strong financial transparency and accountability in local government leads to sound sustainable resources management, including environmentally sustainable policies and programs. Accountability helps governments to protect their communities from the risks and harms of environmental degradation (de Silva, Yapa, and Vesty 2020), with recent research highlighting the importance of developing countries managing their economic growth and associated infrastructure development carefully to minimise the risks to biodiversity values (Aye and Edoja 2017).

With regard to this study's focus on local government's internal control as a factor in the organisation's environmental performance, previous research has reported the need for local governments to pay careful attention to their internal control mechanisms, given the demonstrated link between internal control and an organisation's environmental credentials (Huang and Huang 2020). An effective internal control system can integrate and harmonise entities' motivation to pursue both financial benefits and environmental sustainability together (Liu 2018). To strengthen the environmental sustainability programs, the local government's financial capacity is also considered since there is a positive relationship between the availability of financial resources and the government's capabilities to invest in

environmental development (Esty and Porter 2005; Qi et al. 2014). Therefore, based on the above-mentioned arguments, the relationship between public sector governance, financial management factors, and environmental performance are included in the third and fourth models. The results of this current study will benefit the central and local authorities to perform comprehensive policies or decisions that lead to the improvement of local government's service and environmental performance.

4. Scope of the Study

This study investigates the influences of a set of factors determining the service and environmental performance of local governments. Specifically, this study examines the effects of public sector governance and financial management factors on the service and environmental performance of local government districts in Indonesia. This research also examines the indirect effects of public sector governance and financial management factors on service and environmental performance, through financial performance. For public sector governance, as noted above, this study concentrates on financial transparency, accountability, and internal control, while financial management factors are measured by financial flexibility, financial independence, and resource management.

In this study, financial performance, service and environmental performance are measured by applying a composite indices framework developed from the indicators selected, based on a local government context in a developing country. The composite indices of these variables are adopted based on principal component analysis, and this study follows the construction of composite indicators as posited by the Organisation for Economic Co-operation and Development (OECD) (2008)

and Mazziotta and Pareto (2013). The construction of composite indices is used to make reading and interpreting of local government performance than when many separate indicators are used (Booysen 2002; Farrugia 2007). Subsequent analyses are conducted on a cross-sectional basis, to investigate the empirical studies regarding how districts' service and environmental performance are affected by public sector governance and financial management factors. This study has chosen districts in Indonesia as the research sites from which to examine the empirical analyses of the theoretical relationship among the variables; as Indonesia is a useful case study in that it is representative of many other developing countries in terms of its administrative, political and cultural characteristics.

5. Research Objectives

To here, this study has two objectives. First, it aims to examine the influences of public sector governance and financial management factors on Indonesian districts' service performance, mediated by financial performance. In this study, public sector governance is represented by financial transparency, accountability, and internal control, while financial management factors are measured by financial flexibility, financial independence, and resource management. Second, this study aims to investigate the impacts of public sector governance and financial management factors on districts' environmental performance, through the mediating role of financial performance.

This study focuses on local government districts in Indonesia as an exemplar of developing countries. District authorities in Indonesia would benefit greatly from additional information about the factors that influence their service and environmental performance; and at present in Indonesia, local government's service

and environmental performance measurements are lacking. In the absence of sufficient information, local governments struggle to develop effective policies to improve their public services and ensure their development programs align with sustainable development principles. As stated in the country's Law 23/2014, in Indonesia the district-level authorities are responsible for delivering all public services (with the exception of foreign policies, national defence and security, the judicial system, fiscal and monetary policies, and religious affairs). Thus, research which provides local government with a greater understanding of the factors that influence their provision of public needs is particularly useful for Indonesia.

6. Research Questions

This study will achieve the research objectives discussed in the previous section by addressing four research questions:

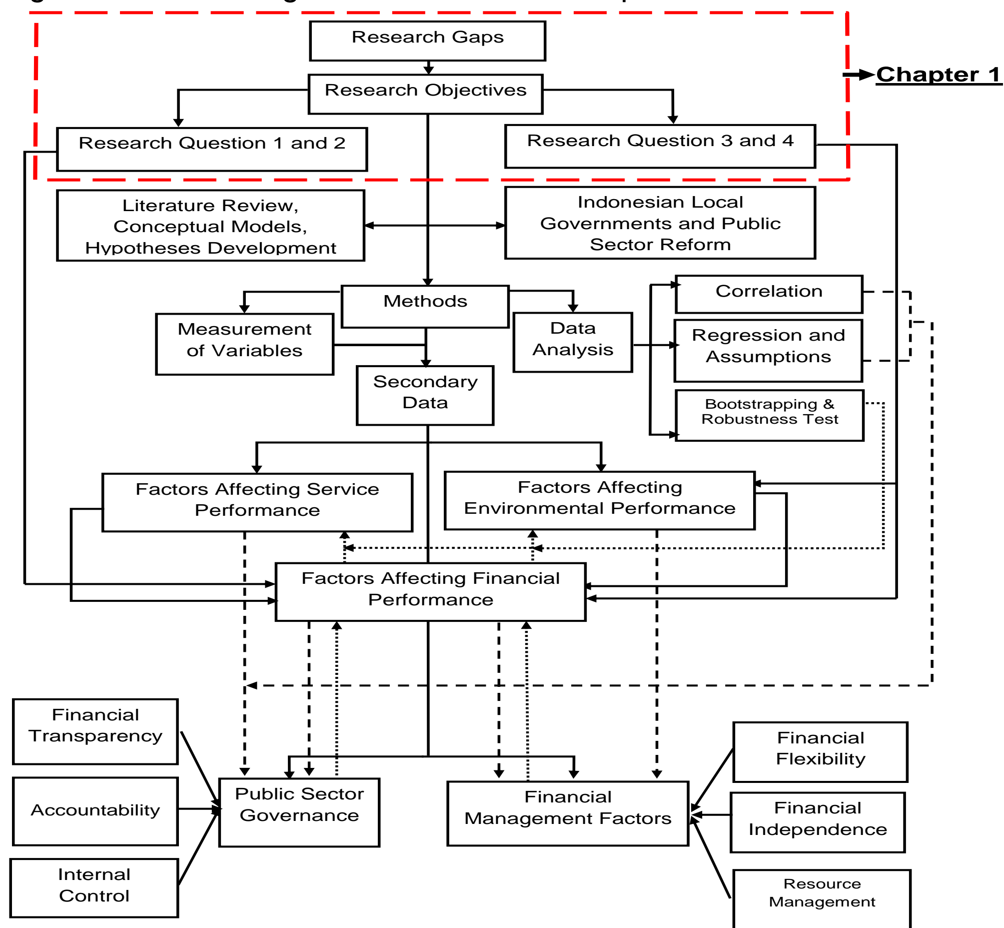
a. What are the influences of public sector governance and financial management factors on service performance?
b. Are the relationships between public sector governance, financial management factors, and service performance mediated by financial performance?
c. What are the influences of public sector governance and financial management factors on environmental performance?
d. Are the relationships between public sector governance, financial management factors, and environmental performance mediated by financial performance?

7. Organisation of the Thesis

This thesis is organised into seven chapters. Chapter one presents the study's background and identifies research gaps and research problems, followed by the

study's scope, research objectives and research questions (Figure 1.1). Chapter two reviews the relevant literature and theories underlying service and environmental performance, and their linkages with public sector governance, financial management factors, and financial performance. Gaps in the literature are also identified. Chapter two continues with a discussion of institutional theory, to provide a theoretical understanding of the application of institutional isomorphism in public sector governance (financial transparency, accountability, internal control), and financial management practices of local governments. The final part of chapter two presents the study's conceptual framework and the specific hypotheses used to answer the research questions. The first and second theoretical models in this research are formulated based on the first research objective, while the third and fourth theoretical models are formulated based on the second research objective.

Figure 1.1: The Integrated Construct of Chapters



Chapter three presents a contextual background regarding the Indonesian local government. It includes an overview of public sector reforms at the district level in Indonesia, and discusses the decentralisation of political, administrative, and financial functions of local government. Chapter four describes the research methodology used in this study. This chapter is divided into several sections, as follows. It begins by explaining the data collection methods, data sources, and research samples. The next section explains the statistical techniques used in the data analysis, and describes the procedures used to measure the validity and reliability of the instruments. The chapter then presents a brief overview of the definitions and measurements of the focal variables.

Chapters five and six are the results chapters. They present the findings from the data analyses, including the findings from the quantitative methods based on descriptive statistics, multiple regression analysis, and a bootstrapping method. Chapter five focuses on the findings that address the first research objective, and chapter six presents the findings related to the second research objective. The chapters present a discussion of the underlying assumptions of multiple regression analysis and how this study meets them. The chapters then explain the results of the hypotheses testing. The chapters also present the results of the bootstrapping method generated by the Process macro for SPSS 24 programs. The bootstrapping method is applied to analyse the role of the mediation variable used in this study. The robustness tests are also discussed in the chapters. The findings of the data analyses aim to answer the study's research questions.

Chapter seven, the final chapter, discusses the findings of the study and discusses the study's contribution to the literature and existing knowledge; including both

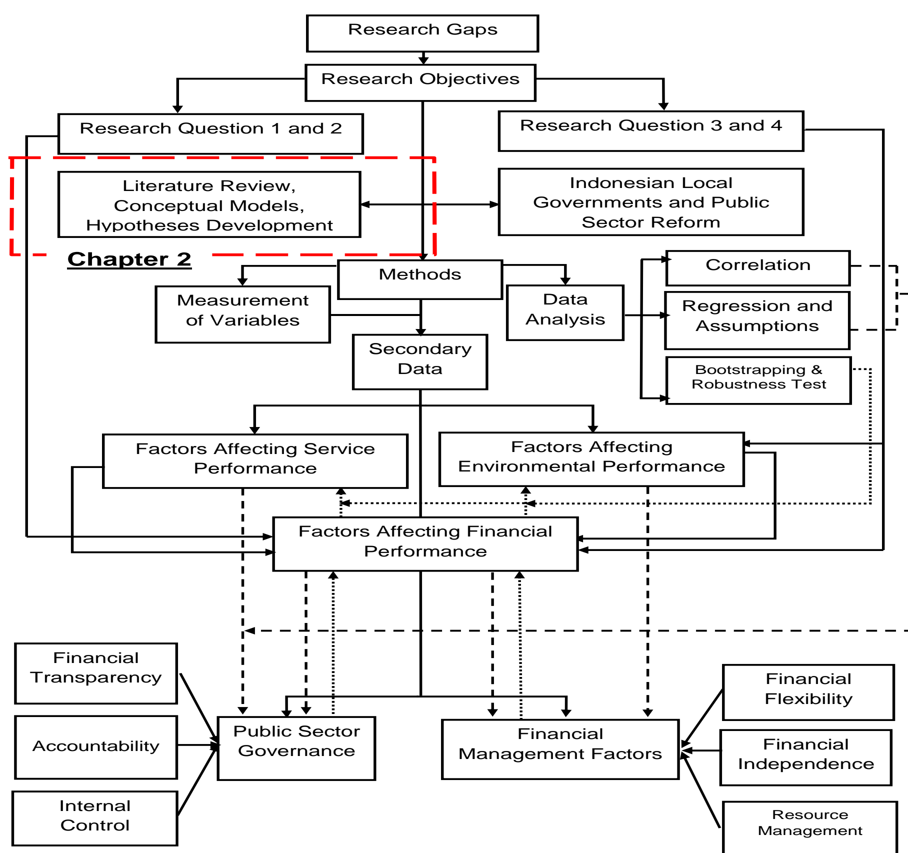
theoretical and practical contributions. The chapter then identifies potential limitations of the study, and recommendations for future research.

Chapter 2
Literature Review, Theoretical Framework, and Hypotheses Development

1. Introduction

This study aims to investigate the determinants of public service and environmental performance in local governments in Indonesia. This study will also investigate how key determinants of local government performance, specifically public sector governance (financial transparency, accountability, internal control) and financial management factors (financial flexibility, financial independence, and resource management) are mediated by financial performance. To this end, this chapter reviews the literature relevant to the main purposes of the study. The linkage of Chapter 2 with the research objectives of this study is shown in Figure 2.1.

Figure 2.1: The Integration of Chapter 2 with the Research Objectives



2. Service Provision and Protection of Environment

Local governments have responsibilities to provide public service and protect environmental sustainability (Štreimikienė 2015; Wiharani and Holzhacker 2016; Panya et al. 2018). The concept of public service is derived from the private sector, and defined as "deeds, processes, and performances" (Zeithaml, Bitner, and Gremler 2010, p.1). Service is also conceptualised as the interactions between customers and service providers, or between customers and products/services provided to overcome the customers' problems (Edvardsson, Gustafsson, and Roos 2005).

As well, scholars have used different approaches to define and measure service performance in public sectors (Hood 2007; Coste and Tudor 2013). Different constituencies associated with public services, such as consumers, taxpayers, government institutions, and politicians, may also use different criteria to judge the standard of public services (Boyne and Gould-Williams 2003). Whatever the exact criteria used to measure performance, it remains true that local government's service performance will have a significant impact on citizens' daily lives (Industry Commission 1997). Service performance is a complex and multidimensional concept, and 'what is effective service' will vary depending on a wide range of different environments, issues, and contexts (Williams 2004; Dubnick 2005; Coste and Tudor 2013). In general, good service performance is indicated by the provision of sufficient quantity and quality of public services to meet the community's needs and satisfy users (Maurel et al. 2014; Lanin and Hermanto 2019). These definitions have typically separated local government's public service from its environmental

performance, although arguably, service should always include the sound environmental performance, given its importance as described below.

As with the debate about the concept of public service, scholars have not reached a consensus regarding how to conceptualise governments' environmental performance (Aras and Crowther 2008). Several researchers have conceptualised environmental performance of governments by considering two aspects: the expectation of stakeholders; and compliance with environmental regulations to which the organisation is beholden. For example, Sarkis (1998) defined governments' environmental performance as "a commitment to compliance, prevention of pollution, continual improvement, that is to be documented and communicated to stakeholders" (p. 163). With respect to regulatory compliance, environmental performance can be defined as "the compliance of one or more environmental aspects with the regulations, and several others" (Ramos et al. 2009, p. 36). However, more recently Gallego-Alvarez et al. (2014) have argued that a government's environmental performance is not related only to community expectations or compliance with regulations; instead, they posit that it is defined as a government's operational activities to produce environmental public goods and protect biodiversity with its various environmental activities. This is a broader definition which includes the necessity for governments to protect the environment and biodiversity irrespective of stakeholder expectations and regulations; although the definition still contains ambiguity about whether such protection includes protection for the medium and long term, including for future generations.

Public sector organisations currently have more responsibilities to improve ecological sustainability than private sector entities, and arguably more opportunities (Adams,

Muir, and Hoque 2014). Local governments have a pivotal role in protecting the biosphere, as they are the closest public entities and the frontline of sustainable development processes (Thomas 2010; Williams, Wilmshurst, and Clift 2011; Wiharani and Holzhacker 2016). Through their local community reach, local governments can together empower whole societies to adopt sustainable use and protection of ecosystems (Potts 2004; Thomas 2010; Ball and Grubnic 2011).

Effective performance of local governments implies that their provision of public goods and services (including environmental sustainability) occurs efficiently to meet the public's needs (Mihaiu, Opreana, and Cristescu 2010; Da Cruz and Marques 2014). To maintain effective performance, local governments require both sound public sector governance and financial management (Smedby and Quitzau 2016; Salman, Mostert, and Mugwisi 2018; Nguyen et al. 2019). In light of the aforementioned arguments, this study has developed a model to illustrate the factors affecting the performance of local government, as will be discussed in the following subsections.

3. Determinants of Public Service and Environmental Performance of Local Governments

This study applies three determinants of public service and environmental performance of local governments: (1) public sector governance; (2) financial management factors; and (3) the mediating role of financial performance, as shown in Table 2.1. Public sector governance is represented by financial transparency, accountability, and internal control, while financial management factors are measured by financial flexibility, financial independence, and resource management.

Table 2.1: Determinants of Public Service and Environmental Performance

No.	Determinants	Measurements
1.	Public Sector Governance	- Financial Transparency
		- Accountability
		- Internal Control
2.	Financial Management	- Financial Flexibility
		- Financial Independence
		- Resource Management
3.	Financial Performance	

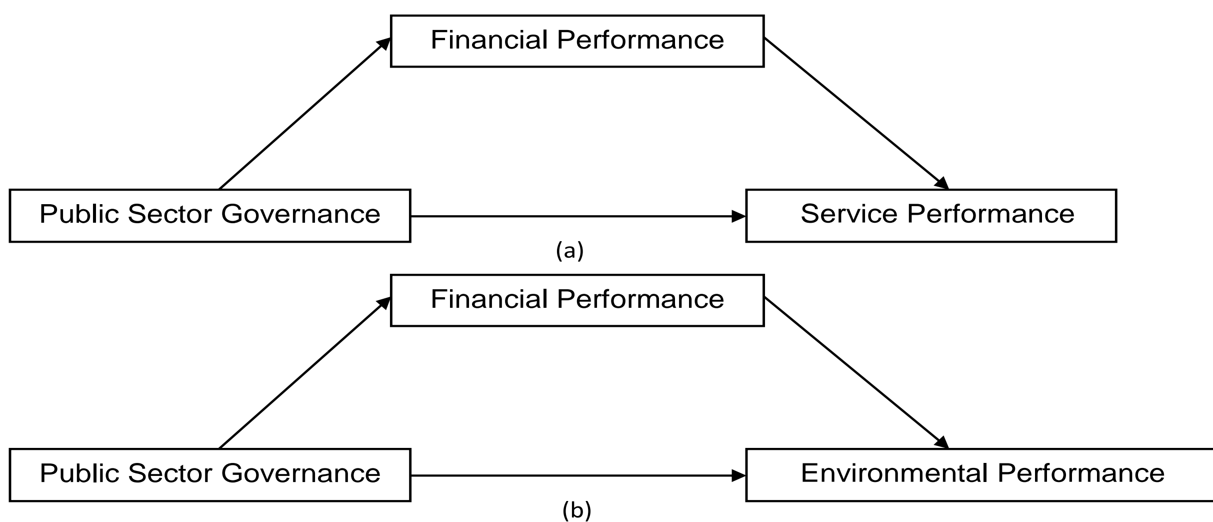
Public sector governance has become an essential topic of discussion and concern among scholars and international development organisations (Kulshreshtha 2008; Poniatowicz, Dziemianowicz, and Kargol-Wasiluk 2020). It has various lists of principles (Van Doeveren 2011; Eysink and Paape 2016) and scholars have no consensus about which are the principles of good governance in each case (Cerrillo-i-Martínez 2017; Alqooti 2020). This study focuses on three public sector governance measurements: financial transparency, accountability, and internal control.

3.1 Public Sector Governance

Figure 2.2 (a) and (b) represents the theoretical framework of this study that outline the relationships between public sector governance factors and service and environmental performance through the mediation of financial performance. Following the arguments of the previous research, sound public sector governance is important in local government performance because it reduces misuse of public resources, which in turn improves the organisation's performance (Adiputra, Utama, and Rossieta 2018). Public sector governance is defined slightly differently by different scholars, organisations and countries (Smedby and Quitzau 2016; Lohrey et

al. 2019; Tabassum and Singh 2020); with one recent narrow definition from Adrian Cadbury's report 'The Financial Aspects of Corporate Governance' defining governance as the system that controls and directs organisations (Tabassum and Singh 2020). By this definition, public sector governance provides a series of control mechanisms that aim to ensure resource allocation efficiency and the achievement of specified objectives (Wiharani and Holzhacker 2016). Broader definitions consider that public sector governance is a set of checks and balances that aim to ensure that organisations are accountable to their stakeholders and societies (Solomon 2013). A similar broad definition refers to public sector governance as "the arrangements and practices which enable a public sector entity to set its direction and manage its operations to achieve expected outcomes and discharge its accountability obligations" (ANAO 2014, p.7). In Indonesia's Law 1/2004, public sector governance is indicated by the implementation of financial transparency, accountability, and internal control that aim to enhance the government performance.

Figure 2.2: Theoretical Framework of Public Sector Governance Factors Affecting Local Government Performance



In the case of developing countries, sound public sector governance is often lacking, with inefficient financial management in particular being identified as a major obstacle to the fulfilment of public needs (Abdullahi and Chikaji 2017; Wardhani, Rossieta, and Martani 2017; Sekiguchi 2019; Pumkaew 2019), leading to a lack of provision of basic amenities including health centres, schools, and good roads (Lewis 2017b). Poor public sector governance by local governments likewise has major repercussions for developing countries, particularly with respect to environmental performance. The uncontrolled issuing of licences by local governments for destructive forestry and mining practices (Siombo 2014), alongside the overall lack of effective monitoring and prevention of deforestation and pollution, is leading to major environmental challenges, including unsustainably high deforestation rates in Indonesia and across the developing world (Ahmed et al. 2015).

Local governments need strong public sector governance to manage the environment sustainably in the face of population growth and pressure from powerful interests; in order to ensure clean air, water, biodiversity and all ecosystem services are maintained for current and future generations (Cramer and Cheney 2000; York, Rosa, and Dietz 2003; Cole and Neumayer 2004; Birčiaková, Stávková, and Antošová 2015). Together, these points highlight the urgency of the need for local governments in developing countries to strengthen their public sector governance, to improve their sustainable environmental practice and overall performance (Tacconi 2007; Goryakin et al. 2017; Priono et al. 2019). The public sector governance attributes are reviewed below to investigate the influences of public sector governance on public service and environmental performance of local governments, mediated by local government's financial performance. The substantial rationale of

the theoretical framework of public sector governance factors affecting local government performance will be discussed in more detail in the following sub-sections.

3.1.1 Financial Transparency

Local governments have a critical role in delivering services to meet the needs of communities. However, in developing countries in particular, the public is often either deprived of public services of adequate quality, or experiences challenges related to equal access (Sun, Fu, and Zheng 2017; Beschel et al. 2018; Pradeep and Dickwella 2012). People are required to navigate complicated bureaucratic systems to receive public services (Beschel et al. 2018), and poor service performance is common, with many associated risks. For example, poor health care facilities in developing countries contribute to high levels of maternal mortality and poor child health outcomes (Atuoye et al. 2015); while poor provision of education leads to low rates of primary and secondary school completion (Kuepie, Shapiro, and Tenikue 2015)

Therefore, as part of Indonesia's public sector reform agenda, Law 1/2004 has mandated that all government entities, including local governments, must demonstrate financial transparency. Transparency refers to the government's decision-making processes and information is readily available to and easily accessed by the public (Wijayati, Hermes, and Holzhacker 2016). Transparency includes a demonstrated commitment to openness by an organisation (Dubbink, Graafland, and Van Liedekerke 2008); and has been identified as one of the key elements of governance that can both alleviate misuse of public resources (Fölscher,

Krafchik, and Shapiro 2000; Kolstad and Wiig 2009; Adiputra, Utama, and Rossieta 2018), and reduce information asymmetry between policy-makers and the public (Benito and Bastida 2009; Tejedo-Romero and de Araujo 2018). In Indonesia, the public's right to access public information is stated in Law 14/2008 and Regulation of the Government 61/2010.

Similarly, the literature on government environmental performance recognises that financial transparency supports environmental sustainability (Halkos and Tzeremes 2014). Damania (2002) posited that environmental degradation in developing countries was influenced by the low level of transparency of public institutions. To address environmental degradation therefore, the government should focus on improving democratic public policymaking; indeed, a greater degree of democracy has been reported to be correlated positively with better air quality (Bernauer and Koubi 2009)

The more complete the financial information that is made available by the government to the public, the more transparent the government is; and this has positive impacts on government performance (Bauhr and Carlitz 2020). Public service delivery becomes more effective, efficient and aligned with community' preferences when local governments promote community participation (Devas and Grant 2003; Cheema 2007), empower local voices, respond positively to community needs (Gaventa and McGee 2013) and the environment (Sahide et al. 2016).

3.1.2 Accountability

To improve the performance of public institutions, another public sector governance factor as mandated by Indonesia's Law 1/2004 is accountability. Accountability of

local governments is recognised as a critical factor that influences both service performance (Kloot 1999; Kis-Katos and Sjahrir 2017; Han and Hong 2019) and environmental performance (Ribot, Agrawal, and Larson 2006; Galera et al. 2014; Williams 2015). Service delivery failures are influenced by accountability failures (The World Bank 2003; Gaventa and McGee 2013). A lack of accountability of public service providers to their public leads directly to poor delivery of public services (The World Bank 2003). Similarly, there is also a growing consensus that government authorities must be accountable to the public to address climate change, and that the public deserves protection from climate-related harm and risks (Mees and Driessen 2019). Sustainable development and effective environmental management require high levels of government accountability (Gberevbie et al. 2017).

Therefore, to meet the diverse range of social needs in communities and fulfil their responsibilities in the protection of the environment, local government needs to be responsive and accountable (Maksimovska and Stojkov 2016). Accountability includes facilitating the public to monitor the provision of public services; which means providing them with adequate access to public information (Pérez, Hernández, and Bolívar 2005; Popescu Ljungholm 2015). Accountability, as measured by staffing, performance evaluation, and compensation, has been shown to have a significant influence on governments' organisational performance (Han and Hong 2016). Ensuring that governments have strong accountability is, therefore a prerequisite for effective public service delivery (Kis-Katos and Sjahrir 2017).

The accountability of governments can be assessed in different ways, depending on one’s focus. One way of assessing a government’s accountability is to consider “for what purposes the [government] services are intended” (Kearns 1994, p. 186). To

aid with this assessment, Flack (2007) identifies four purposes of accountability: accountability for accounting information; accountability for outcomes; administrative accountability, and accountability for a mission. Another way in which accountability can be assessed is to consider "to whom are the services delivered" (Kearns 1994, p. 186). In local government, there are two kinds of "to whom accountability": vertical accountability and horizontal accountability (Signé and Korha 2016; Khotami 2017). Vertical accountability relates to local government fulfilling its obligations to provide accountability reports to the central government. Horizontal accountability is the commitment of local governments to make their accountability reports accessible to the public. Given that accountability is one of the determinants of government performance mandated by Indonesia's Law 1/2004, the government has enacted Presidential Regulation 29/2014 to regulate and improve the accountability of public institutions.

3.1.3 Internal Control

The literature identifies that local government performance can be improved by developing and maintaining effective internal control (Simangunsong 2014). Public sector entities that have well-structured internal control are more likely to improve their performance and meet their stakeholders' expectations (Berrone, Surroca, and Tribó 2007; Ong'unya and Abbey 2019). Given these reports in the literature, this study expects that the variable of 'internal control' will be one of the determinants of the local government's service performance. Many previous studies have demonstrated that effective internal control helps to deter fraud and errors, increases earnings quality, and prevents loss of revenue (Schneider and Church 2008; Brown, Pott, and Wömpener 2008; Prawitt, Smith, and Wood 2009; Jokipii 2010;

Vijayakumar and Nagaraja 2012; Adelin and Fauzihardani 2013; Al-Thuneibat, Al-Rehaily, and Basodan 2015).

Previous studies have found that where internal control is taken adopted by organisations as a proactive preventive approach, this contributes significantly to organisational success (Benedek, Szenténé, and Beres 2014; Pujiono, Sukarno, and Puspitasari 2016), and effective environmental management (Kareem, AlHassani, and Ali 2019; Huang and Huang 2020). Effective internal control has been demonstrated to mitigate fraud and corruption including mismanagement of funds; promote compliance with laws and regulations; and overall, help to maintain sound financial management (Coram, Ferguson, and Moroney 2006). In contrast, inadequate internal control has led to many financial reporting and accounting scandals and financial mismanagement (Donelson, Ege, and McInnis 2017). Ineffective internal control presents risks not only for organisations directly, but also for environmental sustainability, with numerous examples of weak and ineffective local governments monitoring and compliance mechanisms leading to substantial environmental damage (Resosudarmo 2004). Alongside losses to biodiversity, such environmental damage may have major economic and public health impacts, for example, from water, air and soil pollution, and from the disease risks (and economic and social risks) associated with climate change and deforestation (higher exposure to coronaviruses due to deforestation being a case in point).

3.1.4 Other Public Sector Governance Attributes

This section will discuss four other attributes of public sector governance (Armstrong, Jia, and Totikidis 2005; Mbecke 2014). The first attribute is leadership. It refers to the

capability of the chairperson to set the strategic vision and determine the direction of the organisation (Armstrong, Jia, and Totikidis 2005; APEC 2011). Leadership in local government is a burgeoning issue because the leaders face situations that continuously change and create new challenges (Svara 2008). The local government chairperson who can diagnose problems, manage the conflicting voice, ensure the direction of organisation, and conduct practical solutions has a significant impact on public service performance (Pickering et al. 2014; Uche 2014; Rahman et al. 2018). Moreover, the effective leadership enhances citizen engagement and financial resources allocated for environmental sustainability programs (Wang, Van Wart, and Lebredo 2014; Hofstad and Vedeld 2021).

The second attribute is direction. It refers to a strategic vision that shows a broad and long-term perspective and indicates historical, cultural, and social complexities (Graham, Plumptre, and Amos 2003). Direction plays a steering role that determines what tasks to do, who should carry out the authorities, and where someone has to work (Graham, Plumptre, and Amos 2003; Lockwood 2010). Aligning the direction and strategic vision of the organisation with the wildlife conservation can enhance the local government's environmental performance (Du Plessis 2015). The third attribute is authority. It refers to three components: (1) the legitimacy of governing actors to make decisions mandated by laws or stakeholders, (2) the delegation of power to the lower level of authority, and (3) the integrity of decision making (Lockwood et al. 2010). The local governments can fail to achieve good performance because they have lost legitimacy or trust from their stakeholders (Lawton, McKevitt, and Millar 2000; Van de Walle and Bouckaert 2003). Citizen involvement or participation in decision-making is one of the main factors that can maintain the

legitimacy of local government authorities (Streib and Poister 1999; Welch 2002; Lawton, McKevitt, and Millar 2010; Gaspar and Mkasiwa 2015).

The fourth attribute is stewardship. It relates to the awareness of public officials to act as good stewards motivated by the best interest of the communities rather than triggered by their own interests (APEC 2011). Three mechanisms create stewardship behavior: normative, instrumental, and affective mechanism (Viswanathan et al. 2020). Normative mechanism focuses on the fact that the leaders act as stewards because of the duty or norm, while instrumental mechanism influences the leaders to recognize that their roles as stewards can bring long-term benefits to the people. Affective mechanism affects the leaders' character to become stewards because it can build their high sense of empathy towards the people and societies. With attention to these stewardship mechanisms, the public officials can manage their authorities and public resources to improve financial performance, public service delivery quality (ANAO 2014), and environmental sustainability (Viswanathan et al. 2020).

Understanding the explanations in the abovementioned paragraphs, the four public sector governance attributes (leadership, direction, authority, and stewardship) are important as part of public sector governance and there are many studies done. However, this study does not include these four sector governance attributes (leadership, direction, authority, and stewardship) in the analysis. This study concentrates on three public sector governance measurements: (1) financial transparency, (2) accountability, and (3) internal control due to several reasons. The first reason is that transparency, accountability, and internal control are the main variables of good governance for public sector that have been identified by the

previous studies (IFAC 2001; Kulshreshtha 2008; Bhuiyan and Amagoh 2011; ANAO 2014). These three principles have positive impact on sustainable development and public good and service delivery (Kulshreshtha 2008; Bhuiyan and Amagoh 2011; Jha, Zhuang, and Quising 2013; Sahide et al. 2016; Poniatowicz, Dziemianowicz, and Kargol-Wasiluk 2020).

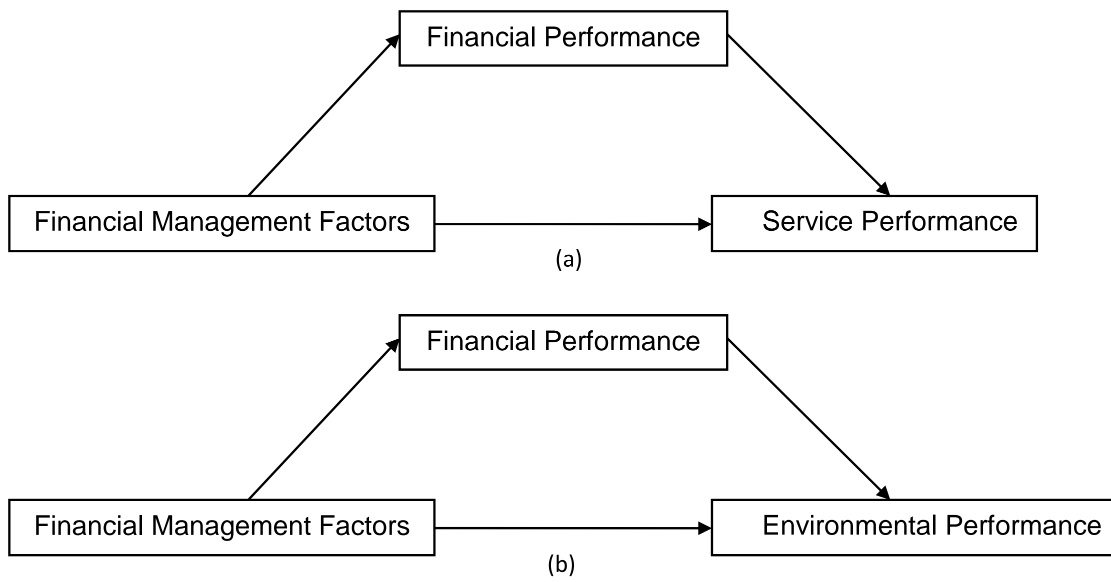
The second reason is that transparency, accountability, and internal control are the main variables that represent public sector governance in Indonesian case (Kristiansen et al. 2009; Guntur 2017). The implementation of public sector governance in Indonesia is mainly based on the implementation of transparency, accountability, and internal control as mandated by Indonesia's Law 28/1999, Law 14/2008, Law 1/2004, Government Regulation 60/2008, and Presidential Regulation 29/2014.

3.2 Financial Management Factors

This study extends the theoretical framework that investigates the influences of financial management factors on service performance mediated by local government's financial performance as further analysis, as shown in Figure 2.3 (a) below. Previous studies have found that local governments' service performance is influenced by a range of public financial management factors (Scutariu and Scutariu 2015; Kis-Katos and Sjahrir 2017; Goryakin et al. 2017). Local governments with good financial management have more opportunities to improve the quality of public service provision (Wardhani, Rossieta, and Martani 2017; Alonso and Andrews 2019). In Indonesia's Law 23/2014, to improve local government's financial management, typical reforms include increasing local government's financial flexibility, financial independence, and financial resource management. Without

financial flexibility and financial independence, local government officials tend to focus on fulfilling the central government's interests rather than those of their citizenry (Martinez-Vazquez and Timofeev 2010).

Figure 2.3: Theoretical Framework of Financial Management Factors Affecting Local Government Performance



This study will also develop another conceptual model to extend the present study's analyses. Therefore, this study examines the impacts of financial management factors on environmental performance by local government mediated by financial performance, as shown in Figure 2.3 (b). Previous research found that financial management factors have influences on the protection of environmental sustainability (Qi et al. 2014; Alcaraz-Quiles, Navarro-Galera, and Ortiz-Rodríguez 2014; Ong'unya and Abbey 2019). The role of financial management in improving environmental sustainability is self-evident (Al Breiki and Nobanee 2019). Governments should adopt fiscal decentralisation to support sustainable development, including both financial flexibility and financial independence of local government (Zhou, Zhou, and Yu 2020; Chen and Liu 2020). Local governments that are financially independent and flexible will have more opportunities to raise

revenues; which in turn may support sustainable development programs (Esty and Porter 2005). The higher level of profitability of the entities, the more opportunity to invest in environmental sustainability (Stanwick and Stanwick 1998; Qi et al. 2014).

This study adopts three financial management factors: (1) financial flexibility; (2) financial independence; and (3) financial resource management, as promulgated by Indonesia's Law 17/2003, Law 33/2004, and Law 23/2014. Through these laws, the Indonesian local governments have financial autonomy to raise their own revenue and manage their financial resources in ways that meet local community needs and protection of the environment. The substantial rationale of theoretical framework of financial management factors affecting local government performance are elaborated below.

3.2.1 Financial Flexibility

Financial flexibility refers to having a sufficient cash balance to finance expenditures (Soenen 2003). Where local governments have sufficient financial flexibility and financial independence, this will increase their financial capacity to meet citizens' needs (Kis-Katos and Sjahrir 2017). In addition, it is expected that local governments with adequate financial capacity will pay more attention to environmental sustainability (García-Sánchez, Frías-Aceituno, and Rodríguez-Domínguez 2013; Alcaraz-Quiles, Navarro-Galera, and Ortiz-Rodríguez 2014) and public service delivery improvement (Kotarba and Kolomycew 2014). Research has found that organisations which are financially flexible tend to have good performance, especially during financial crisis (Campello, Graham, and Harvey 2010; Bancel and Mittoo 2011a; Arslan-Ayaydin, Florackis, and Ozkan 2014; Al-Slehat 2019), as they

have the capacity to avoid financial distress in the face of negative shocks, and increase the entity's opportunities to benefit from short-term investments (Gamba and Triantis 2008).

The availability of spare or 'slack' resources empowers local governments to invest these resources to meet social needs, including to enhance the quality of the environment – so-called 'slack resources theory' (Cheng and Kesner 1997; Waddock and Graves 1997; Chiu and Liaw 2009; Qi et al. 2014). According to this theory, higher profitability will allow local governments and other organisations more opportunities to invest in their social responsibility (Stanwick and Stanwick 1998; Qi et al. 2014). Another theory which posits a significant positive relationship between having sufficient financial capacity and environmental performance is the Kuznets curve theory (Esty and Porter 2005), which explains that governments in municipalities with high-income rates tend to be more concerned with environmental sustainability, such as solar and renewable energy and sustainable technologies, than those in locations with lower income rates.

3.2.2 Financial Independence

Financial independence refers to a local government's autonomy to raise revenue and spend revenue without being influenced inappropriately by external parties (Petkovska 2011). The main aim of the financial independence of local government is to improve the efficiency and effectiveness of financial management, which in turn improves public service performance (Fafurida and Pratiwi 2017). The literature has also shown that financial independence enhances a local government's ability to overcome fiscal imbalances, since with greater independence they will have greater

autonomy to raise revenue, which in turn leads to sound cash balances (Martinez-Vazquez and Timofeev 2010). Financial independence has positive effects on the public service performance of local governments because they have adequate access to a broad range of revenues, such as local taxes and retributions to finance a growing range of services to people (Productivity Commission 2008).

When local governments have the capacity to independently manage their financial resources, this also increases their opportunities to contribute further in environmental protection programs (Oulasvirta and Turała 2005) because recent trends suggest that subnational governments have taken initiatives in environmentally friendly development (Corfee-Morlot et al. 2009). For example, many local governments, especially within the Organisation for Economic Co-operation and Development (OECD), have been involved in the greenhouse gas reductions, “some beyond national commitments, or in the absence of national action” (Corfee-Morlot et al. 2009, p.29).

3.2.3 Resource Management

In this study, resource management refers to the local government’s realisation of revenue and expenditure that has been planned by the local government. This realisation is measured by (a) the ratio of the actual aggregate expenditures to the approved aggregate budgeted expenditures, and (b) the ratio of the actual aggregate revenues to the approved aggregate budgeted revenues (Government Regulation 17/2017). The achievement of revenues and expenditure targets has demonstrated significant effects on financial performance (Awwaliyah, Agriyanto, and Farida 2019), and increases the effectiveness of public service provision (Andriati 2019; Lannai

and Amin 2020; Kotarba and Kolomycew 2014). Likewise, the ability of local governments to achieve financial resources in a timely manner increases their opportunities to implement their environmental sustainability programs effectively (Zhang, Zhang, and Steklova 2020).

However, when budget realisation by local government is too slow, this may lead to the downsides of cash sitting idle and poorer-quality public services (Erlina and Muda 2017; Andriati 2019). Idle cash may occur if local governments fail to allocate their financial resources appropriately (Modlin and Stewart 2012). The timely allocation of financial resources is essential for local governments to meet public needs (Satria, Juanda, and Sarma 2018; Tkachenko 2020) and for economic growth (Okoye et al. 2019). Other recent research has reported that local governments' ability to meet revenue targets increases their short-term solvency to pay their current liabilities (Abdullah and Muthia 2019). Therefore, in Indonesia, the central government periodically monitors and periodically evaluates the local government's realisation of revenue and expenditure to have effective financial resources management to avoid idle cash balances (Timoshenko 2018), as mandated by the Minister of Finance Regulation 214/2017.

3.3 Mediating Role of Financial Performance

Figure 2.2 and 2.3 show the mediating role of financial performance on the relationship between public sector governance factors, financial management, and service and environmental performance of local governments. Concerning the underlying basis for investigating the mediating role of financial performance, this study follows the arguments of Aras and Crowther (2008) and Tamawiwy, Sondakh,

and Warongan (2016). Aras and Crowther (2008) suggested that there is no dichotomy between financial performance and organisational performance and 'the two concepts conflate into one concern' (p.439). This means good financial performance leads to good environmental performance (Stanwick and Stanwick 1998; Esty and Porter 2005; García-Sánchez, Frías-Aceituno, and Rodríguez-Domínguez 2013; Qi et al. 2014) and vice versa (Aras and Crowther 2008). Similiarly, Tamawiwy, Sondakh, and Warongan (2016), Terrell-Smith 2018, Mbulawa (2019) argued that solvent financial performance enhances local government's opportunities to finance capital expenditures for public service provision.

In addition, following the arguments in previous research, it is recognised that public sector governance, such as financial transparency (Wanjau, Muturi, and Ngumi 2018), accountability (Darweesh 2015; Zagorchev and Gao 2015), and internal control (Yemer and Chekol 2017) are all associated with financial performance. High organisational transparency, accountability, and internal control lead to sound financial performance, since these factors help to minimise the risk of fraud, corruption and other abuse of power (Benito and Bastida 2009; Kim and Lee 2010; Han and Hong 2019), and enhances taxpayers' and investors' trust, which in turn increases the level of local revenues and government's financial resources (Guillamón, Bastida, and Benito 2011). Likewise, following the previous literature, it is expected that financial management factors represented by financial flexibility and financial independence will impact an organisation's performance (Butt, Hunjra, and Rehman 2010; Veeraraghavan 2018); with sound public financial management demonstrated to improve public service delivery (Welham, Krause, and Hedger 2013).

The literature demonstrates also that local governments with sound financial performance have more capacity to pay expenditures, provide community services, and improve economic growth (Batafor 2011; Dandara-Tabacaru and Danila 2017). The financial performance of local government, in turn, influences public welfare (Yasa and Utama 2015). Therefore, with local governments' service performance depending not only on public sector governance but also on financial performance, the financial performance of the local government is important to include in this study as a mediating variable. The theoretical relationships of this model will be further discussed in the section on hypotheses development, below.

The existing literature has developed a wide range of terms, dimensions, and indicators of financial performance by local government. The diverse dimensions and indicators of financial performance proposed by academia and practitioners do not lead to an agreement, which is the most appropriate ways to evaluate financial performance. Some scholars assume that certain theories are too simple (Howell and Stamm 1979; Adams 1981; Groves, Godsey, and Shulman 1981), while their opponents claim that others' schemes are too broad (Raman 1982; Brown 1993; Kloha, Weissert, and Kleine 2005b). For this study's purposes, a composite index developed from the indicators of short-term solvency, long-term solvency, budgetary solvency, and service-level solvency - is used to measure the financial performance of the local government, as will be discussed in more detail in Chapter 3.

3.4 Control Variables

This study applies three control variables that can potentially influence the performance of local governments. The first control variable is population size.

Population size has impacts on both demand and supply of public services and goods provided by a local government (Hyman 2014). On the one hand, the population size provides resources for a local government because it can increase the revenue base for a local government (Nollenberger, Groves, and Valente 2003). This condition has positive impacts on its financial performance. On the other hand, population size can increase local government's expenditures to fulfil the number of public services and goods required by the people (Wang, Dennis, and Tu 2007; Jones and Walker 2007; Zafra-Gómez, López-Hernández, and Hernández-Bastida 2009a). Likewise, population size might contribute to deforestation (De Sherbinin et al. 2007; Angus and Butler 2011) since the increased population size leads to the increasing needs on forest resources, such as timbers, fuels, and land (Gorenflo et al. 2011).

The second control variable used in this study is the poverty rate. Poverty is defined as a lack of economic resources that has negative effects on social life (Mood and Jonsson 2016). The poverty rate leads to negative impacts on the financial performance of a local government because the poor condition of communities makes it difficult for the local government to generate revenues for public service provision (Carmeli 2008). On the contrary, a local government with prosperous communities has more opportunities to receive more revenues from levies, taxes, and retributions and provide a better quality of public services (Nollenberger, Groves, and Valente 2003). Likewise, poverty is among the principal factors that are closely linked with the degradation of the natural resources in developing countries, such as steeply sloping and erosion-prone hillsides, because poor farmers raise more concerns about short-term needs for their survival rather than long-term sustainability (Masron and Subramaniam 2019). However, it is also acknowledged

that other poor farmers might have awareness on environmental sustainability (Asadi et al. 2008).

The third control variable applied in this research is gender diversity. Gender diversity becomes the burgeoning issue in public spheres indicated by the immense pressure to improve the gender balance between the number of female and male employees in the public sectors, especially in the high-level position (Jones 2009; Baker, Ali, and French 2019). The representation of females is essential because a sufficient number of females in strategic positions can improve the performance of an organisation (Dani, Picolo, and Klann 2019). The environmental conflicts and problems can be solved by the important role of women (Asteria, Brotosusilo, and Apriana 2018) since females are more interpersonally sensitive to engange in ecological issues (Lu and Herremans 2019). Moreover, females have a more participative and communal leadership style to make more dialogues with stakeholders (He and Jiang 2019).

4. Theoretical Underpinning

4.1 The Link Between Institutional Theory and the Attributes of the Study

When considering the use of institutional theory in the conceptual framework of this study, it is relevant to note that in management accounting research, the application of institutional theory has become prevalent (Deegan 2009; Kilfoyle and Richardson 2011; Modell 2012; Hoque and Chia 2012). This study have adopted institutional theory because this study is related to public sector issues where institutions play a big role in designing and framing public sector governance, financial management factors, and local government's performance (Harun and Kamase 2012; Manafe and Akbar 2014; Adiputra, Utama, and Rossieta 2018). Institutional theory applies more

in public sectors because these organizations follow and under guidance of overall institutional framework (Parker and Gould 1999; Torres, Pina, and Yetano 2011). There are many published papers that used institutional theory to explain public sector governance, financial performance, and local government's service performance (Ahyaruddin and Akbar 2018; Hudaya et al. 2015). For these reasons, we have followed the same tradition.

The institutional theory argues that the legitimacy of organisations is achieved by fulfilling the external expectations, performing management control systems (Cavalluzzo and Ittner 2004), and complying with rules and regulations (Akbar and Wijaya 2013). The regulative view of institutions is the one that is most commonly used to explain public sector governance and financial management reform (Reginato, Fadda, and Pavan 2010; Islamiyah, Sukoharsono, and Rosidi 2017; Ahyaruddin and Akbar 2018).

In the context of this study, public sector reform has changed the process of public accountability, transparency, management control, and financial management of local governments. The institutional theory is an effective solution to understand the changes and the adaptation process of local governments influenced by the surrounding environment, such as rules and social expectations (Reginato, Fadda, and Pavan 2010; Islamiyah, Sukoharsono, and Rosidi 2017). The implementation of public sector financial reforms and management accounting was mandated by regulations from the central government (Adiputra, Utama, and Rossieta 2018; Ahyaruddin and Akbar 2018). Local governments are responsible for submitting their performance reporting periodically to the central government, to maintain their legitimacy (Putri and Aswar 2020). Moreover, the central government has the right to

monitor and impose sanctions on local governments if they fail to follow the regulations as mandated by the central government (Alexander, Jackson, and Paterson 2014). The local governments will make adjustments until they reach the organisational homogenisation and achieve the institutionalisation process which in turn influence their performance (Islamiyah, Sukoharsono, and Rosidi 2017).

There are more coercive pressures from central government on the local governments for improving their performance in a decentralised government such as Indonesia (Brignall and Modell 2000). Central government tends to have greater coercive power over local governments than other levels of government (Akbar, Pilcher, and Perrin 2012). Central governments enact laws and regulations that affect local governments; in Indonesia, these regulations aim to improve local governments' performance and support them to achieve reform agendas. For example, the central government has introduced Government Regulation 56/2005 on Regional Financial Information Systems, Law 14/2008, Government Regulation 61/2010 about Public Information Transparency, which require local governments to publish their financial information on websites or other electronic media. These regulations aim to improve local governments' transparency and encourage the involvement of the citizenry to monitor the process of development programs.

In Indonesia, in addition to the aforementioned regulations, the central government controls local governments' performance through a number of other laws and regulations as well, which is relevant to identify for this research. Two regulations related to accountability are Government Regulation 8/2006 and Presidential Regulation 29/2014 on the Government Accountability System. These two regulations enforce all government entities, including local governments, to build

their accountability profile and that of the other public institutions for which they are responsible, with the aim of improving the performance of public services. The central government is the entity that determines the implementation of the accountability system at the local government level, in terms of the procedures, measurements, and accountability reporting. Another central government regulation, Government Regulation 60/2008, has been enacted to require local governments to implement internal control. According to this regulation, the local government's internal control should include the five interrelated components that have been identified as important in internal control (COSO 2013), namely: control environment; risk assessment; control activities; information and communication; and monitoring activities. This internal control tool aims to provide an adequate measurement that local governments' activities are being conducted effectively and efficiently. For similar reasons, the central government has enacted Indonesia's Law 17/2003, Law 33/2004, and Law 23/2014, which regulate the implementation of the financial management of local governments. Through these laws, the central government regulates the procedures for the use of local government budgets, and determines the revenue resources that can be received by local governments; including their own local revenues, fiscal transfers, grants and loans.

4.2 The Conceptualisation of Institutions

For the present research, it is useful to consider how institutions have been conceptualised in the literature, given that governmental institutions are a focus of this study. Scott (1987) identified that in organisational theory, a wide range of concepts and definitions of institutions and institutionalisation are used by different theorists; he referred to "the many faces of institutional theory". While not claiming to

be exhaustive, Scott (1987) reviewed four sociological formulations of institutionalisation. The first is that institutionalisation is “a process of instilling value” (Scott 1987). Before instilling value and supplying intrinsic worth to an organisation, value has only instrumental utility as a mechanical and disposable tool (Wahid and Sein 2013). However, by inducing value, institutionalisation leads to the stability of the organisation's structure (Scott 1987). The second conceptualisation of institutionalisation reviewed by Scott (1987) is that institutionalisation constitutes a process of creating reality. This means that an organisation is based on a shared social reality, which in turn creates a human construction that “occurs whenever there is a reciprocal typification of habitual actions by types of actors” (Berger and Luckmann 1979, p.54).

The third sociological conceptualisation of institutionalisation reviewed by Scott (1987) is that institutional systems constitute a class of elements. This stream of institutional theory embraces the idea that a distinctive class of elements represents the existence of organisational structure (Scott 1987). A system of shared beliefs creates the formal structures of institutionalisation in organisations (Russo et al. 2012). The fourth and final conceptualisation of institutionalisation reviewed by Scott (1987) is that institutions act as distinct societal spheres. This conception of institution describes the institutionalisation process within various beliefs and human activities that tend to persist, such as religion, works, families, and politics (Scott 1987).

The institutional theory emphasises conformity to the existing values or standards that aim to maintain institutional legitimacy (Meyer and Rowan 1977; DiMaggio and Powell 1983; Eisenhardt 1988; Scott and Meyer 1991; Fogarty 1996). This

conformity has been articulated as compliance and convergence (Ashworth, Boyne, and Delbridge 2009). Here, compliance means that institutional changes comply with isomorphic pressures, while convergence means that an organisation resembles other units that have the same environmental characteristics. Entities respond to pressures from their institutional environment in order to main their legitimacy (Carpenter and Feroz 2001). The organisation considers these types of environments to conduct adaptation or isomorphism.

The concept of isomorphism identifies two types of isomorphism: competitive isomorphism and institutional isomorphism (DiMaggio and Powell 1983). Competitive isomorphism emphasises market competition, where organisations compete freely and openly in an environment (Sakib 2020). Organisations that are less competitive are excluded from the environment, since they fail to compete with other organisations (Johnston 2013). In contrast, institutional isomorphism is free from market competition. It is influenced by political power and institutional legitimacy, for social as well as economic fitness (DiMaggio and Powell 1983). In order to obtain legitimacy, organisations tend to reflect the practices conducted by others that have the same environmental conditions, and show homogeneity in their strategies, processes, and activities (Sakib 2020).

In developing countries, local governments are driven by institutional isomorphism, (Russo et al. 2012; Hudaya 2014). Institutional isomorphism is categorised into three main types: coercive isomorphism; mimetic isomorphism; and normative isomorphism (DiMaggio and Powell 1983). It is useful to describe each type briefly in turn. Coercive isomorphism is the process of adjusting exerted by formal and informal pressure, such as government regulations, other agencies, and the

community (DiMaggio and Powell 1983; Krell, Matook, and Rohde 2009). Based on the coercive isomorphism perspective, legitimate organisations are entities that can fulfil political rather than technical requirements (Ashworth, Boyne, and Delbridge 2009). Therefore, the implementation of coercive pressure tends to be symbolic conformity and fulfilment of regulations (Meyer and Rowan 1977; Cavalluzzo and Ittner 2004; Jamali 2010).

The second of the three main types of institutional isomorphism, mimetic isomorphism, is the process of institutions emulating or modelling the systems or activities of other institutions, when the first organisation faces challenges and uncertainties, in an effort to replicate the other institutions' success (DiMaggio and Powell 1983). Lapsley and Pallot (2000) found that local governments may seek legitimacy by resembling other local authorities, due to the similarities of function, tasks, and financing. However, Lawrence, Sharma, and Nandan (2009) and Hyndman and Connolly (2011) have noted that the use of mimetic isomorphism by local governments to undergo organisational change tends to be merely to achieve perceived legitimacy, rather than to achieve greater effectiveness and efficiency.

The third main type of institutional isomorphism, normative isomorphism, is organisational change driven by professionalism standards; typically characterised by formal education or professional training acquired by personnel or hired individuals from other entities (DiMaggio and Powell 1983). Obvious indicators of institutions' normative pillars include certification and accreditation, as this evidence shows legitimate identification of professional groupings (Scott 2005). With local governments consisting of multiple stakeholders, there is pressure on local government employees and officials to have relevant academic qualifications and

membership of professional associations (DiMaggio and Powell 1991; Mera 2000). Here, compliance with professional standardisation leads to the legitimation of the organisation.

By employing a more analytical approach, Scott (2013) differentiated three analytical pillars that compose institutions. He defined the principal dimensions, assumptions, mechanisms, and indicators of each element or pillar, as shown in Table 2.2. Each pillar is essential; and although those three elements may work in combination, especially in a stable social system, they still work with different mechanisms and processes (Järvenpää 2009).

Table 2.2: The Three Pillars of Institutions

	Regulative	Normative	Cultural-Cognitive
Basis of compliance	Expedience	Social obligation	Taken-for-grantedness Shared understanding
Basis of order	Regulative rules	Binding expectations	Constitutive schema
Mechanisms	Coercive	Normative	Mimetic
Logic	Instrumentality	Appropriateness	Orthodoxy
Indicators	Rules, Laws, Sanctions	Certification, Accreditation	Shared logics of action, Isomorphism
Affect	Fear Guilt/ Innocence	Shame/Honour	Certainty/Confusion
Basis of legitimacy	Legally sanctioned	Morally governed	Comprehensible, Recognizable, Culturally supported

Source: (Scott 2013, p. 60)

The first pillar of institutional process is the regulative pillar. The regulative pillar refers to the creation and enactment of regulations and laws that act as coercive means (Palthe 2014; Stål 2017). All institutions have regulative rules, either formal or informal, that aim to regularise, shape, and constraint behaviour (Laffan 2001). Hence, the enactment of regulations requires conformity in order to maintain organisational legitimacy. The second pillar of institutions is the normative pillar. The normative pillar emphasises the roles of values and norms, as guides to social and political behaviour (Laffan 2001). From the normative pillar, institutional mechanisms

are normative, and the organisational changes are generated from a logic of appropriateness (Scott 2013). This means that the basis of legitimacy and the organisational changes are moral or social obligations, rather than formal or legal structures (Palthe 2014). Professional occupations are essential actors who maintain the normative pillar, since they control the day-to-day practices of the members of professions to align with values and moral obligations (Scott 2008).

Scott's (2013) third pillar of institutions is cultural-cognitive pillar. This focuses on organisational changes based on taken-for-granted cultural frames, symbols, signs, and rules that give legitimacy to aligned practices (Alexander 2012; Stål 2017). The cultural rules and frameworks are defined as 'the shared conceptions that constitute the nature of social reality and the frames through which meaning is made" (Scott 2013, p.57). Based on these cultural-cognitive aspects, organisations tend to adopt a change because they believe in it; even though it may not be enforced by regulative policy or workplace norms (Li et al. 2008; Palthe 2014).

5. Hypotheses Development

5.1 Hypotheses Related to the Relationship between Public Sector Governance and Local Government's Performance

As discussed in the earlier sections, this study focuses on financial transparency, accountability, and internal control for public sector governance. Financial transparency and accountability to the community are therefore essential for state governments to maintain, in order to preserve their legitimacy in the eyes of the community and ensure their programs and activities align well with community needs, values and norms (Martinez-Vazquez and Vaillancourt 2011). In Uganda, for example, the government empowered local communities to monitor the provision of

health services, and this was correlated with improved public health services, including a reduction in child mortality rates (Bjorkman and Svensson 2007). Likewise, in Uganda, the government's policy of publishing information about education grant programs (increased transparency) and increased monitoring by parents of grant-related spending on education was associated with increased numbers of enrolments in primary schools (Reinikka and Svensson 2005; Gaventa and Barrett 2010).

Consistent with this argument, financial transparency improves government outcomes and increases the efficiency of public money use (Hirsch and Osborne 2000; Ott, Bronić, and Petrušić 2014). As a key part of governance, an organisation's transparency has been positively related to its financial performance (Opler and Titman 1994; Tsoutsoura 2004; Rogers 2006; Darweesh 2015; Zagorchev and Gao 2015). Financial transparency has a positive impact on financial performance because transparency gives the public more power to monitor budget efficiencies and notice any corrupt or unethical budgetary practices (Alesina et al. 1999; Alt and Lassen 2006; Benito and Bastida 2009).

Recently, scholars have also identified that government transparency may not only improve government service and financial performance, but also has the potential to improve its environmental performance (Halkos and Tzeremes 2014). Transparency of governance is considered a prerequisite for sustainable management of resources (Sahide et al. 2016). In one study, government transparency was positively related to high air quality (Bernauer and Koubi 2009). However, Du (2015) and Gong (2018) warn that the relationship between government transparency and environmental performance is not always positive.

In all the hypotheses developed in this study, 'performance' will be evaluated according to three criteria: financial performance, service performance, and environmental performance. With regard to the aforementioned arguments, this study presents its first hypothesis below.

H1: Financial transparency is positively related to the performance of local governments.

Existing literature provides a guide to a positive and significant relationship between accountability and financial performance. Accountability has been posited to improve financial performance by reducing abuse of power, increasing efficiency and effectiveness, and financial productivity (Asselin 1995; Chye Koh and Woo 1998; Bovens 2007b; Rabrenović 2007; Harrison and Horngren 2008; Kim and Lee 2010; Han and Hong 2019). Haryanto (2010), Kis-Katos and Sjahrir (2017) likewise argue that accountability positively impacts public service delivery since it ensures public service quality is conducted properly. Deininger and Mpuga (2005) found that in Uganda, increased accountability linked to a significant improvement in public service quality, which the authors argued was due to the accountability mechanisms reducing government officials' tendency to use their power corruptly for individual gain. In contrast, a lack of local government accountability will impede the provision of public services (Baloyi and Beyers 2019).

Accountability in the public sector has also been found to have a significant influence on environmental development (de Silva, Yapa, and Vesty 2020; Handoyo 2018). Indeed, local government accountability is a core part of Shahib et al.'s (2020) sustainable paradigm. Shahib et al. (2020) argue that local governments should produce accountability reports that are publicly available, and which demonstrate

their compliance with environmental protection regulations and standards. Publicly available accountability reports can act as tools for communities to monitor the environmental activities of governments and demand change when environmental performance is not acceptable (Burritt and Welch 1997; Shahib et al. 2020).

With regard to the aforementioned arguments, this study presents its second hypothesis:

H2: Accountability is positively related to the performance of local governments.

The literature concerning the relationship between internal control and performance in local government, identifies that internal control has five interrelated components: control environment; risk assessment; control activities; information and communication; and monitoring activities (COSO 2013). Pujiono, Sukarno, and Puspitasari (2016) has reported that internal control has a positive and significant impact on the government's service and financial performance of North Maluku Province. The researchers found that when internal control activities were conducted by the public officials, there was a concurrent increase in the effectiveness and efficiency of their local budget, leading to an overall improvement in public services (Pujiono, Sukarno, and Puspitasari 2016). Similarly, Ong'unya and Abbey (2019) found that internal control had a significant positive impact on the quality of health service delivery of local government in Uganda.

A number of other studies have also investigated the relationship between internal control and institutional performance. For example, Berrone, Surroca, and Tribo (2007) reported a positive correlation between internal control and return on assets (ROA) and market value added (MVA). Strong internal control is likely to empower

personnel in an organisation to understand and ensure the achievement of institutional objectives. Likewise, previous studies have found a positive impact of the control environment (as a component of internal control) and risk assessment management on earnings, market value, and return on equity (Mackay and Moeller 2007; Al-Thuneibat, Al-Rehaily, and Basodan 2015; Florio and Leoni 2017). The control environment is the foundation of internal control and is essential to the effectiveness of local government's operational activities, including minimising the risk of corruption by public officials (Yurniwati and Rizaldi 2015; Nuswantara and Maulidi 2017).

Further studies also indicate links between internal control and an organisation's performance. Internal control has been reported to enhance economic efficiency because effective control activities can enable the retrieval of information from internal or external sources in a timely manner, and can facilitate an organisation's adaptive and corrective responses at all organisational levels, to maintain high performance (Bostan 2010). For the local government, Odoyo et al. (2013) reported a strong positive relationship between local authorities' information systems and the effectiveness and efficiency of revenue collection in Koya. In particular, the computerisation of council activities in Koya enhanced management integrity and enabled the timely collection of revenue.

When considering the literature on the relationship between internal control and an organisation's performance on environmental matters specifically, Huang and Huang (2020) report that of the five indicators of internal control, the most important for improving an organisation's environmental performance are its internal environment, information, and communication indicators. In Sri Lanka, effective internal control

has been reported to empower local governments to improve their environmental sustainability programs (Malalgoda, Amaratunga, and Haigh 2016). Similarly, other authors have emphasised the importance of effective internal control by organisations, to manage environmental issues such as pollution (Kareem, AlHassani, and Ali 2019)

Some of the literature which examines the relationship between internal control and an organisation's overall performance has investigated potential relationships between individual components of internal control (as mentioned earlier, the five components are: control environment; risk assessment; control activities; information and communication; and monitoring activities (COSO 2013), and local government performance. In one study in Indonesia, Tadeko (2017) examined the relationship between control environment and local institutions' service performance at Banggai District, and reported that 'control environment' and 'monitoring activities' both had insignificant effects on service performance for that particular local government. Similarly, for government health organisations in Ghana's upper western region, Ibrahim, Diibuzie, and Abubakari (2017) reported that 'control environment' and 'information and communication' had no significant effect on the organisations' financial performance.

Given the aforementioned arguments, this study presents its third hypothesis:

H3: Internal control is positively related to the performance of local governments.

5.2 Hypotheses Related to the Relationship between Financial Management Factors and Local Government's Performance

The performance of local governments is affected by a range of factors (Choi 2021). One of the most important factors in the local government's performance is financial

management (Choi 2021). For financial management factors, this study focuses on financial flexibility, financial independence, and resource management. Sound financial management will enhance a government's ability to deliver its public service effectively (Kioko et al. 2011; Baloyi and Beyers 2019). Given this, researchers have recommended that local governments should be empowered to increase their ability to raise financial resources, and that this requires both financial flexibility and financial independence (Halim 2012; Fafurida and Pratiwi 2017). Facilitating local governments to generate their own revenues is one of the financial strategies that could alleviate the dependency of local authorities on central government, and promotes financial solvency.

When considering the effects that financial flexibility and financial independence may have on a local government's performance, it is useful to clarify what is meant by financial flexibility and financial independence. For local government, financial flexibility is indicated by both the local government's revenue capacity and its financial obligations to other parties (Ritonga 2014a); and also refers to having a sufficient cash balance (Soenen 2003). The second important factor in local government performance, financial independence, refers to the local government's independence with respect to how to raise revenue and how to spend this revenue to meet local people's needs (Chapman 1999; Oulasvirta and Turała 2007; Sitek 2014; Kotarba and Kolomycew 2014; Cigu 2014; Scutariu and Scutariu 2015). Institutions have financial independence when they have the capacity to independently manage their financial resources, without being influenced excessively by external parties (Petkovska 2011).

With respect to the effects of financial flexibility and financial independence on local government performance, research on local public administration authorities in Rumania has reported that financial flexibility and financial independence of local government have positive impacts on local development (Scutariu and Scutariu 2015), by allowing local authorities to provide better public services. Organisations that maintain adequate cash reserves and manageable levels of debt are also in a better position to respond to investment opportunities, especially during economic downturns (Meier, Bozec, and Laurin 2013). The appropriate levels of financial flexibility and financial independence allow organisations to do this.

Research into local government in Canada and Colombia found that in both countries, financial flexibility and financial independence lead to sound financial capacity, which in turn is linked to lower infant mortality rates (Rubio 2011; Soto, Farfan, and Lorant 2012). Similarly, local governments with sound fiscal capacity are linked to increased life expectancy (Cantarero and Pascual 2008) and higher school enrolment rates at both primary and secondary school levels (Simatupang 2009). Interestingly, local governments with sound financial capacity also pay more attention to environmental sustainability (García-Sánchez, Frías-Aceituno, and Rodríguez-Domínguez 2013; Alcaraz-Quiles, Navarro-Galera, and Ortiz-Rodríguez 2014).

With respect to the relationship between resource management and local government performance, the literature argues that effective management of financial resources is crucial for effective performance. This includes maintaining a credible budget, with a little deviation between the approved budget and budgetary target achievement, with respect to both revenue and expenditure (Fölscher 2006).

Budget target achievement by government builds public trust; facilitates the achievement of macroeconomic goals; improves the efficiency and effectiveness of public service provision; and attracts investment in development programs (Sarr 2015). When governments manage their financial resources well, and achieve budget targets and plans, this increases investor trust and associated investment, leading in turn to strong local economies and job growth (Risti, Nicolaescu, and Tagaduan 2013; Sarr 2015).

Given the above arguments, this study presents its next three hypotheses:

H4: Financial flexibility is positively related to the performance of local governments.

H5: In local governments, financial independence is positively related to performance.

H6: In local governments, resource management is positively related to the performance of local governments.

5.3 The Mediating Role of Financial Performance on Service and Environmental Performance

The last two hypotheses in this study to be generated in this study relate to the mediating role of financial performance on a local government's service performance, and on its environmental performance. When considering the relationship between financial performance and service, the financial performance of the local government is often indicative of the government's service performance, given that financial performance highlights a government's capability to finance capital expenditure for the provision of public services (Tamawiwy, Sondakh, and Warongan 2016). Sound financial performance can also attract investment; generate sufficient revenue to pay expenditures; provide community services; and sustain

public welfare – all of which are aspects of effective service provision (Batafor 2011; Dandara-Tabacaru and Danila 2017; Tampubolon 2019). Conversely, governments with poor financial performance may struggle to provide effective social, health, and economic services (Mishkin 1990; Hakkio and Keeton 2009; Bauducco, Bulíř, and Čihák 2011; Carlson, King, and Lewis 2011; Creel, Hubert, and Labondance 2015). Therefore, maintaining the financial performance of local governments is essential to ensure the quality of public service delivery.

With respect to the relationship between financial performance and environmental performance for local government, a number of studies have reported positive links between the two (Waddock and Graves 1997; Orlitzky, Schmidt, and Rynes 2003; Salama 2005; Konar and Cohen 2001; Al-Tuwaijri, Christensen, and Hughes Ii 2004). In government agencies in Czechoslovakia, for example, researchers reported that sound financial performance was linked with greater investment in technologies to reduce pollution (Earnhart and Lizal 2006). Increasing pressure on governments at all levels to protect the environment and biodiversity via sustainable practices has encouraged governments to adopt the concept of Triple Bottom Line (Elkington 1998); whereby entities accommodate the values of not only economic performance but also social and environmental performance in their business principles. Considering Triple Bottom Line, better financial performance has the capacity to facilitate better environmental performance (Waddock and Graves 1997).

Although organisations with greater funds should be able to divert relatively more funds to environmental management, in practice, this often does not occur. A number of empirical studies of private firms in developed countries have found a negative relationship between pollution prevention and financial performance

(Barbera and McConnell 1990; Brännlund, Färe, and Grosskopf 1995; Albrecht 1998; Sarkis and Cordeiro 2001; Wagner et al. 2002); potentially because profit is prioritised by these organisations at the expense of strong environmental management. Similarly, Ahlström and Ficeková (2017) observed that the more funds an organisation has, the less likely it is for the organisation to make investments that support the environment. Earlier economic theory has assumed that environmentally sustainable practices require net economic cost (Dyllick and Hockerts 2002; Spangenberg 2004). However, this assumption considers only the immediate term; and indeed, recent modelling of the economic effects of environmental policies indicates that even in the short term, the economic costs from poor environmental management will often be far greater than the economic costs of managing environmental risks effectively (Lewney 2021). The economic cost of zoonotic pandemics associated with poor management of deforestation and ecosystem health is a striking example (Everard et al. 2020). Economic theory is increasingly recognising that "economy or environment" is a false dichotomy, and that sustainable economies require sound environmental performance (Gopel 2016; Lewney 2021).

While the financial capacity of local government represents a substantial source of funds to support environmental sustainability, to date, this point has received limited attention from researchers and policymakers (Singer 2016). Previous studies have tended not to include financial performance as an integral part of environmental performance analysis, because of the (false) assumption that aims of sound financial performance and sound environmental performance will be in conflict with each other (Aras and Crowther 2008). However, as Aras and Crowther (2008) state, financial performance is an important factor to consider when analysing environmental

performance, as sound financial and environmental performance are not mutually exclusive.

Given the above arguments, this study presents its last two hypotheses:

H7: In local governments, financial performance mediates the relationships between public sector governance, financial management factors, and service performance.

H8: In local governments, financial performance mediates the relationships between public sector governance, financial management factors, and environmental performance.

The research hypotheses of this study are summarized in Table 2.3, as shown below.

Table 2.3: Summary of Research Hypotheses

Items	Hypotheses
H1	Financial transparency is positively related to the performance.
H2	Accountability is positively related to the performance.
H3	Internal control is positively related to the performance.
H4	Financial flexibility is positively related to the performance.
H5	Financial independence is positively related to performance.
H6	Resource management is positively related to the performance.
(For H1-H6, 'performance' will be evaluated according to three criteria: financial performance, service performance, and environmental performance.)	
H7	Financial performance mediates the relationships between public sector governance, financial management factors, and service performance.
H8	Financial performance mediates the relationships between public sector governance, financial management factors, and environmental performance.

6. Conclusion

This chapter has presented an overview of service and environmental performance in organisations, and described the factors affecting local government service and environmental performance. As outlined above, the literature on service and

environmental performance in the public sector is limited, especially for developing countries. The present study aims to address this research gap. This chapter has then reviewed the application of institutional isomorphism in financial transparency, accountability, internal control, and financial management practices of local governments. The chapter also presented relevant conceptual models to explain the relationship between public sector governance (financial transparency, accountability, and internal control), financial management factors (financial flexibility; financial independence; and resource management) and service performance and environmental performance, through a mediating variable (financial performance). The next chapter presents the Indonesian local governments.

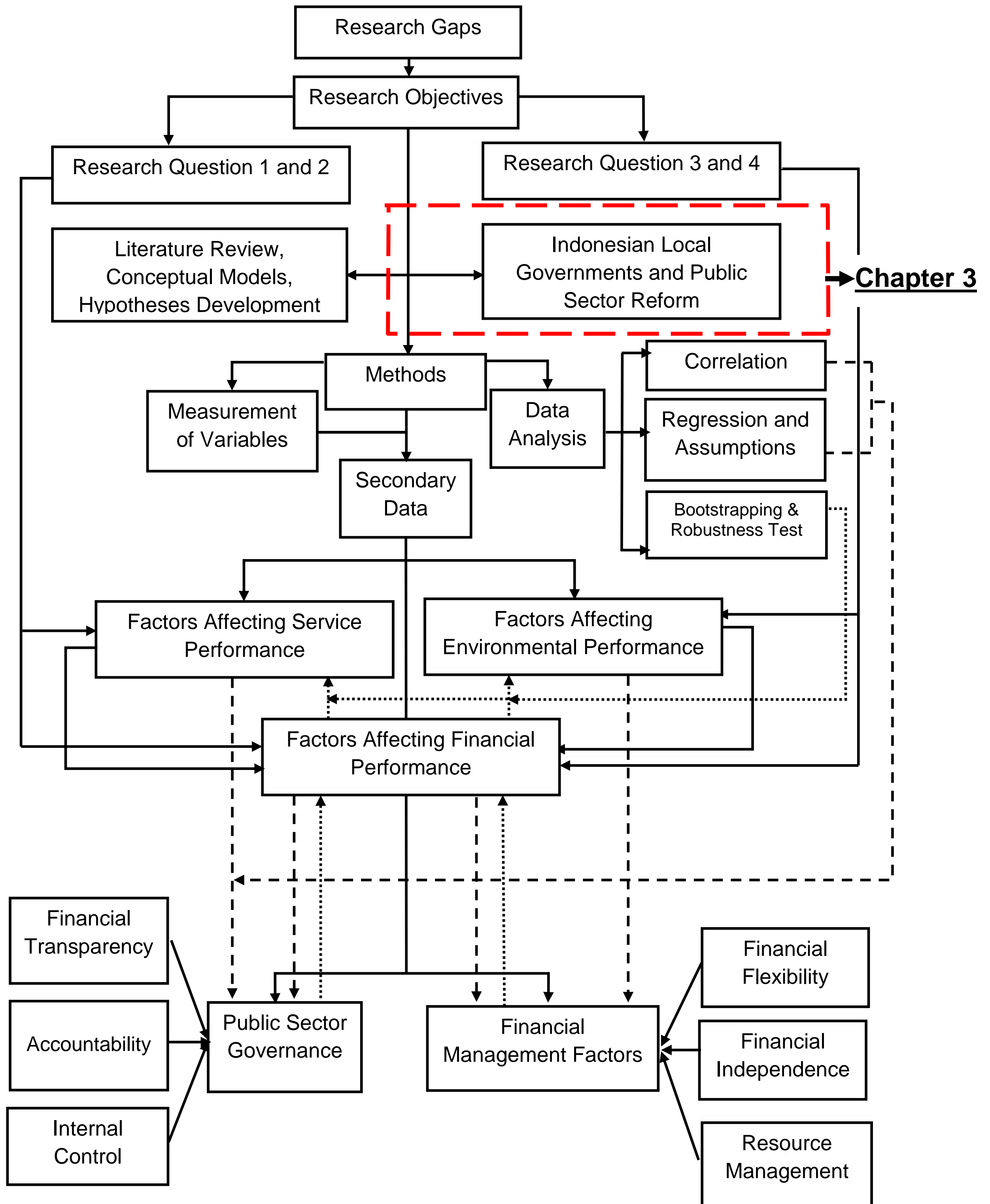
Chapter 3
Indonesian Local Governments

1. Introduction

As discussed in the previous chapters, this research has the main purpose to investigate the influences of public sector governance and financial management factors on service and environmental performance through the mediation of financial performance of local government districts in Indonesia. Therefore, it is useful to provide some background regarding Indonesian local governments to support an understanding of the context of this study. Local governments, as the closest tier of government to the public, are considered to have the capacity for better responsiveness than other levels of government to local needs. An appropriate amount of local government autonomy is an important area of public sector reforms to strengthen local government's responsiveness to the provision of public services, allowing local governments the financial flexibility and financial independence to meet local community needs.

This chapter comprises five sections, including this introduction. Section 2 describes public sector reforms at the district level in Indonesia; Section 3 discusses the service performance of districts; Section 4 presents the environmental performance of districts; and Section 5 presents the chapter's conclusion. The integration of Chapter 3 with the study's research objectives is shown in Figure 3.1.

Figure 3.1: The Integration of Chapter 3 with the Research Objectives



2. Public Sector Reforms at the District Level in Indonesia

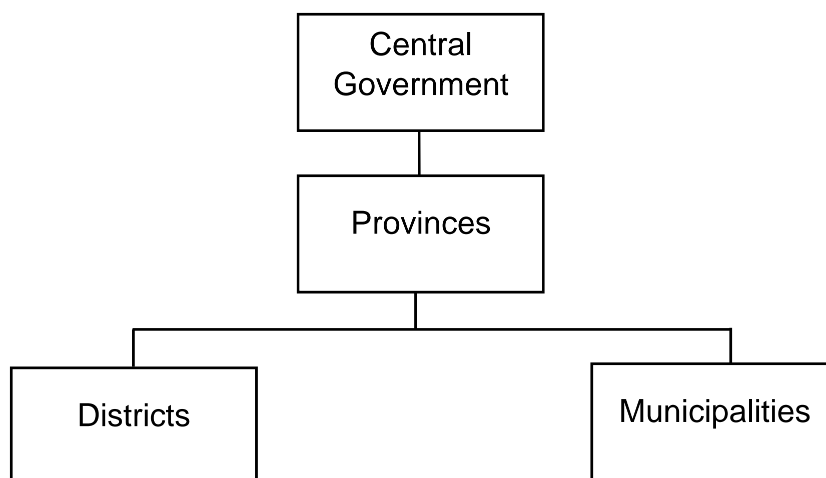
Indonesia is chosen in this study due to several reasons. The first reason is that functioning of public sector is important for Indonesia because it provides a lot of services and it is a huge sector. If they do not function properly due to less of public sector governance, it will affect life of people (Nopyandri 2014; Subhan 2019). So many people are affected by public services of local governments because Indonesia is a big country. It has a large number of local governments that consist of 34 provinces, 416 districts, 98 cities, 7,024 sub-districts and it has 16.056 islands and 250 ethnic groups (BPS 2018; Fernandes 2019). Indonesia also has 939,000 square kilometres of forest (Menlhk 2018).

The second reason that Indonesia is chosen in this study is that there are relatively limited studies that address the influences of public sector governance and financial management on local government service and environmental performance in developing countries (Belal 2015; OECD 2017; Usang and Salim 2018; Sofyani, Riyadh, and Fahlevi 2020; de Silva, Yapa, and Vesty 2020). Mostly these sorts of literature were done in developed countries but in public sector of local government in Indonesia have not been addressed adequately. For these reasons, this study has selected Indonesia as an example of developing countries.

Indonesia has two tiers of government: central government, and local government. The central government administration is in Jakarta, the capital city of Indonesia. There are three levels of local governments: province-level, district-level, and municipality-level (Figure 3.2). Between 1966-1998, provincial governments, districts, and municipalities were largely seen as extensions of central government

as all local government policies and programs were determined by central government (Akbar 2011). However, from 1999 and onwards, (the ‘reformation era’), central government decentralised its authority to the local governments. As a result, the local governments, especially the districts and municipalities, now have much greater autonomy to conduct their public service delivery, including the delivery of public works, public health, education, and environmental services.

Figure 3.2: Level of Government in the Republic of Indonesia

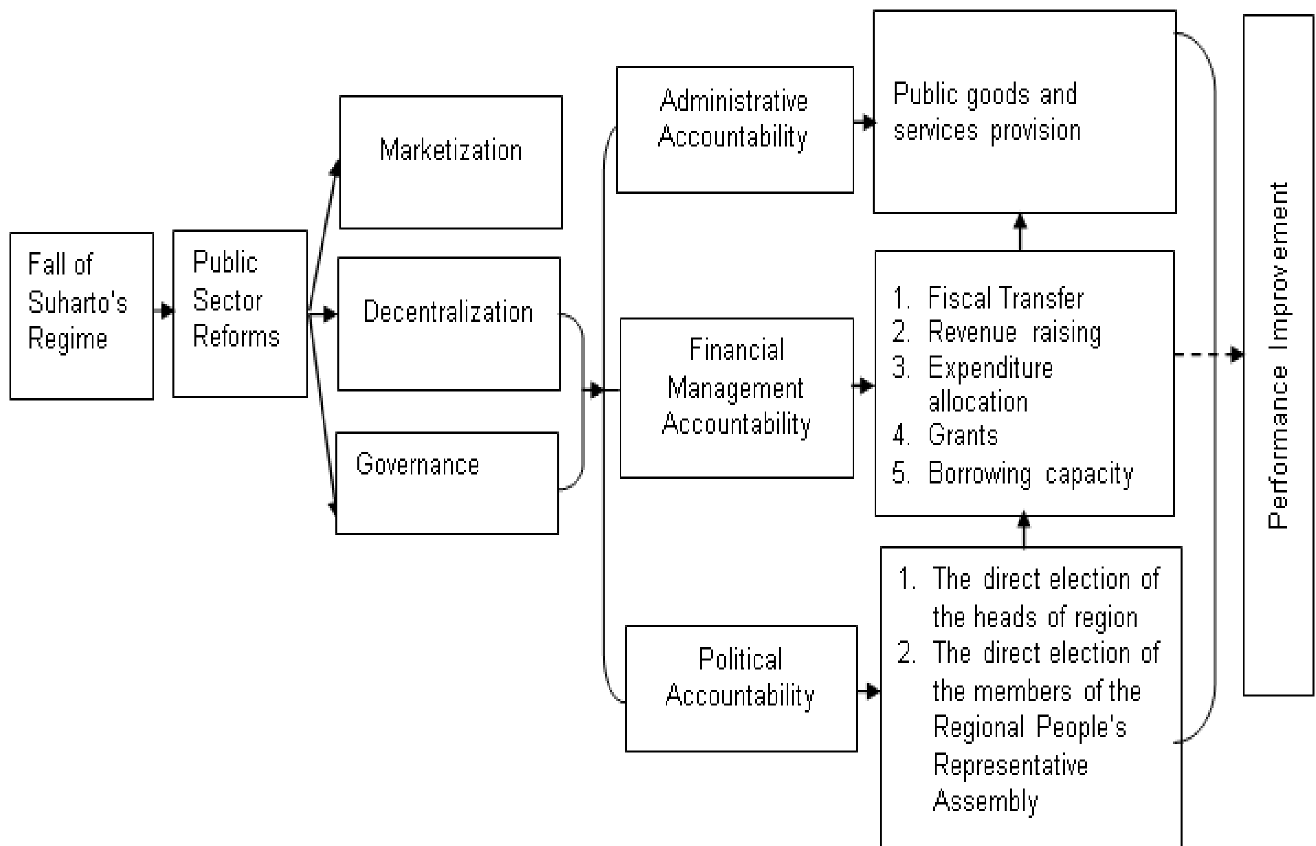


According to the Indonesian Law 23/2014, provincial government in Indonesia has two functions (Iqbal 2017). First, it has the regional autonomy to provide services and manage resources without interference by the central government. Second, the provincial government acts as a representative of the central government, in that it has the responsibility to coordinate and monitor the development programs of districts and municipalities. This responsibility serves to integrate the development programs of districts/municipalities with similar programs at the national level. As a representative of central government, the provincial government also acts as a mediator or facilitator during disputes among districts and municipalities. For example, the centra government mediated during disagreements over regional

borders (Arifin 2016), which have increased following the proliferation of districts or municipalities (Riyadi 2009; Sulistyono, Nuryadin, and Hadi 2014; Lewis 2017a).

This study focuses on the district level of government. Districts play an essential role to disperse political power, extend individual participation, promote efficient public services, and generate public welfare (Bekker and Jeffery 1989; Havenga 2002; Witing 2006). In the past in Indonesia (for example, during the Suharto era), a centralised government system has hampered the critical role of sub-national governments in the effective implementation of development programs (Aspinall and Fealy 2010; Kuncoro 2018). More recently the Indonesian government across all levels has been tasked with public sector reform, including decentralisation, marketisation, good governance, and direct election (Tambulasi 2007; Mimba, Helden, and Tillema 2007; Brinkerhoff and Brinkerhoff 2015). The following sections of the chapter will discuss local government decentralisation, public sector governance, financial management, and the performance of local government districts to examine the impact of these public sector reforms on districts in Indonesia (Figure 3.3).

Figure 3.3: The Impacts of Public Sector Reforms on Districts in Indonesia



(Source: adopted from Mir and Sutiyono 2013; Brinkerhoff and Brinkerhoff 2015)

2.1 Local Government Decentralisation

After the reform era in Indonesia in 1998, the central government applied a 'big bang' approach regarding decentralisation policy (Hofman and Kaiser 2004). Since then, the local governments have had more authority to deliver public goods and services and to manage their local resources. The reform era also empowered community participation in local development plans, to improve the alignment between development projects and local needs (Purba 2011; Wirawan, Mardiyono, and Nurpratiwi 2015; Laily 2015; Manaf et al. 2016; Winarni, Ahmad, and Suharno 2019).

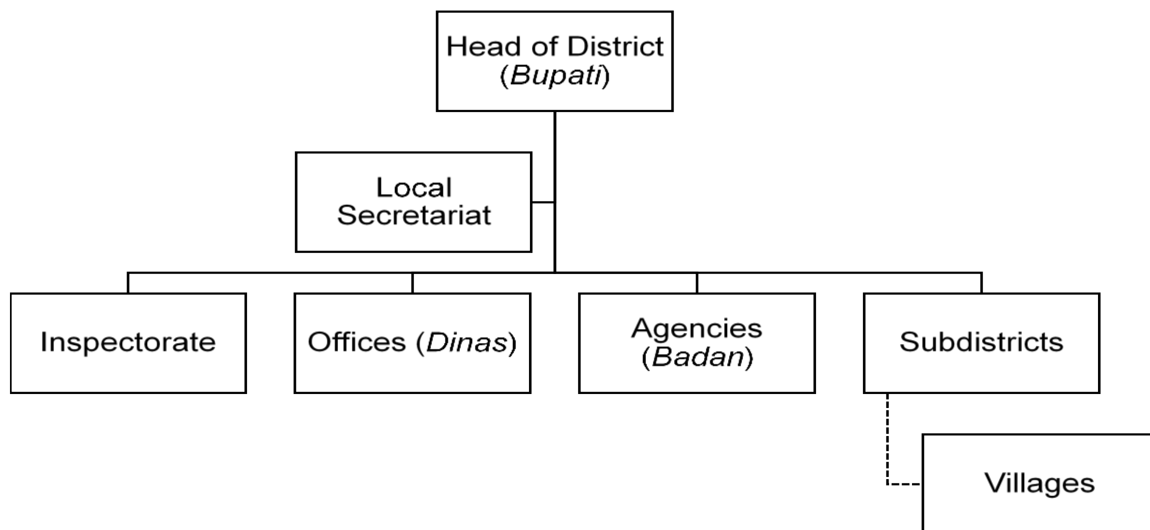
As shown in Figure 4.3 above, decentralisation, as part of Indonesia's public sector reform agenda, improves resource allocation, public participation, accountability, and the responsiveness of local agencies (Jütting et al. 2005; Alawattage, Hopper, and

Wickramasinghe 2007). However, it is important to note that decentralisation does not always improve local government's performance (BAPPENAS and UNDP 2008; Lewis 2017a) where it occurs in the absence of sufficient capacity and resources. This can lead to poor quality of public service delivery by local governments (Kuncoro 2012).

2.2 Organisational Structure of a Local Government

As outlined above, Indonesian central government has decentralised most of its functions to the districts to enhance their performance (Kristiansen and Trijono 2005; Darmawan 2008; Sujarwoto 2012; Ostwald, Tajima, and Samphantharak 2016). Figure 3.4 below shows the organisational structure of district-level government in Indonesia. The *bupati* or head of a district is assisted by several subordinate individuals and agencies, including the local secretariat, the inspectorate, and relevant agencies, offices, and subdistricts. The local secretariat is responsible for assisting the head of the district to formulate local government policies and coordinate the administrative tasks. The inspectorate is an internal auditor, whose role is to assist the head of the district in supervising the various local government entities to conduct open and effective governance. The agencies conduct strategic services related to planning, finance, human capital, research, and development. The offices are responsible for carrying out local government affairs, including agriculture, education, health, forestry, transportation, and public works.

Figure 3.4: Organisational Structure of a District



Source: adopted from Indonesian Government Regulation 18/2016

The role of subdistricts is to support the coordination of government administration, public services, and community empowerment at the village level. There are two categories of subdistricts: Type A and B (Indonesian Government Regulation 18/2016). Type A refers to subdistricts that have heavy workloads, and Type B are subdistricts with lower workloads. 'Workload' is measured based on the size of the population, the total area of the subdistrict, and the number of villages within it. An officer with a lower rank (IIIb) will lead Type B subdistricts, while Type A subdistricts are led by an officer with rank IIIa. Type A subdistricts also have more sub-divisions than Type B, including more villages, which, as the lowest level of local government, are responsible for conducting administrative duties, development programs, and financial management at the village level.

According to the Indonesian Government Regulation 18/2016, the heads of the local agencies are directly responsible to the head of the district. These individuals must ensure that all employees of their relevant local agencies are performing their duties professionally. The recruitment of all employees of these local government agencies

must be open and transparent, as mandated by the Law 5/2014. In addition, the personal management is conducted based on the merit system (Wawanudin and Sudarno 2018; Wibowo 2020).

2.3 Public Sector Governance of Districts

Indonesia's reform agenda for government aims to encourage subnational-level governments to conduct good governance (Mardiasmo, Barnes, and Sakurai 2008). Improved governance of local governments has the capacity to improve local government's financial management, and reduce the risk of inequity, corruption or other misuses of public resources (Adiputra, Utama, and Rossieta 2018). As specified by the Indonesia's Law 1/2004, government entities should adhere to three main agendas of good governance: transparency, accountability, and internal control.

An effective and cheap method of disseminating information to the public regarding development programs and financial management is the internet (Adiputra, Utama, and Rossieta 2018), and in Indonesia, this is recognised and mandated by government regulations (Law 14/2008 and Government Regulation 61/2010). These two regulations ensure the rights of the people to have access to public information. This publication of government financial information facilitates communities to monitor the usage by government of its financial resources, and the implementation of development programs.

In addition to supporting district-level financial transparency and accountability, as outlined above, the Indonesian central government has set out ways by which to support district-level internal control. The Finance and Development Supervisory

Agency of Indonesia (2016) has developed a set of internal control guidelines to strengthen the internal control system of local governments in Indonesia. These guidelines stipulate several essential requirements for improving government internal control systems which include developing an internal control system plan, an appropriate and monitoring system for coordinating, monitoring, and recording the implementation of the internal control system.

2.4 Financial Management of Districts

Indonesian local governments have four main sources of revenue, as identified in the Law 23/2014, which includes local government's own local revenue, including from local taxes, local retributions, local companies, licencing, and income from interest on and sale of assets. They also receive revenue from the central government as part of fiscal transfers. Fiscal transfers aim to reduce both vertical imbalance (the fiscal imbalance between central and local governments) and horizontal imbalance (the mismatch of revenue powers and expenditure responsibilities among local governments) (Ahmad and Craig 1997; Slukhai 2003; Bird and Tarasov 2004; Martinez-Vazquez and Searle 2007; Patamasiriwat 2012; Eyraud and Lusinyan 2013). In Indonesia, fiscal transfers include three types of intergovernmental transfers: the general allocation fund; the special allocation fund; and shared revenue funds. The general allocation fund is a block grant transferred by central government to local governments to reduce the fiscal gap (Wulandari, Wahyudi, and Rani 2018). Subnational governments in Indonesia have tended to depend heavily on the central government to finance their local expenditures (Haryanto 2015; Butarbutar and Sofi 2017; Kristianto 2017). For example, one 2017 study found that 66.4% of districts depended on fiscal transfers from central government, with central

government transferring increasingly large proportions of the national budget to local government annually (±32.28%, 34.49%, and 37.27% of the national budget in fiscal years 2014, 2015, and 2016 respectively) (Mulyani 2017a). When considering how local governments in Indonesia spent their budgets, a very large proportion of the budget (an average of 38.54% in 2016) is currently spent on routine employee expenditures, including salaries, meetings, and official travel, while capital expenditure in the same year was only 23.9% of the total budget (DJPK 2019)

The subnational and local governments can borrow funds from external sources, such as from the central government, other local governments, domestic financial institutions (banking and non-banking), and domestic capital markets. Likewise, grants can be obtained from any domestic grant body: subnational governments have full authority to seek and obtain grants and loans from any domestic source. However, they are not allowed to seek or borrow funds directly from foreign sources without prior permission from the national Ministry of Finance. If a local government fails to follow central government regulations on this matter, the Ministry of Finance may delay or cancel the fiscal transfers of the local government.

Given the current inadequacy of local governments' budgets for development programs and other core community needs, central government in Indonesia has begun encouraging local governments to engage actively in revenue generation initiatives, to make local jurisdictions more self-sufficient financially (Krishnamohan 2016). This revenue may be obtained through intensification and extensification programs of regional taxes and levies (Wardhono, Indrawati, and Qori`ah 2013; Octovido, Sudjana, and Azizah 2014; Safitra 2019). Intensification strategies involve intensifying inspections and the collection of tax arrears, including increasing

efficiencies through technologies, improving the professionalism of tax officials, reviewing tax regulations, coordinating with other institutions, and enhancing taxpayer compliance (Marhani 2018; Safitra 2019). Extensification includes obtaining additional tax revenue by registering additional taxpayers (Nasution 2014; Levina 2015).

The high degree of financial flexibility and financial independence relates to local governments having full authority to generate funds via those three revenue sources and allocate this revenue for their spending needs without interference by the central government (Brodjonegoro 2018). As a comparison, the general allocation funds, which are intended to pay the salaries of civil servants, has high expenditure autonomy but average income autonomy (Nikijuluw 2012). The shared revenue funds offer subnational governments an average degree of both financial flexibility and financial independence, on both income and expenditure dimensions; given that some control is retained by the central government. For example, usage of the shared tobacco excise funds and reforestation funds are controlled by central government (World Bank 2010; Mulyani 2017b, c). However, usage of the shared funds derived from property tax and personal income tax are managed directly by each region (Directorate General of Fiscal Balance 2017). The shared revenue funds, foreign grants, and foreign loans have weak income and expenditure autonomy, due to centralised control and of these revenue types (Brodjonegoro 2018); for example, local government cannot receive the shared revenue funds and foreign resources without approval from central government.

3. The Service Performance of Districts

The fiscal decentralisation is expected to increase the level of financial independence of districts to support their provision of public services, reduce unnecessary bureaucracy, align public service delivery with local community preferences and needs, and increase efficiencies. These expectations are supported by the findings of Hamid (2013), who found that in Indonesia, decentralisation has had a positive impact on the quality or roads either built or upgraded by subnational governments as measured by an increase (following decentralisation) in the proportion of villages at district level which had asphalt roads. Likewise, local-level financial autonomy in Indonesia has reportedly increased the opportunities for people in villages to access health services such as hospitals and pharmacies (Skoufias, Narayan, and Kaiser 2011).

However, despite fiscal decentralisation to the districts, Indonesia is still a long way from delivering adequate access to health and associated environmental service. For example, although clean water and sanitation are basic public needs, 2018 data from Indonesia's Central Agency of Statistics (2018) reported that 13.4% of the Indonesian population had no access to clean water, and a massive 40% of the population had no access to proper sanitation, and still relied on the use of springs, rivers, ponds, and lakes as their water sources. Data from 2014 revealed that only 11% of the Indonesian population had access to piped water in their houses (Statistics Indonesia 2014). Researchers have raised concerns that inadequate water management means that even the piped water may be contaminated with faecal coliform (Bakker 2007); with diarrhea remains a significant public health threat in Indonesia, and a leading cause of death for children under five years old (Agtini et

al. 2005; Patunru 2015). This lack of health services is due, in large part, to insufficient spending by the government on health and associated environmental services; recent research reported that over a third of local governments (35%) allocated less than 10% of their total budget to the health sector (Mulyani 2017a). Other examples of the continuing inadequacy of health services at the community level include insufficient numbers of doctors at the district level (Meliala, Hort, and Trisnantoro 2013; Laksono, Ridlo, and Ernawaty 2020).

Indonesia's policy of decentralisation has also not, to date, overcome the tremendous challenges faced by districts regarding the provision of quality education. Recent research has identified that many district schools comprise dilapidated buildings that are unfit for purpose and often dangerous; some schools are in such poor condition that teaching occurs outside the classrooms (Sukasni and Efendy 2017). One study reported that a mere 24% of primary schools and 28% of junior schools possessed classrooms in good condition (Suhardi 2017). Many students (23% of all students) currently do not continue any formal education after Year 6 (Suhardi 2017). This low educational performance places Indonesia in the lowest rank of the assessed countries, behind Malaysia and Thailand (Schleicher 2018). Clearly, in the context of decentralisation, districts are choosing not to allocate sufficient funds for the education of the children in their communities. The Indonesian Constitution (UUD 1945) directs local governments to provide at least 20% of their local budget on education.

4. Environmental Performance of Districts

In Indonesia, decentralisation has increased the authority of districts to manage their natural resources (Dermawan, Komarudin, and McGrath 2006). In one common example, districts can generate local revenue by issuing forestry licenses and logging permits to companies to collect forest products (Palmer 2001; Tripathi 2015; Nasution 2017). Revenue collected from forestry licences can alleviate the financial dependency of districts on the central government (Saad 2001; McCarthy 2001). However, in the context of sustainable management of the environment, a policy of decentralisation in the absence of strong independent oversight will have increased the risk of conflict-of-interest, where local authorities now have the power to choose between safeguarding the environment and biodiversity for the future or choosing to approve environmental damage and loss to obtain short-term financial gain. In the absence of effective oversight, this is a pattern observed globally. In Indonesia, there is extensive evidence that this is occurring; as of 2003, two million hectares of native forest in Indonesia were under forestry licences (Palmer and Engel 2007) with over a million hectares of deforestation of native habitat and associated biodiversity loss every (Kusmana 2011; Nawir and Rumboko 2007). A key risk of devolving power to local agencies without effective oversight is the high likelihood of mismanagement, and this is a major issue for Indonesia; the Indonesian Corruption Eradication Commission has identified a wide range of problems with the mining permits issued to businesses and companies by local governments (Siombo 2014; Indreswari 2016).

Decentralisation in Indonesia has also increased the authority of local governments and the participation of farmers in the management of local water resources

(Harsanto and Simin 2006). This includes irrigation, with farmers – as major users of water – being empowered to undertake irrigation management to increase their awareness about the value of water resources and the benefits of effective management (Fulazzaky 2017; Rejekiningrum and Kartiwa 2018). In Indonesia, 4.78 million hectares (58.4%) of the national rice area is irrigated rather than rainfed (Suwandi et al. 2017). Therefore, the maintenance of irrigation is essential to maintain productivity and incomes for farmers (Hussain et al. 2006; Hadihardaja and Grigg 2011; Shrestha, Aquino, and Pandey 2014).

As stated in Regulation of The Government 20/2006, the management of Indonesia's primary irrigation canals (dams and reservoirs) and secondary canals (rivers and canals that deliver water to farmers and to the tertiary irrigation networks) is the responsibility of local government, while the management of the tertiary irrigation networks (the canals that bring water directly to farmland such as paddy fields and ponds) is the responsibility of the farmers' associations and water users' associations. This regulation also mandates that local governments must provide appropriate technical and institutional assistance to the farmers' associations and water users' associations, to support the latter in their efforts to maintain the tertiary irrigation networks. The aim of educating the farmers and water users' associations and providing farming guidance is to ensure the sustainable management of the tertiary irrigation systems (Pasandaran 2010; Sato, Yamaji, and Kuroda 2011; Ricks and Arif 2012).

Some recent research has found that the decentralisation of irrigation management in Indonesia is correlated with improved irrigation management at the district level (Daud 2006; Rondhi et al. 2020). For example, both water supply and rice production

increased after the implementation of community-managed irrigation systems, with water users' associations now able to rehabilitate and maintain their irrigational canals with the funds and resources they have been given (Rustinsyah and Prasetyo 2019; Alaerts 2020). Likewise, the farmers can now determine, collect, and manage their irrigation fees autonomously (Bruns 2004).

Despite the improvements, around 52% of irrigation in Indonesia (3.3 million hectares) remains in a damaged condition (Bahrun and Erawan 2015; Kesuma, Maryunianta, and Muda 2018) leading in turn to poorer agricultural productivity and welfare of farmers (Digdowiseiso, Sugiyanto, and Zainul 2018). This issue is related to a lack of appropriate guidance, technical capabilities, and knowledge received by water users' associations (Kesuma, Maryunianta, and Muda 2018). For example, Harsanto and Simin (2006) found that most people who are members of water users' associations do not have appropriate educational backgrounds or expertise to be of use in irrigation construction and maintenance. As a result, the farmers are forced to ask the contractor to conduct the irrigation maintenance; and the lack of expertise prevents irrigation management from working optimally. Several researchers (e.g., Harsanto and Simin 2006; Syaukat and Siwi 2009) have also reported frequent cases of unfair distribution of water and conflicts of interest among water users' association members; further exacerbating the ineffectiveness of irrigation management at the local level.

An important related point is that even when irrigation is successful, short-term increases in farm water supply and rice production do not necessarily indicate sustainable long-term water management. Indeed, they often indicate the opposite if long-term sustainability is sacrificed for short-term gain. In Indonesia, the risk of local

authorities focusing on water acquisition for immediate use is exacerbated by the increasing scarcity of water resources overall, given the demand for water from non-agricultural sectors such as industry and housing is rising rapidly (Pasandaran 2010; Syaukat, Arifah, and Minha 2014). Water scarcity and associated mismanagement not only pose risks for food security but also have major environmental and associated social and health impacts, including, increasingly, in the immediate term (Digdowiseiso, Sugiyanto, and Zainul 2018). Given these increasing risks, it is essential for Indonesia to put policies and practices in place to ensure the effectiveness of water management and broader environmental performance by local governments.

5. Conclusion

In Indonesia, the central government have decentralised its political, administrative, and financial functions. Decentralisation has meant that the heads of districts are now directly elected by the people; and districts now have more authority to manage their government functions. Districts finance their expenditure via several sources of incomes, including their own local revenue, the general allocation fund, special allocation funds, the shared revenue fund, and loans and grants. Decentralisation has triggered a proliferation of districts; the number of districts has increased by 55%. However, as outlined in this chapter, decentralisation has not led to many districts delivering sound public services. The delivery of quality education, health, and sustainable forestry and water management remains poor in most districts. With respect to the management of health, 39.28% of people living in districts still have no access to clean water, and 45.84% have no access to proper sanitation (Purba, Safitri, and Andianti 2017). When considering the adequacy of environmental

management, since decentralisation a high proportion (38.5%) of mining business permits issued by districts have not met the requirements of clean and clear mining business permits (Indreswari 2016)

As well, two-thirds of districts (66.8%) remain highly dependent on fiscal transfer from central government (DEPIKD 2018). Several authors have argued that high financial dependence on central government will have a negative impact on district performance (Boetti, Piacenza, and Turati 2012; Eyraud and Lusinyan 2013; Kyriacou, Muinelo-Gallo, and Roca-Sagalés 2017; Dewata et al. 2018). In Indonesia, this dependency of districts on funding from the central government is exacerbated by the current weakness of internal control.

To address these issues and increase local government performance, as mandated by Government Regulation 60/2008, Law 14/2008, Law 23/2014, and Presidential Regulation 29/2014, the Indonesian central government will need to better manage subnational governments to strengthen their public sector governance and financial management. The next chapter will discuss the research methodology.

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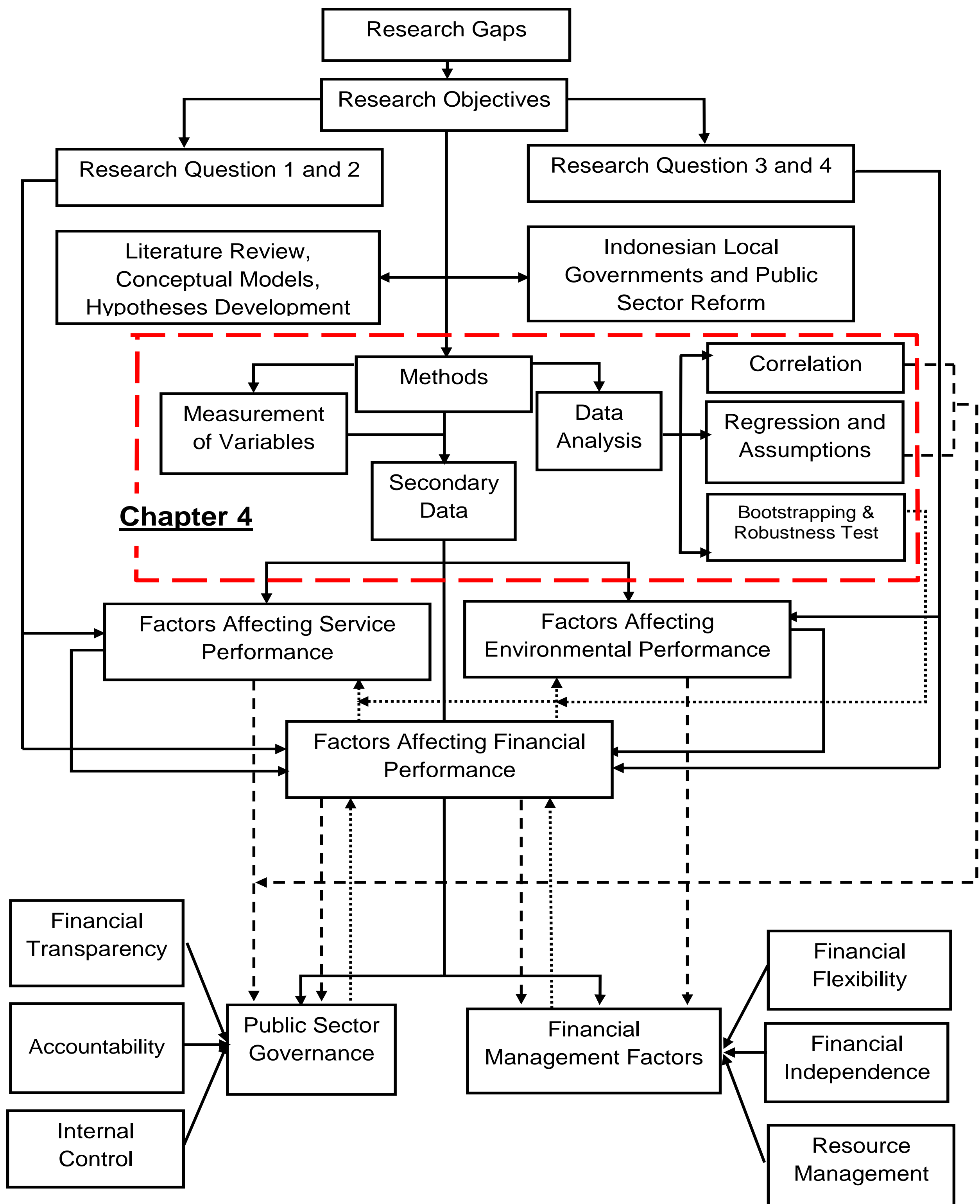
Chapter 4
Research Methodology

1. Introduction

The aim of this study is to examine the effects of public sector governance and financial management factors on service and environmental performance of local government districts in Indonesia. In this study, public sector governance is represented by financial transparency, accountability, and internal control, while the financial management factors to be examined are financial flexibility, financial independence, and resource management. The mediating effects of financial performance on service and environmental performance are also examined. Public sector governance and financial management factors of local governments are expected to enhance the financial performance of local governments, which in turn will influence the service and environmental performance of local governments.

This chapter presents the research methods used in this study. The secondary data, correlation analysis, multiple regression analysis, and bootstrapping methods are used to achieve the research objectives and to answer the four research questions. Chapter 3 consists of four sections, including this Introduction. Section 2 presents the research methods; Section 3 describes the definitions and measurements of the variables; and Section 4 presents the chapter's conclusion. Figure 4.1 depicts the integration of Chapter 4 with the research objectives.

Figure 4.1: The Integration of Chapter 4 with the Research Objectives



2. Research Methods

This study employs quantitative methods and secondary data-based research to examine the following research questions: (1) the effects of public sector governance and financial management factors on service and environmental performance; and (2) the mediating role of financial performance on the relationship between public sector governance, financial management factors, and service performance and environmental performance. Heaton (2004) defines secondary data analysis as 'a research strategy which makes use of pre-existing quantitative data or pre-existing qualitative research data for the purposes of investigating new questions or verifying previous studies' (p.16). From this definition, secondary data analysis refers to analysing and reusing data previously collected by other researchers or agencies for purposes other than the study at hand (Hox and Boeije 2005; Smith et al. 2011; Andrews et al. 2012; Todaro and Smith 2006; Chenhall and Langfield-Smith 2007). These secondary data sets are used to answer the research questions for this study.

Secondary data analysis is a well-established methodology that is becoming more commonly applied for academic purposes, with advantages including its efficiency with respect to time and financial resources, and its typical capacity to include large quantities of data (Cowton 1998; Greenstein 2006; Smith et al. 2011; Johnston 2017). Use of pre-existing large data sets has been reported to expedite research findings (Doolan et al. 2009) including for the use of policy makers and government policy implementation (Magee et al. 2006).

Secondary data sets may be based on either published data, or on original data that are available from various unpublished by reliable sources, whether digital or in print,

including books, reports, articles, archives, and the internet (Church 2002). The digital age has made available an enormous amount of published data online, such as census information, official statistics, annual reports, and socioeconomic indicators, which are easily accessible to researchers. In accounting research specifically, such sources of secondary data have greatly increased the opportunity to conduct quantitative research (Heaton 2004).

Cowtown (1998) classified secondary data sources into five categories. The first category is data sets published by governmental and regulatory bodies. The second category is data from other organisations, such as annual reports, data on operating activities, and statements from chairs. These data sets tend to be easily accessed from organisations' websites. The third category of data source is the press; including newspaper articles, magazines and other sources. The fourth data source comprises data from other academic researchers; for example, meta-analysis of the data and results from other research. The fifth category of the data source is private sources. These data sets are gathered from other individuals or agencies based on negotiation.

In the Indonesian context, according to the Law 14/2008 regarding the openness of public information, all government agencies have obligations to provide and publish accurate, true, and non-misleading public information to the public. Further, all government agencies are expected to utilise electronic media to disseminate this public information efficiently, and to enable people to access the data easily. This commitment is in line with Article 28F of the 1945 Constitution of the Republic of Indonesia, which guarantees everyone the right to deliver and communicate their ideas; to obtain information for their own personal development and social

environment; and to seek, obtain, possess, store, process and deliver information using all types of available channels. One caveat, as per the Law 14/2008, is that government entities may restrict access to data that could endanger the security of the country, or data related to personal rights and confidential job positions.

The broad commitment of the Indonesian governmental entities to publish public information enhances the opportunity for researchers to conduct research using secondary data. Given the accessibility and other advantages of secondary data to support research, as outlined above, this study uses secondary data sources to investigate the effects of public sector governance (financial transparency, accountability, internal control), and financial management factors (financial flexibility, financial independence, and resource management) on service and environmental performance in local government. Existing data published by Indonesian governmental institutions are also utilised to analyse the mediating effect of financial performance on the relationships between public sector governance, financial management factors, and service and environmental performance.

2.1 Data Sources

This study applies secondary data relating to the year 2016, which was collected from publicly available datasets through various Indonesian government agencies. During the data collection period (2017 to 2018), the latest data available in Indonesian local governments was 2016. Public sector authorities collect data and internally keep it but they do not release every year but they release every three or four years. In that case, when the data collection was done in 2018, 2016 data was

the latest data and available at that time. This is quite normal in public sector cases. Thus, 2016 data is recent data up to now.

All the collected secondary data sets are freely available without cost, as mandated by Law 14/2008 dealing with public information openness. This research analyses data collected at one specific point in time (financial year 2016) because this research constitutes a cross-sectional study. The data sets related to government agencies' financial performance, financial flexibility, financial independence, and resource management indicators were collected from the audited financial statements of local governments. The audited financial statements consisted of balance sheets, cash flows statements, and budget realisation statements. These data sets were obtained from the Supreme Audit Board.

Likewise, the secondary data regarding service performance indicators, which included information about sanitation, healthy drinking water, vaccination rates for children under five years old, childbirth medical assistance, and school infrastructure quality, were publicly available data sets collected from the Indonesian Ministry of Finance and the Ministry of Education and Culture. The secondary data sets for the environmental performance indicators of local governments, which included information about forest rehabilitation, forest quality, irrigation, and green open space, were collected from the Ministry of Home Affairs.

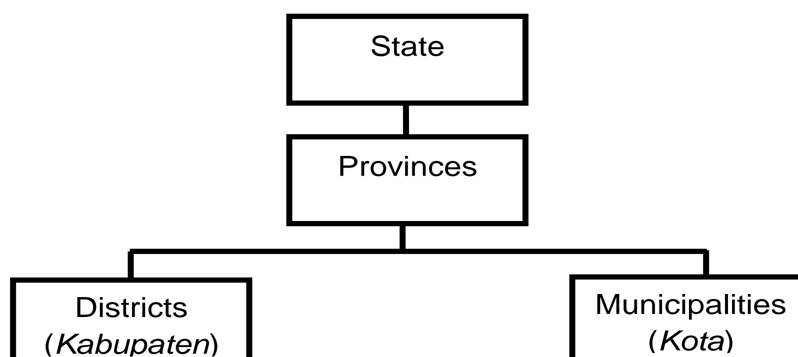
For information about internal control, this study used secondary data regarding internal control indicators of local governments obtained from the Finance and Development Supervisory Agency of Indonesia. These data sets regarding internal control indicators comprised five measures: control environment; risk assessment;

control activities; information and communication; and monitoring activities. The data regarding financial transparency indicators were collected from financial information uploaded to the official websites of local governments; and the administrative accountability data was collected from the Indonesian Ministry of Administrative and Bureaucratic Reform. Data regarding population size, poverty rates, and gender diversity, which were used as control variables, were collected from the Indonesian Central Agency of Statistics, the Ministry of Finance, and the State Personnel Agency respectively.

2.2 Research Samples

Indonesia, as a multi-tiered unitary state, comprises thirty-four provinces, 416 districts, and ninety-eight municipalities (Pandjaitan 2016). Districts and municipalities constitute the lowest level of regional entities of the state (Figure 4.2). The heads of districts and municipalities are directly elected by the local people, every five years. There are several differences between districts and municipalities in Indonesia. One difference is that districts have wider regional areas than municipalities (based on the regulation of the Ministry of Home Affairs 137/2017).

Figure 4.2: Structure of the Indonesian Local Governments



Source:(Lekipiouw 2020)

According to Indonesian Law 23/2014, districts have access to three main sources of revenue to finance their public service expenditure: own-source revenue, intergovernmental transfers, and other local revenue. The own-source revenues consist of local taxes, local levies, profits of locally-owned companies, and profit-sharing cooperation with third parties; such as interest income and asset sales. The intergovernmental transfers are the main revenue resources of districts, and comprise two types of transfer funds: transfer funds received by districts from the central government (balance funds and village funds); and transfer funds acquired by the districts from the other local governments (revenue sharing funds). Other local revenues include all income other that own-source revenues and intergovernmental transfers; this involves primarily grants and emergency funds. The financial resources of districts has been discussed in more detail in Chapter 3.

This study will focus on the district level due to two reasons. First, districts have a broader range of public service facilities than municipalities, including public schools, local health centres, and subdistrict offices (PDSPK 2016; Budijanto 2018). The second reason is Indonesia's agricultural and forestry sources are mainly produced in district area (Andoko 2019). The sampling method of this study is purposive sampling, and the data of all variables are the data of 2016 with the following sampling criteria. The research uses only the data of districts (*kabupaten*) that acquired an unqualified or qualified opinion of a financial statement issued by the Supreme Audit Board. The disclaimers opinions and adverse opinions are not used because such financial statements would reduce the reliability of data (Ritonga 2014b). The financial statements of the adverse and disclaimers opinions were not fairly presented based on the accounting principles of Indonesia in all materials and financial aspects (IAI 2001). Table 4.1 below shows that the number of districts that

had an unqualified or qualified opinion were 391 local governments. However, there are 153 local governments that have data of service performance, environmental performance, financial performance, internal control, accountability, and financial management factors required in this study. This study removes 28 observations because they are considered as outliers measured by a z-score greater than 3 or less than -3(Hair et al. 2011; Ghozali 2016; Tabachnick and Fidell 2014). As a result, the data used for this research are 125 observations.

Table 4.1: The Number of Samples Used in the Study

No	Existing Data	Number of Data
1.	Number of existing districts (*kabupaten*) with an unqualified or qualified opinion	391
2.	The availability of data	153
3.	Outlier Data	28
4.	Data utilised	125

2.3 Data Analysis

This study used SPSS Statistics version 24 to analyse the research data, including to generate descriptive statistics and undertake correlation tests and multiple regression analysis, as described in the following paragraphs. Version 3 of PROCESS macro (Hayes 2018) was used for the bootstrapping methods to analyse the mediation effects of financial performance on the relationships between public sector governance, financial management factors, and service performance, and environmental performance.

2.3.1 Testing Validity and Reliability

Validity refers to how well the instruments used in a study define the intended concept, while reliability refers to the degree of internal consistency of the measures

(Hair, Black, and Babin 2010). The validity and reliability of tests are interconnected, in that the validity of a measurement depends on its reliability (Nunnally and Bernstein 1994). The validity of a test is concerned with homogeneity or unidimensionality, while reliability test describes the internal consistency of instruments (Sekaran and Bougie 2010; Williams, Onsman, and Brown 2010; Bonett and Wright 2015; Shirali, Shekari, and Angali 2018; Ghozali 2016; Swank and Mullen 2017). In this study, the construct validity and unidimensionality are tested using the Measure of Sampling Adequacy and Bartlet's test of Factor Analysis (Williams, Onsman, and Brown 2010; Shirali, Shekari, and Angali 2018) or Pearson product moment correlation analyses (Piland et al. 2003; Ghozali 2016; Swank and Mullen 2017), while the reliability test is conducted by using Cronbach's alpha. Cronbach's alpha is the most common measure of internal consistency (Bland and Altman 1997; Hinton et al. 2011; Bonett and Wright 2015).

2.3.2 Descriptive Statistics and Correlation Tests

This study uses SPSS to present the descriptive statistics regarding service performance, environmental performance, financial performance, public sector governance, and financial management factors. The descriptive statistics analyses include calculating means, medians, standard deviations, skewness and kurtosis which together aim to provide baseline information about the samples in the research. In addition, correlation tests will be used to analyse the direction and strength of significant relationships among variables used in this research. A positive correlation means that as values of one variable increase, values of another variable increase as well (Allen, Bennett, and Heritage 2019).

2.3.3 Multiple Linear Regression and Bootstrapping Analysis

The ordinary least square (OLS) regression analysis and Bootstrapping method are applied to test the models of the study as shown in Table 4.2 below. Multiple regression analysis is used to examine the effects of public sector governance and financial management factors on service, environmental, and financial performance of local governments. Multiple regression analysis is a method that investigates the functional relationships and the magnitude of effects between dependent and independent variables. The dependent variable (also known as the response, explained, predicted, regressed, criterion, endogenous, controlled, outcome, and consequent variable) is represented by Y, while independent variables (also known as stimulus, explanatory, predictor, regressor, antecedent, exogenous, control, or covariate variables) is represented by X (Yan and Su 2009; Gujarati and Porter 2009; Chatterjee and Hadi 2015; Chatterjee and Simonoff 2013; Hayes 2018).

Table 4.2: Models and Equations

Model	Equations	
Model 1	Public Sector Governance and Service Performance, Mediated by Financial Performance	Research Question 1 and 2
	$SP = \beta_0 + \beta_1 IC + \beta_2 FT + \beta_3 AC + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \varepsilon_{SP}$ $FP = \beta_0 + \beta_1 IC + \beta_2 FT + \beta_3 AC + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \varepsilon_{FP}$ $SP = \beta_0 + \beta_1 IC + \beta_2 FT + \beta_3 AC + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \beta_7 FP + \varepsilon_{SP}$	
Model 2	Financial Management Factors and Service Performance, Mediated by Financial Performance	
	$SP = \beta_0 + \beta_1 FF + \beta_2 FI + \beta_3 RM + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \varepsilon_{SP}$ $FP = \beta_0 + \beta_1 FF + \beta_2 FI + \beta_3 RM + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \varepsilon_{FP}$ $SP = \beta_0 + \beta_1 FF + \beta_2 FI + \beta_3 RM + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \beta_7 FP + \varepsilon_{SP}$	
Model 3	Public Sector Governance and Environmental Performance, Mediated by Financial Performance	Research Question 3 and 4
	$EP = \beta_0 + \beta_1 IC + \beta_2 FT + \beta_3 AC + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \varepsilon_{EP}$ $FP = \beta_0 + \beta_1 IC + \beta_2 FT + \beta_3 AC + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \varepsilon_{FP}$ $EP = \beta_0 + \beta_1 IC + \beta_2 FT + \beta_3 AC + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \beta_7 FP + \varepsilon_{EP}$	
Model 4	Financial Management Factors and Environmental Performance, Mediated by Financial Performance	
	$EP = \beta_0 + \beta_1 FF + \beta_2 FI + \beta_3 RM + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \varepsilon_{EP}$ $FP = \beta_0 + \beta_1 FF + \beta_2 FI + \beta_3 RM + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \varepsilon_{FP}$ $EP = \beta_0 + \beta_1 FF + \beta_2 FI + \beta_3 RM + \beta_4 Pop + \beta_5 Pov + \beta_6 Gdr + \beta_7 FP + \varepsilon_{EP}$	
SP = service performance; EP = environmental performance; FP = financial performance; IC = internal control; FT = financial transparency; AC = accountability; FF = financial flexibility; FI = financial independence; RM = resource management; Pop = population size; Pov = poverty rate; Gdr = gender diversity; ε = random error		

Generally, the regression model uses the ordinary least square (OLS) method. There are three types of regression; simple linear regression; non-linear regression and multiple regression (Yan and Su 2009). Simple linear regression models the relationship between two variables, X and Y with the equation $Y_i = (b_0 + b_1 X_i) + \varepsilon_i$ where Y_i is the dependent variable, X_i is the independent variable, b_0 is the intercept or regression constant, b_1 is the regression coefficient or regression weight, and ε_i is the random error or residual. The third type of regression, multiple linear regression, is the type used in this study. Multiple linear regression is a linear regression model

that comprises one predicted variable and more than one predictor variable, with the following statistical equation: $Y = (b_0 + b_1X_1 + b_2X_2 + \ldots + b_kX_k) + \varepsilon$ where Y is the dependent variable, X_1, X_2, X_k are independent variables, b_0 is the intercept or regression constant, b_1 is the regression coefficient or regression weight, and ε_i is the random error or residual.

As noted above, this research also examines the mediating effects of local government's financial performance on the relationships between public sector governance, financial management factors, and public service and environmental performance. The mediation analysis investigates the causal relationship between one or more independent variables and a dependent variable, through a mediator variable (Pardo and Román 2013; Hayes 2018). For these analyses, this study uses Bootstrapping methods via Hayes' PROCESS macro in SPSS version 24.

This current research proposes the indirect, total, and direct effects of public sector governance and financial management factors on the service and environmental performance variables, based on the results of the bootstrapping analysis generated by PROCESS macro. Here, 'indirect effect' refers to the condition when the variables of public sector governance and financial management factors predict the service or environmental performance variable through financial performance as a mediating variable. This means that an indirect effect is the combined effects of the relationships between an independent variable and a mediating variable, and between the mediating variable and the dependent variable (Edwards and Lambert 2007; Meule 2019). The 'total effect' is the effect of public sector governance and financial management factors as the independent variables on service and environmental performance as the dependent variables when financial performance

as the mediating variable is not present in the model. If the mediator variable is included, this relationship is called the direct effect (MacKinnon 2011; Lancee et al. 2015; Agler and De Boeck 2017; Meule 2019).

2.4 Assumptions of the OLS regression and Goodness of Fit of the Model

Prior to using the multiple regression models as shown in Table 4.2 above, several assumptions need to be tested: the assumptions of multicollinearity, autocorrelation, linearity, homoscedasticity, and normality of residuals. These assumptions of regression analyses aim to meet the criteria of the best linear unbia4sed estimators (Cohen et al. 2013; Gujarati and Porter 2009; Field 2009; Hair, Black, and Babin 2010; Tabachnick and Fidell 2014; Hayes 2018).

2.4.1 Multicollinearity Test

Multicollinearity constitutes the substantial collinearity among the independent variables. Several guidelines should be considered whether a regression model has multicollinearity or not (Gujarati and Porter 2009; Field 2009; Hair, Black, and Babin 2010; Cohen et al. 2013; Ghozali 2016). For example, the existence of a correlation of the regressor of.90 or higher indicates multicollinearity (Ghozali 2016). Other scholars argue that as a rule of thumb, a bivariate correlation of .80 or higher might lead to a problem (Gujarati and Porter 2009; Whitley and Kite 2013). Moreover, multicollinearity is indicated by a tolerance value $> .10$, or the Variance Inflation Factor (VIF) < 10 (Allen, Bennett, and Heritage 2019). The results of the multicollinearity test of the models used in this study will be presented in Chapter 5 and 6.

2.4.2 Autocorrelation Test

Autocorrelation is “the internal correlation between members of a series of observations ordered in time or space” (OECD, 2008b, p.37). This study uses the Durbin-Watson coefficient to test for the presence of autocorrelation in the regression model. The acceptable Durbin-Watson coefficient is between 1.5 and 2.5 (Zakerian and Subramaniam 2009; Atici 2011; Garson 2012). Field (2009) states that if the Durbin Watson value is less than one or greater than three, this indicates an unacceptable level of autocorrelation. The results of the autocorrelation tests of the models applied in this current research will be presented in Chapter 5 and 6.

2.4.3 Tests of Linearity and Homoscedasticity

Several methods can be used to test linearity, such as the graphical method by examination of the residuals, Ramsey’s regression error specification (RESET) test, and Lagrange Multiplier (LM) test (Ghozali 2016). Garson (2012) states that the linearity test can be assessed by the scatterplot of the standardised residual graph. As well, the scatterplot results can be used to check homoscedasticity (Gujarati and Porter 2009; Field 2013). If the plots are scattered and there is no pattern of scatterplot graph, the assumptions of linearity and homoscedasticity are fulfilled. This study uses the graphical method by examination of the residuals to check the linearity and homoscedasticity. The results of linearity and homoscedasticity tests of this current research will be presented in Chapter 5 and 6

2.4.4 Test of Normality of Residuals

A normal probability distribution is a symmetrical bell-shaped curve with mean $\mu = 0$ and a standard of deviation or variance $\sigma^2 = 1$ (Stine and Foster 2011). The normality test aims to assess that the residual around the regression line is expected to have a normal distribution (Brown and Caylor 2006). Normally distributed data could be assessed by several methods (Das and Imon 2016; Ghozali 2016). Histogram and probability plots are methods that are very common as visual examination to investigate the normality. The second method to check the normality is based on the summary statistics, namely skewness and kurtosis. The skewness determines the lack of symmetry, while the kurtosis measures a deviation from normality and assesses the prevalence of outliers (Stine and Foster 2011).

Another statistical method that measures the normality of residuals is the Kolmogorov-Smirnov (KS) test (Drezner, Turel, and Zerom 2010). The presence of normality is indicated by the significance of the Kolmogorov-Smirnov (KS) test. As a rule of thumb, the model is not normally distributed if Sig. < 0.05. This study uses the Kolmogorov-Smirnov (KS) test to investigate the normality of residuals. The results of normality of residuals test of the models applied in this current research will be discussed in Chapter 5 and 6.

2.4.5 Assessing the Goodness of Fit of the Model

Statistical procedures are used to measure the goodness of fit in the ordinary least squares (OLS) multiple linear regression, such as R-squared, Adjusted R-squared, and F-test (Hagquist and Stenbeck 1998; Hair, Black, and Babin 2010; Ghozali 2016; Hayes 2018). The coefficient of determination or R^2 is a widely used

goodness-of-fit measure (Cameron and Windmeijer 1997) which its value ranges from zero to one. The value of R^2 of 1 indicates that the regression model is good. The R^2 value closes to zero indicates that the proposed model is poor. Likewise, F-test is conducted to evaluate the goodness of fit of the model. The F-test aims to show whether a group of variables are jointly significant or not. If the p-value for the F-test is less than the significance level, the null hypothesis is rejected and accepts Ha. It means that the regression model is good. If the calculated F-value is larger than F-statistics, the regression model is good.

3. Robustness Checks

This study uses several types of robustness checks. The first type of robustness check is stepwise regression analysis. The stepwise regression analysis is used to check the robustness of the multiple linear regression models and investigate which combinations of variables best predict local government performance. The stepwise multiple regression analysis is the combination of forward selection approach and backward elimination method that aims to investigate the order of importance of variables and to determine the best-fit combination of independent variables indicated by the higher R square (Ghani and Ahmad 2010; Studenmund 2014; Grignon 2019). The predictors that closely determine the dependent variable will be included in the model, while the predictors that have insignificant effects on the dependent variable will be excluded from the model.

There are several procedures to follow with the stepwise regression analysis (Burkholder and Lieber 1996; Pasha 2002; Field 2009). The stepwise regression proceeds the first step or model of the simple regression by entering the variable that

has the highest relationship with the dependent variable. The significance of the variable is measured against the F-distribution. The next step is conducting the partial correlation between the dependent variable with the remaining predictors to find the most highly correlated predictor. Then, the second highly correlated predictor is regressed with the previously independent variable of the first model. If these predictors significantly improve the model to predict the dependent variable, the same process is repeated for the next regression equations. While the variables that have a non-significant contribution to the model, they are excluded from the regression equation. The process of stepwise regression is iterated until no more additional predictors that have no statistical significance to the model (Lang 2016).

A second type of robustness check is Monte Carlo Simulation developed by MacKinnon, Lockwood, and Williams (2004). Monte Carlo Simulation is performed to examine the robustness of the mediation analysis. Concerning the Monte Carlo approach, it is more recommended than the Sobel Test for indirect effect analysis (Rungtusanatham, Miller, and Boyer 2014; Schoemann, Boulton, and Short 2017; Caron 2019). The Sobel Test may result in the inappropriate conclusion of the mediation effects due to the normal distribution assumption of a specific indirect effect (Cheung and Lau 2008). Additionally, Rungtusanatham, Miller, and Boyer (2014) argued that the Sobel test might result in misleading conclusions of mediation effects since the product of two normally distributed variables is a non-normal distribution. Therefore, the Monte Carlo method is comparable to other approaches for constructing the confidence intervals of the mediation effect that is not affected by the normality assumption of the sampling distribution (Preacher and Selig 2012; Zhang 2014).

4. Definitions and Measurements of Variables

4.1 Developing Composite Indices

A composite index is an aggregate measurement that summarises a set of indicators or multi-dimensional realities without collapsing the significance of the informational basis (JRC 2008; Dharmawardena, Thattil, and Samita 2017). The construction of composite indices is essential since the composite index tends to be easier to read and interpret than many separate indicators (Booysen 2002; Farrugia 2007). The composite index has been used to assess the performance of public sectors, such as health care services, social services, education, and local government entities (Freudenberg 2003). There are several methods of developing composite indices, such as Human Development Index (UNDP 2014), Climate Change Performance Index (Burck, Bals, and Ackermann 2009), Happy Planet Index (Abdallah et al. 2012), Environmental Performance Index (Hsu, Lloyd, and Emerson 2013), Multidimensional Poverty Index (OPHI 2018), and Financial Performance Index (Ritonga 2014a; Alam 2019).

This study adopts several steps to construct composite indices as recommended by the Organisation for Economic Co-operation and Development (OECD) (2008) and Mazziotta and Pareto (2013). The first stage is determining the theoretical concept that provides the foundation for selecting relevant indicators to construct service performance, environmental performance, and financial performance indices. The second stage is identifying relevant and essential indicators for constructing the composite index of these variables. This step is very important since it is a guide that could assess whether an indicator is part of the composite index or not. The third stage is selecting indicators which are relevant to the variables being measured. The

fourth stage is conducting transformation for indicators that have highly skewed data. It also aims to reduce the difference between the maximum and the minimum value. The sixth stage is choosing the Min-Max technique for the normalisation of data. The equation Min-Max method is the actual value minus minimum value divided by the maximum value minus minimum value. Then, weighting of variables derived from the principal component analysis or equal weights. The final step of composite index construction used in this study is selecting linear aggregation as an approach that aggregate the values of all indicators based on the weight of each indicator.

In this research, service performance, environmental performance, financial performance, financial flexibility, financial independence, resource management, financial transparency, and internal control are related to composite indices, while accountability is related to measures of variable, as shown in Table 4.3 below. The measurement of the variables used in this study will be discussed in more detail in the following subsections.

Table 4.3: Methods of Measurement

No.	Methods of Measurement	Variables
1.	Composite Index	- Service Performance
		- Environmental Performance
		- Financial Performance
		- Financial Flexibility
		- Financial Independence
		- Resource Management
		- Financial Transparency
		- Internal Control
2.	Measure of Variable	- Accountability

4.2 Service Performance

Local governments, as the closest entity of the government, play essential roles in efficient public services delivery. Academics and practitioners have various approaches to evaluate the achievement of public service performance at local authorities because countries have different constitutions that regulate the service functions provided by the local governments. For example, Kelly and Swindell (2002) evaluated the service performance of several cities in the United States based on four service categories, inter alia police services, fire and emergency medical services, road maintenance, and parks and recreation services. Zafra-Gómez, López-Hernández, and Hernández-Bastida (2009) and Torres, Pina, and Yetano (2011) used basic services indicators to evaluate the service performance of local governments in Spain, such as roads and highways, public parks, street lighting, waste management, police services, fire services, animal control, housing, and libraries. In the United Kingdom and Canada, service performance of local governments assessed by several services provision, such as the primary and secondary schools, fire services, police services, road maintenance, waste management, subsidised housing, cultural services, waters supply, licenses, parks, library services, health care services, and social services (Pollanen 2005).

In the Indonesian context, based on the Law No.23 of 2014, there is a separation between the public services provided by the central government and sub-national authorities. The central government focuses on six matters, videlicet political foreign affairs, defence, security, judiciary, national monetary and fiscal, and religion. While local governments have three dimensions of responsibilities of the public services as outlined below:

I.	Compulsory and Basic Public Service	:	Education, health, spatial planning, public housing, community safety, social
II.	Compulsory and Non-Basic Public Service	:	Workforce, women empowerment, food, land, environment, public administration and civil registration, village empowerment, family planning, transportation, communication and information, cooperative, investment, sport, statistics, culture, library, and archives
III.	Optional Governmental Services	:	Maritimes and fishery, tourism, agriculture, forestry, energy and mineral resources, trade, industry, and transmigration.

This study applies a composite index of service performance developed from five indicators of basic public services as determined by the Minister of Finance Regulation 266/2015. The first indicator is the percentage of households with access to sound sanitation. This study makes a comparison between the number of households that have access to sound sanitation as a numerator and the total number of households in a district as the denominator. In 2010, it was found that 46 percent of the population in Indonesia accessed to unhealthy sanitation (Patunru 2015). Also, in Indonesia, 29 to 31 million people especially in rural area were still practicing open defecation (Odagiri et al. 2017). Therefore, the local governments are encouraged to overcome this problem as mandated by Government Regulation 66/2014 and Minister of Health Regulation 3/2014.

The second indicator of service performance used in this study is the percentage of households with access to healthy drinking water. The unavailability of healthy drinking water not only leads to health problems but also the well-being of people. According to Rochmi (2016), Indonesia is among the countries in South-East Asia that have a worse achievement in providing healthy drinking water for the people.

Therefore, local governments in Indonesia are empowered to build a local water supply-owned company that aims to fulfill the need for dwellers on healthy drinking water. In this study, the indicator of healthy drinking water access is measured by the number of households with healthy drinking water access that plays as the numerator and the number of households in a local government as the denominator.

The third indicator of service performance is the immunisation rate for children under five years old. In Indonesia, local community health centres (LCHC) and local hospitals provide free immunisation services for children under five years old. Local community health centres have essential roles in the health development program since they are the first level of public health service facilities that provide health services to the residents. The LCHCs are in sub-districts of local government and supported by general practitioners, dentists, nurses, midwiferies, pharmacists, nutritionists, and other medical personnel. In this study, the immunisation rate for children is measured by the ratio of the number of children under five years old who have got immunisation divided by the total number of five years old children.

The fourth indicator of service performance is the birth rate attended by medical assistance. The Indonesian government highly concern about the maternal and neonatal rates since every day two mothers and eight newborns die (Utami 2018). Traditional birth attendants or unskilled health workers who help the birth process are parts of the factors enhancing the high rate of maternal and neonatal in Indonesia. Accordingly, the government has a commitment to enhancing the number of midwives who could work in rural or villages. In this study, the ratio of the birth rate attended by medical assistance is assessed by the number of childbirths assisted by

doctors or midwives divided by the total of childbirths in the geographical area of local government which they are responsible for in certain period.

The fifth indicator of service performance is the number of classrooms at the public primary and junior high schools in good condition. According to Law 20/2003, every citizen aged seven to fifteen is obliged to attend the primary and junior high schools. Accordingly, the local government has responsibilities to ensure the implementation of this policy and the residents have no pay to attend this basic formal education. All data of service performance indicators used in this study are collected from the Ministry of Finance and the Ministry of Education.

4.3 Environmental Performance

Protecting the biosphere is becoming more important not only for private companies but also for public institutions since it could influence the longevity of entities and the prosperity of future generations. Sustainable development constitutes a process of synergetic integration and co-evolution of economic, social, physical, and environmental factors that aim to maintain the prosperity of the people and to protect the surrounding biosphere (Camagni 2017). Scholars embraced quite diverse indicators to measure the environmental performance of local government (Recatalá and Sacristán 2014; Tran 2016; Alpenberg, Wnuk-Pel, and Henebäck 2018). The selection of environmental indicators tends to be a subjective decision (Fricker 1998; Bell and Morse 2012; Dizdaroglu 2015). It could depend on the scale of studies, availability of data and resources, the feasibility of measurement, and time constraints (Agol, Latawiec, and Strassburg 2014). In the same vein, data availability, target, and a conceptual framework should be considered in examining

the environmental performance of local government (Verma and Raghubanshi 2018).

For instance, applying the principal component analysis (PCA) method, Recatalá and Sacristán (2014) recommended using the eighteen indicators of environmental resources such as the quality of air, water, soil, and biodiversity, to assess the environmental quality of the Valencian region and other parts of Europe. In line with this, Tran (2016) pointed out that applying a comprehensive approach that integrates science, policy-making, and stakeholders' involvement could lead to a better result of environmental assessment. Other studies developed environmental performance indices that did not only focus on the indicators highlighted in the previous paragraphs, but also on the waste management, gas emission, forestry, greenhouse gases, public transport (Jones 2006; Shen et al. 2011; Wendling et al. 2018; Alpenberg, Wnuk-Pel, and Henebäck 2018), compliance with environmental regulations, budget associated with the environmental aspects (Jasch 2000), natural disaster (King 2016; Panya et al. 2018).

This study develops a composite index of environmental performance generated from four indicators of environmental performance as set out in the Government Regulation 20/2006, the Government Regulation 76/2008 (revised through the enactment of the Government Regulation 26/2020), and the Law 26/2007. The first indicator of environmental performance is forest rehabilitation. The Government Regulation 26/2020 defines a forest as a large area of land determined by the central government that contains biological natural resources dominated by trees that cannot be separated from one another. Based on the data collected from the Ministry of Home Affairs, 125 districts used for this research have the forest. It is measured

by the total area of forest in the geographical area of local government that had been rehabilitated divided by the total area of forest damage. Forest rehabilitation programs have crucial roles in restoring trees cover on formerly forested land (de Jong 2010) and returning the forest to productive and sustainable condition through planting, seeding, agroforestry, and assisted natural regeneration (Chokkalingam 2006; de Jong 2010). In Indonesia, according to the Government Regulation 76/2008 as revised by the Government Regulation 26/2020, the head of local government and the concession holders have responsibilities to conduct the forest rehabilitation programs.

The second indicator of environmental performance applied in this study is forest areas in good condition. With the third-largest amount of rainforest in the world, Indonesia's forests contribute to the social and economic development of districts, especially after the implementation of decentralisation in 2001 (Hidayati, Vidyattama, and Gordon 2016). The districts receive local revenues from the forestry licences and forestry royalty (Tripathi 2015; Nasution 2017). However, it was found that there were 1.08 million ha of forest degradation in Indonesia every year due to illegal logging, encroached forest land, forest fire, and unplanned agricultural expansion (Kusmana 2011; Nawir and Rumboko 2007). Therefore, the districts and the local people are enforced by Law 41/1999 to build sustainable forest management that ensures the good condition of the forest. This study makes a comparison between the total area of forest in good condition as a numerator and the total area of forest as the denominator.

The third indicator of environmental performance used in this study is irrigation. Irrigation plays an essential role for agricultural crops, especially rice as the staple

food for most Indonesians (Booth 1977) since 71% of rice farmland in district areas is entirely dependent on irrigation (Vermillion et al. 2000). However, 30.4% of irrigation infrastructure managed by the districts was in poor condition (SDA 2018). Accordingly, the districts require the involvement of the farmers in the irrigation management system to overcome this problem (Sukandar, Masimin, and Fatimah 2018). According to the Government Regulation 20/2006, the head of the district has the authority to form an irrigation commission that has responsibilities to manage and coordinate the irrigation system (SDA 2019). The members of the irrigation commission are the district officials and farmer representatives (Prasetijo 2012). The indicator related to irrigation management is measured by the total area of irrigation in good condition that plays as the numerator and the total area of irrigation as its denominator.

The fourth indicator of environmental performance used in this study is the public green open space. According to Law 26/2007 in relation to spatial planning, public green open space is an open green space owned and managed by the local government for the benefit of the community. It consists of parks and trees along the road, rivers, and beaches. Each local government in Indonesia is encouraged to provide at least twenty percent of the public green open space of their geographical area. The indicator related to public green open space is measured by the total area of public open green space that plays as the numerator, and the total area of land and building that have certificates as its denominator.

4.4 Financial Performance

Scholars have lack of agreement on what and how to measure the financial performance of local governments (Bahl 1984; Chaney, Mead, and Schermann 2002; Honadle, Costa, and Cigler 2004; Kloha, Weissert, and Kleine 2005b; Kamnikar, Kamnikar, and Deal 2006; Wang, Dennis, and Tu 2007; Cabaleiro, Buch, and Vaamonde 2013). They applied various terms and nuances when highlighting and assessing the financial performance of local governments. It can be used as a dependent or an independent variable (Wang, Dennis, and Tu 2007). On the one hand, it becomes a dependent variable when the study aims to measure the variables that affect the financial performance since there are diverse and varied factors affecting the financial performance of local governments (Honadle 2003). On the other hand, it serves as an independent variable of a framework when the research investigates the impact of financial performance on dependent variables such as organisational achievements.

Most of the financial performance studies of local government are conducted in industrialised countries, such as in the United States (Kloha, Weissert, and Kleine 2005a), Europe (Lotz and Bahl 1981; Bailey 1991; Zafra-Gómez, López-Hernández, and Hernández-Bastida 2009b), Japan (Takahashi 1999), and Australia (Dollery, Crase, and Byrnes 2006). However, Ritonga, Clark, and Wickremasinghe (2012) and Ritonga (2014) formulated the model of the financial performance of Indonesian local governments, as one of developing countries. They measured the financial performance of local governments based on six dimensions and eighteen reliable indicators.

This study uses a composite index of financial performance adopted from the measurement of financial performance developed by Ritonga, Clark, and Wickremasinghe (2012) and Ritonga (2014) because this study applies the Indonesian situation as well. This study uses four dimensions and fourteen indicators of financial performance, as shown in Table 4.4 below. The first dimension of financial performance is short-term solvency. Short-term solvency is the ability of the local government to pay its obligation within 12 months (Wang, Dennis, and Tu 2007). The short-term solvency of districts is measured by comparing the current assets as a numerator and current liabilities as the denominator (Ritonga, Clark, and Wickremasinghe 2012). The districts have good short-term solvency if the ratio of the indicators is high since it indicates that the districts have a better position to pay their current liabilities.

Table 4.4: Dimensions of the Financial Performance of Local Governments

Dimensions		Measures
Short-term solvency	ST1	(cash and cash equivalent + short term investment)/current liabilities
	ST2	(cash and cash equivalent + short-term investment + account receivables)/current liabilities
	ST3	current assets/current liabilities
Long-term solvency	LT1	long-term liabilities/total assets
	LT2	long-term liabilities/investment equities
	LT3	investment equities /total assets
	LT4	long term liabilities /population
Budgetary solvency	BS1	(total revenues – special allocation fund revenue) / (total expenditures – capital expenditure)
	BS2	(total revenues – special allocation fund revenue) / operational expenditure
	BS3	(total revenues – special allocation fund revenue) / employee expenditure
	BS4	total revenue / total expenditure
Service-level solvency	SL1	total equities / population
	SL2	total assets / population
	SL3	total expenditures / population

Adopted from Ritonga (2014)

The second dimension of financial performance is long-term solvency. Local governments have long-term solvency reflected by the lower value of its indicators that compare between long-term liabilities as a numerator and total assets or investment equities as the denominator (Ritonga, Clark, and Wickremasinghe 2012). The investment equities constitute the sum of long-term investments, fixed assets, and other assets. Local governments with sufficient assets to pay their long-term liabilities indicate that they have long-term solvency. In contrast, local governments have a low level of long-term solvency if their assets or investment equities are not enough to pay their long-term liabilities.

The third dimension of financial performance is budgetary solvency. It measures the budget ability of local government by comparing the revenue of the local government and their expenditures. The higher the value of indicators, the more solvent the budget of local government. A special allocation fund or earmarked is deducted from the total revenue since local governments do not receive it regularly (Ritonga 2014a). In Indonesia context, the central government sets and controls the special allocation fund based on three criteria, namely general[1], special[2], and technical criterion[3] as regulated by Law 33/2004 and Government Regulation 55/2005.

The fourth dimension of financial performance used in this study is service-level solvency. It measures the ability of the local government to provide community services and facilities for residents (Wang, Dennis, and Tu 2007). The service level solvency of districts is measured by comparing the total equities, total asset, and

[1] General criterion is formulated based on financial capacity of local government reflected on their own revenues deducted by local employee expenditures.
[2] Special criterion is set based on the laws that regulate special autonomy and special characteristics for certain local governments such as underdeveloped regions, located in border zone with other countries, disaster prone areas, potential regions of tourism.
[3] Technical criterion is based on the infrastructure condition of local government.

total expenditures as a numerator and population as the denominator (Ritonga 2014a). The districts have capabilities to provide more public services if the ratio between the numerator and the denominator is high.

4.5 Financial Flexibility

Financial flexibility is related to an ability of an entity to raise financial resources and to seize investment opportunities more effectively and timely when responding any unexpected events and dynamic changes in the work conditions such as environment, technology, market, and structure (Smith 2005; Bancel and Mittoo 2011b; Zeng, Zhang, and Wei 2013; Nouri and Jafari 2016). Soenen (2003) argued that financial flexibility or financial slack of entities is characterised by sufficient cash balance. Firms that hold high reserves have more capabilities to fund their new profitable projects since they do not rely on external funds. Similarly, firms with low leverage ratios have better investment opportunities to leverage their performance (Grüner and Raastad 2018). If firms have a lower level of debt, they tend to be easier to borrow money when they need extra cash.

Some studies measure financial flexibility based on several dimensions, such as debt financing flexibility (Marchica and Mura 2010), holding high cash balance (Soenen 2003; Almeida and Campello 2007), and a combination of cash balance and low debt level (Meier, Bozec, and Laurin 2013). Bancel and Mitto (2011) developed a financial flexibility index of a firm based on firms' leverage, liquidity, and operating ratio. In public sectors, Ritonga (2014) developed the measures of financial flexibility of local government in Indonesia adopted from the Canadian Institute of Chartered Accountants (CICA) (1997). He measured financial flexibility

based on the revenue capacity and the number of obligations to other parties. The revenue capacity as a numerator should be deducted by mandatory expenses and restricted revenues, such as employee expenditures and special allocation funds, or earmarked before divided by the amount of debt of local government (liabilities, principal loan, and interest expenditures) during the financial period.

The indicators of financial flexibility used in this study are adopted from Ritonga (2014), namely indicator A = (total revenues – special allocation fund revenue – employee expenditures)/ total liabilities and indicator B = (total revenues –special allocation fund revenue) / total liabilities. A logarithmic transformation is conducted to improve the normality of the data. The composite index of financial flexibility is aggregated and constructed from these two sets of indicators (transformed) with equal weight. Based on these measurements, the higher the value of indicators, the more flexible local governments are to pay their debts or liabilities.

4.6 Financial Independence

Institutions have financial independence if they can manage their financial resources independently without influenced by external parties (Petkovska 2011). The level of financial independence also can be judged by the incorporation of the independence of entities to raise revenues and how to spend those revenues (Chapman 1999; Oulasvirta and Turała 2007; Sitek 2014; Kotarba and Kolomycew 2014). The local governments have good financial independence if they have more own revenues since they do not depend on central government or other sources transfer to fulfil their expenditures. The indicators of financial independence used in this study are adopted from the Ritonga (2014), namely indicator A = total own revenues / total

revenues and Indicator B = total own revenues / total expenditures. This indicates that the higher the value of financial independence indicators, the more independence of local governments. A square root transformation is conducted to improve the normality of the data. Then, the composite index of financial independence is aggregated and constructed from these two sets of indicators (transformed) with equal weight.

4.7 Resource Management

A government budget constitutes an estimation of the present 12-month period of revenues and expenditures to support the economic management (Kiringai 2002; Rubin 2007; Liou 2011). Besides, the budget has goals to improve the operational efficiency of the government; to bestow legitimacy on the government; and to underpin a public contract between the government and the stakeholders such as the taxpayers, business interests, political groups, and donors (Simson and Welham 2014; Helpap 2015). Therefore, it is crucial for the government to have accurate financial resource management so that the budgets are distributed properly for the welfare of the people.

In the Indonesian context, according to Government Regulation 12/2019 dealing with the financial management of local government, the local governments have the autonomy to conduct financial resources management. This regulation aims to accelerate and enhance the effectiveness of public service provision, especially in relation to critical public services, such as education, health, and transportation. Also, the autonomy will enhance the capabilities of public entities to generate revenues and allocate capital and services spending in the most efficient manner

possible. Therefore, the local governments are enforced to reach the targets of the expenditures and revenues, as stated in the local government budget.

Achieving the targets of expenditures is critical since the low budget absorption might lead to the failure of the local government (Gunarto, Sentri, and Said 2018; Okoye et al. 2019). For example, if the local government fails to absorb the regional transfer funds allocated for road construction, it made local products lose their competitiveness compared to other regions. Furthermore, the inability of local government to achieve the target of budget realisation could lead to idle cash and has an impact on the loss of benefits of spending since the funds are not utilised effectively and timely (Prasetyo 2015). In the same vein, the low achievement of the revenues target has an impact on short-term solvency and the ability of the local government to fulfil the needs of people on public services.

This study uses the secondary data of the audited financial statement of local governments to measure the financial resources management of local governments. There are two indicators used in this study to measure the financial resources management of the local government: (1) the ratio of the actual aggregate expenditures/the approved aggregate budgeted expenditures; (2) the ratio of the actual aggregate revenues/the approved aggregate budgeted revenues (Government Regulation 17/2017). The aggregate revenues and expenditures are measured over a 12-month period.

Then, the results of these two indicators are transformed using the percentile approach since it gives the meaning or interpretation of the scores and allows the comparison of the scores (Stockburger 2001), which in turn, the reader are relatively

easy to understand the meaning (Robinson 2013; Bowman 2002). This study uses SPPS 24 to generate the percentile method. The results of the percentile method are as follows. The ratios of aggregate revenues (X) are categorised into 1 (low) = X<93.67, 2 (moderate) = 93.67<X<96.75, 3 (high) = 96.75<X<99.07, and 4 (very high) = X≥99.07. While the ratios of aggregate expenditures (Y) are categorised into 1 (low) = X<87.74, 2 (moderate) = 87.74<X<90.6, 3 (high) = 90.6<X<93.55, and 4 (very high) = X≥93.55. The aggregate value of financial resource management of local government is measured by ∑ ratio revenues and expenditures/8.

4.8 Financial Transparency

Researchers have developed different measures of financial transparency of local governments, and most of them used online data published on the official websites of the government (Laswad, Fisher, and Oyelere 2005; Alt and Lassen 2006; Styles and Tennyson 2007; Guillamón, Bastida, and Benito 2011; Caamano-Alegre et al. 2013; Del Sol 2013; Bernick et al. 2014; Garcia-Tabuyo, Sáez-Martín, and Caba-Pérez 2016; Lowatcharin and Menifield 2015; Araujo and Tejedo-Romero 2018; 2018). However, to the author's knowledge, literature focusing on financial transparency measurements of subnational governments in developing countries is rare. Previous research focused on the financial transparency of local governments in developed countries such as the United States, New Zealand, and Spain.

For instance, Styles and Tennyson (2007) and Bernick et al. (2014) applied the Comprehensive Annual Financial Report (CAFR) published on the official website as the indicator of financial transparency of municipalities in the United States. They posited that the availability of the CAFR on the official website indicated the financial

transparency of the entities. Laswad, Fisher, and Oyelere (2005) measured the financial transparency of local government in New Zealand based on four indicators of financial information, namely financial highlight, annual reports, annual plan, and combination of the annual reports, plans, and financial highlights. They calculated the value of financial transparency based on the criteria whether the local authority provides those financial reports or not on the official website.

Another approach of financial transparency measurement was developed by Lowatcharin and Menifield (2015). They utilised the transparency checklist that consists of 10 items. The 10-point transparency items are budget, open meeting laws, elected officials, administrative officials, building permits and zoning, audits, contracts, lobbying, public records, and taxes. If each indicator is available on the official website of subnational government, it will be scored 1 point. If the data is not available, it will be scored 0. The points were then aggregated.

In Spain, Guillamón, Bastida, and Benito (2011) measured the financial transparency of municipalities by using twenty parameters. They scored the index of financial transparency based on the availability of the financial information on the official website of the municipalities. Gesuele, Metallo, and Longobardi (2018) used thirteen parameters to investigate the transparency of municipalities, related to organisation, staff, wages, organisational structure, internal auditing, performance evaluation, financial statement, economic planning, support planning, and assets. Interestingly, Gesuele, Metallo, and Longobardi (2018) used not only the official website of the municipalities but also the social media, such as Facebook and Twitter to indicate the availability of those thirteen parameters.

In the Indonesian context, considering the mandate of Law No.14/2008 and the paramount roles of the internet, the central government instructed all local governments to publish their financial information on the official websites. However, the central government did not provide the measurements of financial transparency. Therefore, this study adopts the financial transparency measures developed by Guillamón, Bastida and Benito (2011) since they provided comprehensive measures of financial transparency, as shown in Table 4.5 below. This study uses two dimensions, namely the availability and the accessibility of financial information published on the websites (Adriana and Ritonga 2018). The availability means that the financial documents of fiscal year 2016 are available on the local government's websites, while the accessibility shows that the financial documents could be downloaded by the people.

Table 4.5: Indicators of Financial Transparency

No	Indicators
	Publication of:
1.	Annual financial report
2.	The annual financial report approval date
3.	The Local Government budget
4.	The budget approval date
5.	Budget changes approved
6.	The budget of the decentralised entities and municipal corporations
7.	Regularly publication of information on budget execution (minimum monthly)
8.	Audit reports of Local government
9.	Audit reports Local owned companies and other municipal agencies
10.	Surplus (deficit) per capita
11.	Fiscal autonomy (tax revenue / total revenues)
12.	Tax revenue per capita
13.	Expenditure per capita (expenditures/population)
14.	Investment per capita (investment expenditure / population)
15.	Average payment period (outstanding liabilities x 365 / total expenditures)
16.	Average collection period (outstanding credits x 365 / total revenues)
17.	The municipal debt
18.	Data provided on the yearly evolution of debt
19.	Debt per capita (current financial liabilities/population)
20.	Relative debt (debt / total budget)

(Guillamón, Bastida, and Benito 2011)

In this study, the scoring process of each measure of financial transparency is presented as follows. If each item is available and accessible on the local government's websites, it will be given a score of 1. If the data is not available and inaccessible, it will be given a value of 0. The aggregate value of financial transparency of each subnational government is determined based on the equal weight of 0.5 for the indicator of availability and accessibility. Based on this equal weight, the total score of financial transparency of each local government is gained by the multiplication of weights and scores of each dimension. Then, the total score is divided by the expected score (20 points) to obtain the transparency index of each local government.

4.9 Internal Control

Internal control is an indispensable tool since it improves the efficiency and effectiveness of a business, ensures standard compliance with policies and procedures, prevents business failure, and counters threats (IFAC 2012). Furthermore, applying the effectiveness of internal control is essential for maintaining the creditworthiness of financial reporting and hindering the tendency of deception (Mohrman 1996; Rittenberg and Schwieger 2005; Schneider and Church 2008; Al-Thuneibat, Al-Rehaily, and Basodan 2015).

The implementation of internal control system in the subnational levels requires more attention from all parties since local autonomy is considered to be the main pillar of public sector reforms in the last two decades in developing countries (Baltaci and Yilmaz 2006). For instance, in Indonesia, the central government has continuously empowered local government organisations by enhancing political, administrative,

and financial autonomies. The financial autonomy is indicated by the independence of sub-national authorities to raise revenues and to spend expenditures. These aim to improve the performance of regional governments, to alleviate the prosperities gap among the local governments, and to enhance the quality of public service provision.

Huefner (2011), Ng'eni and Chalam (2016) and Sutopo et al. (2017) argued that the autonomy policy tends to be successful if this policy is accompanied by self-governance system, such as the internal control system since it could minimise the possibility of risks, threats, and the violation of the authority of local officials. On the contrary, a slackening of internal control could imperil not only on public service quality but also on the sustainability of the environment. For instance, the uncontrollable licenses in mining and forestry business issued by local governments for the interest of private companies exacerbate the ecological population (Rahman et al. 2013; Siombo 2014). Accordingly, to assure the implementation of internal control in local governments in Indonesia, the central government enacted Government Regulation 60/2008 and Government Regulation 4/2016 in relation to Government Internal Control System that instructs all government entities, including local governments, to build their internal control system.

This study applies a composite index of internal control developed from five indicators, as recommended by the Finance and Development Supervisory Agency of Indonesia and the Committee of Sponsoring Organisation of the Treadway Commission (COSO). The COSO identified the five indicators of internal control (Jokipii 2010), as shown in Table 4.6 below. The first indicator is control environment. Control environment constitutes the foundation of internal control

system that incorporates a set of standards, ethical values, legal framework, organisational structure, and competency of human capital (Smith et al. 2005; O'Leary, Iselin, and Sharma 2006; Sudsomboon and Ussahawanitchakit 2009; Leung, Cooper, and Perera 2011; Karagiorgos, Drogalas, and Giovanis 2011; Eldridge et al. 2014). It could reduce the level of fraudulent practices in the organisation (Wood and Brathwaite 2013). Also, control environment empowers all employees to ensure that organisational resources are optimised effectively and efficiently for the purposes of goals achievement (Aldridge and Colbert 1994).

Table 4.6: The Measurements of Internal Control

No	Component	Subcomponents
1.	control environment	enforcement of integrity and ethical value, commitment to competence, conducive leadership, organisational structure, the delegation of authority and responsibility, preparation and implementation of healthy policies on HR development, the effectiveness of the role of internal control apparatus, and working relationships with other government agencies.
2	risk assessment	risk identification and risk analysis
3.	control activities	performance review, HR development, information system control, asset control, performance indicators determination and review, function separations, transaction authority, accurate and timely reporting, access limitations on resources and reporting, accountability of reporting and resources, documentation of internal control, and other important transactions.
4.	information and communication	information relevance, and communication effectiveness
5.	monitoring activities	monitoring sustainability, and separated evaluation

(The Finance and Development Supervisory Agency, 2016)

The second indicator of internal control is risk assessment. It is dynamic and iterative assessment processes that identify and control the possibility of internal and external threats such as changes of regulations, natural disasters, and security issues. These threats should be mitigated in appropriate circumstances since any exceptional or

undesired events could have a negative impact on the financial, strategic, and operational losses (Acharyya 2010; Dionne 2013; Halonen 2014). The third indicator of internal control is control activities that refer to manual or automated activities that ensure the policy and procedural guidelines are performed by all employees (Rezaee, Elam, and Sharbatoghlie 2001; Aikins 2011; COSO 2013). These control activities comprise verification, approval activities, and performance reviews. Furthermore, segregation of duties and functions, rewards, and punishments are also control activities that aim to ensure the objectives of entities are performed within the framework of business process (Kohn 1999). Mahadeen et al. (2016) categorised the control activities into four groups, namely directive, detective, preventive, and corrective function. Directive function refers to regulations, guideline, procedure, and policies that guide the entity to achieve their objectives. Detective function is related to the development of alert management that detects the unexpected events. Preventive activities are the process that could deter the predicting problems might occur, while corrective activities refer to the processes that improve the current performance affected by the unexpected conditions and develop the procedures to avoid the recurrence of the problems in the future.

The fourth indicator of internal control is information and communication tool. It is developed by an organisation that aims to capture and disseminate the relevant information in a timely way (Aldridge and Colbert 1994; Mahadeen et al. 2016). Sharma and Patterson (1999) argued that the transmission of information could be performed through formal and informal contact since the most important thing is that personnel and managerial levels could capture and share the information to carry out their responsibilities effectively (Jokipii 2010). Utilising modern technology such as computer-based information, the internet, and mobile communication in control

system of organisation could integrate hardware, software, and human capacities to generate the decision making with a high degree of accuracy and in a timely manner (Gamayuni 2019). The fifth indicator of internal control is monitoring activities. This indicator is related to the process of evaluation that measures whether the internal control system is present and operating as intended. It also involves in taking appropriate changes that aim to alleviate the deficiencies. The implementation of monitoring activities can be either as periodic evaluation or real-time evaluation (Benedek, Szenténé, and Beres 2014). The monitoring activities also involve in taking changes and carry out innovation in order to maintain the effectiveness of system's performance (Yemer and Chekol 2017).

4.10 Accountability

Accountability constitutes a power relationship between an accountor (agent/steward/subordinate) and an accountee (principal/superior) (Mayston 1993; Mulgan 2000; Coy, Fischer, and Gordon 2001; Kluvers 2003; Broadbent and Laughlin 2003). It delineates the obligation of the accountor to supply the information on the action, process, output, or outcome to the accountee or higher authorities (Laughlin 1990; Patton 1992; Kearns 1996). The accountee has the power to evaluate and to render judgment, feedback, and sanction (Quinn and Schlenker 2002; Steccolini 2004).

Accountability has different forms and characteristics, such as professional accountability, legal accountability, social accountability, and administrative accountability (Wang 2002; Bovens 2007a; Poulsen 2009; Christensen and Lægreid 2015). This study uses the secondary data of the local government accountability

reports collected from the Ministry of Administrative and Bureaucratic Reform. Based on Presidential Regulation 29/2014 and Regulation of the Minister of Administrative and Bureaucratic Reform 25/2012 and 12/2015, accountability reports encapsulate the evaluation of public service standards and ethics codes carried out by the local government (Afriyanti, Sabanu, and Noor 2015). As well, the local government accountability reports show the achievement of targets required by the public service standards. The government institutions, including local governments, have responsibilities to periodically submit the local government accountability reports to the Ministry of Administrative and Bureaucratic Reform. The Ministry of Administrative and Bureaucratic Reform evaluates the reporting documents and assesses the quality of the administrative accountability of local authorities based on the five components, as described in Table 4.7 below.

Table 4.7: Administrative Accountability of Local Government in Indonesia

1.	Program Planning	Strategic Planning: the availability and the quality of strategic planning documents meet required standards; strategic planning documents are used as a guideline for program and budget planning; Yearly Program Planning: the availability and the quality of yearly programs planning meet required standards; program targets are already applied and monitored
2.	Program Measurement Achievement	the availability and the quality of key performance indicators meets required standards; key performance indicators are already applied and review periodically
3.	Accountability Reporting	the availability of accountability reporting meet the required standard; the comprehensiveness of accountability reporting; and the usefulness of information on the accountability reporting for future performance improvement
4.	Internal Evaluation	the availability and the implementation of internal evaluation guideline; and the utilisation of evaluation
5.	Target Achievement	reports on the achievement of targets; and the improvement of achievement compare to the previous year.

(The Ministry of Administrative and Bureaucratic Reform, 2015)

5. Conclusion

This chapter describes the research methods, including data collection, data sources, and research samples. Definitions and measurements of public sector governance (financial transparency, accountability, and internal control), financial management factors (financial flexibility, financial independence, and resource management), financial performance, service performance, and environmental performance are explained in detail as well. This study applies multiple regression analysis to examine the effects of public sector governance and financial management factors on the service and environmental performance of local governments. Bootstrapping method is used to investigate the mediating effects of financial performance on service and environmental performance. The next chapter presents the findings regarding the effects of public sector governance and financial management factors on service and environmental performance in district governments in Indonesia and investigates the role of financial performance on service and environmental performance.

Chapter 5
Service Performance of Local Governments: Data Analysis and Hypotheses Testing

1. Introduction

The main objective of this chapter is to report data analysis and examine the hypotheses discussed in Chapter 2 (see Figure 5.1). Based on the results of hypotheses testing, this chapter will answer the following research questions:

1. What are the influences of public sector governance and financial management factors on service performance?
2. Are the relationships between public sector governance, financial management factors, and service performance mediated by financial performance?

Detailed linkage of those research questions with the research objectives are shown in Figure 5.2.

Figure 5.1: Structure of Chapter 5

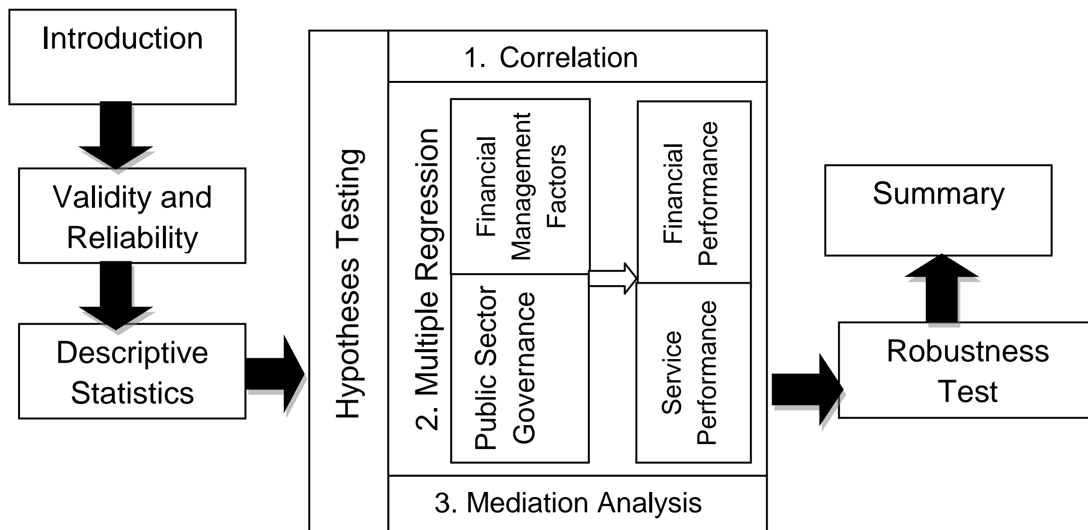
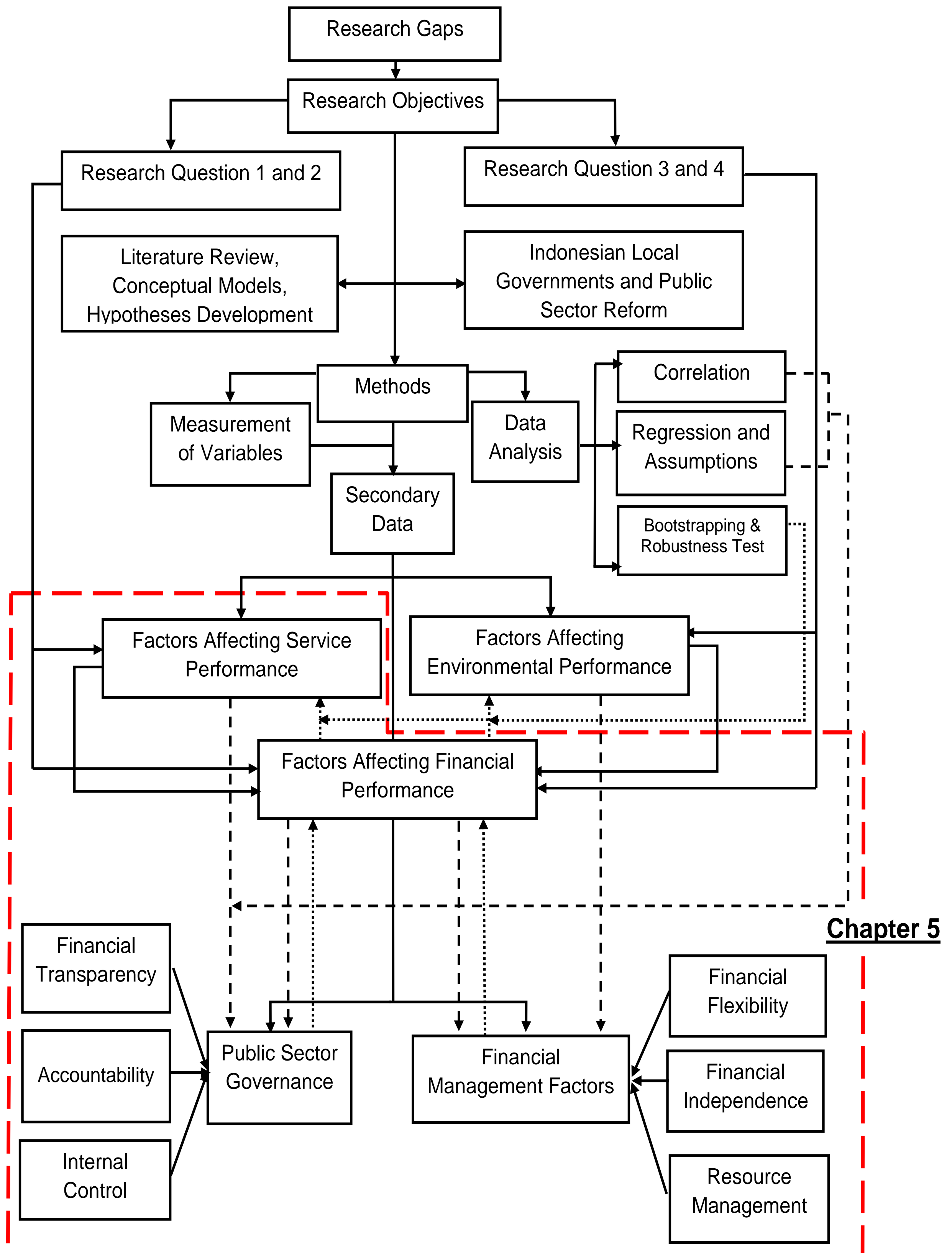


Figure 5.2: The Linkage of Chapter 5 with the Research Objectives



2. Data Preparation and Analysis

As discussed in Chapter 3, this study focuses on the district level. The number of samples used in this study is 125 local governments after removing the outliers. This study conducts data preparation and data analysis, such as validity and reliability tests, to examine whether the data are suitable for further analysis. This study investigates Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) and Bartlett's test of sphericity to measure the validity test (Williams, Onsman, and Brown 2010; Shirali, Shekari, and Angali 2018). The validity test can be measured by Pearson product-moment correlation analyses as well (Piland et al. 2003; Ghozali 2016; Swank and Mullen 2017). The Kaiser-Meyer-Olkin Measure of MSA is a single-value used to investigate the sampling adequacy of the inter-correlations of a set of variables for factor analysis (Field 2013).

This study uses Cronbach's alpha to perform the reliability test. The Cronbach's alpha is related to the internal consistency that shows how closely related a set of scale or test items (UCLA 2006). It is the most widely used measure of the internal consistency of the data (Bonett and Wright 2015; Taber 2018). The detailed results validity and reliability test of the variables used in this study are described in the following paragraphs.

The validity and reliability results of service performance show that the total variance explained by the factor is 50.08%. The Bartlett's test of sphericity is significant (p =.000), and the overall test of KMO-MSA is .706. The indicators of service performance have good internal consistency to measure the same construct because the Cronbach alpha of the variable of service performance is 0.711. The

validity test of financial performance is measured by applying factor analysis that resulted in deleting LT3. LT3 is long-term solvency, one of the indicators of financial performance (see Table 3.7 of Chapter 3). The measure of LT3 is deleted since the KMO-MSA value of LT3 is less than .50. The total variance explained by the factor is 93.06%. The Bartlett's test of sphericity is significant (p =.000), and the overall test of KMO-MSA is .710. The standardised Cronbach coefficient alpha of financial performance is 0.703. The reliability test of this variable is measured by the standardised Cronbach coefficient alpha since the indicators of financial performance have multi-point scales (Santos 1999; Ritonga 2014b). Based on the coefficient, the variable of financial performance shows the satisfactory internal reliability of the scale. Likewise, the construct validity of the variables of internal control, financial transparency, financial flexibility, financial independence, and resource management are found significant (p =.000), and these variables have good internal consistency to measure the same construct indicated by the Cronbach alpha (respectively, .691, .711, .916, 915, and .702).

3. Descriptive Statistics and Correlations

Many statistical methods have been applied to test the normality of data (Kim 2013). However, there is no agreement on which values indicate normality or non-normality (Orcan 2020). One method to check any deviation from normality is using skewness and kurtosis (Orcan 2020). In the previous accounting research (e.g., Ritonga 2014, Afris 2017, Mahbub 2019), a rule thumb of the acceptable values of skewness and kurtosis fall within a range of ± 2 (Hair, Black, and Babin 2010; George and Mallery 2010; Gravetter and Wallnau 2017). Table 5.1 shows that the skewness and kurtosis of service performance are 0.673 and 0.541, respectively. Other variables of the

study are within the acceptable limit as well (between -2 and +2) [4]. Therefore, these results are suitable for further analysis.

Table 5.1: Descriptive Statistics and Correlations

	Variables	Descriptive statistics							Correlations							
		Mean	Med.	SD	Min.	Max.	Sk.	Ku.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1. Service Performance	.467	.453	.090	.291	.758	.673	.541	1							
	2. Financial Performance	.329	.323	.081	.159	.566	.485	.150	.479**	1						
Public Sector Governance	3. Financial Transparency	.192	.204	.112	.000	.425	-.003	-1.025	.395**	.462**	1					
Public Sector Governance	4. Accountability	.546	.546	.073	.316	.702	-.387	.529	.362**	.446**	.401**	1				
Public Sector Governance	5. Internal Control	.508	.525	.186	.135	.854	-.079	-.923	.409**	.465**	.509**	.399**	1			
Financial Management	6. Financial Flexibility	.495	.488	.231	.000	1.000	.040	-.731	.373**	.447**	.360**	.370**	.371**	1		
Financial Management	7. Financial Independence	.463	.474	.182	.001	.952	.006	-.045	.343**	.474**	.304**	.357**	.388**	.310**	1	
Financial Management	8. Resource Management	2.56	2.500	.928	1.000	4.000	-.024	-.991	.364**	.472**	.292**	.295**	.285**	.442**	.196*	1

N= 125; Med. = Median; SD = Standard Deviation; Min. = Minimum; Max. = Maximum; Sk. = Skewness; Ku. = Kurtosis
* $p < 0.05$; ** $p < 0.01$

Table 5.1 above shows Pearson's correlation matrix of variables. As the table suggests, there are no high correlations among the variables. The correlation analysis is conducted to measure the degree of a linear relationship between variables. The coefficient correlation denoted by *r* can range between +1 and -1, while values of *r* close to 0 represent no linear correlation between the variables (Stine and Foster 2011). The correlation coefficient of +1 means that the relationship between two variables is a perfect positive correlation, while the coefficient of -1 indicates the perfect negative correlation (Hair, Black, and Babin 2010; Tabachnick and Fidell 2014). The perfect correlations represent that one variable is precisely predictable from another variable (George and Mallery 2010). As a rule of thumb, a bivariate correlation of .80 or higher may lead to a problem (Gujarati and Porter 2009; Whitley and Kite 2013).

[4] Mean and standard deviation of the study variables are also computed. They are .467 and .09 for service performance, .329 and .081 for financial performance, .192 and .112 for financial transparency, .546 and .073 for accountability, .508 and .186 for internal control, .495 and .231 for financial flexibility, .463 and .182 for financial independence, .256 and .928 for resource management respectively.

In this study, as discussed in the previous subsections, public sector governance is represented by financial transparency, accountability, and internal control, while financial management factors are examined by financial flexibility, financial independence, and resource management. It is found that there is a positive and significant correlation between financial transparency, accountability, internal control, and service performance (respectively, $r = .395$, $p < 0.01$; $r = .362$, $p < 0.01$; $r = .409$, $p < 0.01$). These results show that the higher financial transparency, accountability, and internal control, the better the service performance of local government. Similarly, the results indicate that there is a positive and significant correlation between financial transparency, accountability, internal control, and financial performance (respectively, $r = .462$, $p < 0.01$; $r = .446$, $p < 0.01$; $r = .465$, $p < 0.01$).

In a similar vein, it is found that that there is a positive and significant correlation between financial flexibility, financial independence, resource management, and service performance (respectively, $r = .373$, $p < 0.01$; $r = .343$, $p < 0.01$; $r = .364$, $p < 0.01$). Table 5.1 also shows that there is a positive and significant correlation between financial flexibility, financial independence, resource management, and financial performance (respectively, $r = .447$, $p < 0.01$; $r = .474$, $p < 0.01$; $r = .472$, $p < 0.01$). These findings show that if financial flexibility, financial independence, and resource management exist, service and financial performance are likely to be achieved. As well, Table 5.1 above presents that financial performance is found to be significantly correlated with service performance ($r = .479$, $p < 0.01$). This shows that if financial performance is strengthened, then service performance will be enhanced. This result indicates a probability of financial performance as a mediating variable.

4. The Impacts of Public Sector Governance

Multiple regression analysis is conducted to examine the level of prediction of public sector governance (financial transparency, accountability, and internal control) on service and financial performance while controlling for population size (measured by taking the natural logarithm), poverty rate, and gender diversity. Population size, poverty rate, and gender diversity are included in the analysis as control variables since prior literature suggested that population size, poverty rate, gender diversity would likely influence the performance of entities (Wang, Dennis, and Tu 2007; Casal and Gómez 2011; Lewis 2017b; Baker, Ali, and French 2019; Dani, Picolo, and Klann 2019).

This study uses the Centered Leverage and Cook's Distance to analyse a multivariate outlier. The multivariate outlier is a combination of unusual values on two or more variables (Parke 2013). The acceptable values of the Centered Leverage and Cook's Distance are less than one and close to zero (Hair, Black, and Babin 2010; Field 2013). The values for Centered Leverage and Cook's Distance of Equation 5.1 and 5.2 are less than one and close to zero. These results indicate that the outliers do not have any influences on Equations 5.1 and 5.2. The models (Equation 5.1 and 5.2) have no evidence of multicollinearity since the VIF values of both equations are considerably less than the generally accepted maximum level of 10. There is no autocorrelation as well since the Durbin Watson values of Equation 5.1 ($d = 1.766$) and Equation 5.2 ($d = 1.879$) are considered an acceptable level, in a range between 1 and 3 (Field 2013). The Kolmogorov-Smirnov test indicates that the assumption of normality of residuals is fulfilled since the p-value is .200, which is higher than 0.05. As a rule of thumb, the residuals are normally distributed if the p-

value of Kolmogorov-Smirnov is higher than 0.05 (Drezner, Turel, and Zerom 2010; Ghozali 2016). Likewise, the assumption of linearity and homoscedasticity of Equation 5.1 and 5.2 are fulfilled because the scatterplot of the standardised residual graph of both models are scattered (see Appendix). The assumption of linearity and homoscedasticity are met if plots are scattered and patternless (Baiocchi 2001; Hair, Black, and Babin 2010; Garson 2012). Based on these analyses, both models are deemed to meet the assumptions of ordinary least squares (OLS) regression analysis.

Table 5.2: Multiple Regression Analysis of Public Sector Governance on Financial and Service Performance

Independent Variables	Service Performance			Financial Performance		
	B	SE	β	B	SE	β
Public Sector Governance:						
- Financial Transparency	.158	.078	.196*	.155	.056	.214**
- Accountability	.226	.111	.183*	.261	.080	.235**
- Internal Control	.109	.047	.223*	.086	.034	.196*
Control Variables:						
- Population	-.009	.009	-.081	-.032	.007	-.315**
- Poverty Rate	-.066	.137	-.040	-.213	.100	-.143*
- Gender Diversity	.139	.139	.082	.272	.101	.178**
R^2		.261			.518	
Sig.		.000			.000	

Note: * p < 0.05; ** p < 0.01

SP= .311 +.196FT + .183AC + .223IC - .081Pop - .040Pov + .082Gdr (Equation 5.1)

FP = .407 + .214FT + .235AC + .196IC - .315Pop - .143Pov + .178Gdr (Equation 5.2)

SP = service performance; FP = financial performance; FT = financial transparency; AC = accountability; IC = internal control; Pop = population size; Pov = poverty rate; Gdr = gender diversity

Table 5.2 above presents that financial transparency, accountability, internal control, and control variables (population, poverty rate, and gender diversity) explain 26.1% of the variance in service performance (R^2 = .261, F (6,118) = 6.932, $p < .001$). Likewise, the results of the regression indicate the six predictors explained 51.8% of the variance in financial performance (R^2 = .518, F (6,118) = 21.119, $p < .001$). This means that there is still another 73.9% and 48.2% variance in service performance

and financial performance that has not been explained by the models respectively. Based on the results of regression, it is found that financial transparency, accountability, and internal control significantly predict service performance (respectively, $\beta = .196$, $p < 0.05$; $\beta = .183$, $p < 0.05$; $\beta = .223$, $p < 0.05$) and financial performance (respectively, $\beta = .214$, $p < 0.01$; $\beta = .235$, $p < 0.01$; $\beta = .196$, $p < 0.05$). The positive sign means that an increase of one unit in financial transparency, accountability, and internal control results in an increase of .196, .183, and .223 in service performance respectively, assuming that other variables are held constant. Likewise, an increase of one unit in financial transparency, accountability, and internal control leads to an increase of .214, .235, and .196 in financial performance respectively, assuming that other variables are held fixed.

Based on the hypotheses testing, the study found empirical support for hypotheses H1, H2, and H3. The hypotheses are accepted. It can be concluded that that financial transparency, accountability, and internal control have a major role in improving financial and service performance of local governments. In this study, the local government's financial and service performance are conducted in a separated analysis since service and financial performance are essential and significant as indicated by R^2 and *p*-value, as discussed in the previous paragraphs.

5. The Impacts of Financial Management Factors

In Hypothesis 4, 5, and 6, financial management factors are represented by financial flexibility, financial independence, and resource management. The multiple regression analysis is performed to test these hypotheses. Control variables (population, poverty rate, and gender diversity) are included in regression models

(Equation 5.3 and 5.4). The values for Centered Leverage and Cook's Distance of Equation 5.3 and 5.4 are less than one and close to zero. These results indicate that the outliers do not have any influences on Equations 5.3 and 5.4. Both regression models (Equation 5.3 and 5.4) have no evidence of multicollinearity as the VIF values of the models range from 1.041 to 1.354. These values are considerably less than the generally accepted maximum level of 10. There is no autocorrelation as well since the Durbin Watson values of Equation 5.3 (d = 1.626) and Equation 5.4 (d = 2.064) are considered an acceptable level. Kolmogorov-Smirnov test indicates that the assumption of normality of residuals has been fulfilled since the p-value is .200, which is higher than 0.05. The assumption of linearity and homoscedasticity is fulfilled since the scatterplot of the standardised residual graph of both models are patternless (see Appendix). Thus, the regression models (Equation 5.3 and 5.4) meet the assumptions of OLS regression analysis.

Table 5.3: Multiple Regression Analysis of Financial Management Factors on Service and Financial Performance

Independent Variables	Service Performance			Financial Performance		
	B	SE	β	B	SE	β
Financial Management Factors:						
- Financial Flexibility	.076	.036	.194*	.068	.109	.193**
- Financial Independence	.112	.042	.225**	.140	.029	.314**
- Resource Management	.020	.009	.210*	.021	.006	.245**
Control Variables:						
- Population	-.10	.010	-.092	-.032	.007	-.316**
- Poverty Rate	-.092	.136	-.055	-.222	.093	-.149*
- Gender Diversity	.057	.138	.034	.196	.095	.129*
R^2		.254			.566	
Sig.		.000			.000	

Note: * p < 0.05; ** p < 0.01

SP= .440 + .194FF + .225FI + .210RM - .092Pop - .055Pov + .034Gdr (Equation 5.3)

FP = .513 + .193FF + .314FI + .245RM - .316Pop - .149Pov + .129Gdr (Equation 5.4)

SP = service performance; FP = financial performance; FF = financial flexibility; FI = financial independence; RM = resource management; Pop = population size; Pov = poverty rate; Gdr = gender diversity

Table 5.3 shows that the results of the regression indicate financial flexibility, financial independence, resource management, and control variables (population, poverty rate, and gender diversity) explain 25,4% and 56.6% of the variance in service performance (R^2 = .254, F (6,118) = 6.680, p < .001) and financial performance (R^2 = .56.6, F (6,118) = 25.642, p < .001) respectively. There is still another 74.6% and 43.4% variance in service performance and financial performance that has not been explained by the models respectively. The findings show that financial flexibility, financial independence, and resource management significantly predict service performance (respectively, β = .194, p < 0.05; β = .225, p < 0.01; β = .210, p < 0.05) and financial performance (respectively, β = .193, p < 0.01; β = .314, p < 0.01; β = .245, p < 0.01). The positive sign means that an increase of one unit in financial flexibility, financial independence, and resource management leads to an increase of .194, .225, and .210 in service performance respectively, assuming that other variables are held constant. Likewise, an increase of one unit in financial flexibility, financial independence, and resource management leads to an increase of .193, .314, and .245 in financial performance respectively, assuming that other variables are held fixed

Thus, the regression analysis findings indicate that hypotheses H4, H5, and H6, which predict a positive and significant relationship between financial management factors and financial and service performance, are accepted. It can be concluded that the higher level of financial flexibility, financial independence, resource management, the better the financial and service performance of local governments.

6. The Mediating Role of Financial Performance on Local Government's Service Performance

This study employs the Bootstrapping method generated by PROCESS Macro version 3 to test Hypothesis 7, which posits the mediating effect of financial performance on service performance. Bootstrapping is a versatile method that uses computer-intensive resampling to derive a more accurate statistical inference analysis (Lockwood and MacKinnon 1998; Hayes 2018). There are three advantages of bootstrapping method (Wood 2005). First, bootstrapping is more transparent and more simple than other conventional methods. Then, bootstrapping is more easily checked and less restrictive. Finally, the bootstrapping method can be applied where other methods may be difficult to be implemented to analyse small and non-normal distribution data.

This study presents the indirect (mediation), total, and direct effects of predictors on the service performance based on the results of the bootstrapping analysis. Mediation refers to the condition when independent variables predict a dependent variable through a mediating variable called an indirect effect (Edwards and Lambert 2007; Meule 2019). An indirect effect is the combined effects of two relationships: 1) between an independent and a mediating variable, and 2) between the mediating variable and the dependent variable. In this study, the mediating effect is measured by the 95% bootstrapped confidence intervals with 5000 of the number of bootstrap samples. If the bootstrapped confidence intervals do not contain zero, it shows that there are the effects of a mediating variable on the relationship between predictors and the dependent variable. Thus, it rejects the null hypothesis. The total effect is the effect of an independent variable on a dependent variable when the mediating variable is not present in the model. If the mediator variable is included, this

relationship is called the direct effect (MacKinnon 2011; Lancee et al. 2015; Agler and De Boeck 2017; Meule 2019).

In this study, the outliers do not have any influence on Equations 5.5 and 5.6 because the values for Centered Leverage and Cook's Distance of both equations are less than one and close to zero. Both regression models (Equation 5.5 and 5.6) have no evidence of multicollinearity as the VIF values of the models range between 1.079 and 2.304, which are less than the generally accepted maximum level of 10. There is no autocorrelation as well since the Durbin Watson values of Equation 5.5 (d = 1.694) and Equation 5.6 (d = 1.58) are considered an acceptable level. Kolmogorov-Smirnov test indicates that the assumption of normality of residuals has been fulfilled since the p-value is .200, higher than 0.05. Thus, Equations 5.5 and 5.6 meet the assumptions of ordinary least squares regression.

Table 5.4: Mediating Role of Financial Performance on Service Performance (B, 95% CI). Standardised Coefficients Results.

Dependent Variable	Independent Variables	*a* path	Indirect effect (*ab*)	*c* path (total effect)	*c′* (direct effect)
Service Performance	**Public Sector Governance:**				
	- Financial Transparency	.2145 (.0437, .2667)	.0613 (.0059, .1339)	.1962 (.0043, .3121)	.1349 (-.0464, .2639)
	- Accountability	.2355 (.1022, .4197)	.0673 (.0054 .1476)	.1828 (.0067, .4449)	.1155 (-.0809, .3661)
	- Internal Control	.1963 (.0179, .1538)	.0561 (.0011, .1253)	.2228 (.0148, .2024)	.1666 (-.0129, .1753)
	Total Model	R^2 = .300, F (7, 117) = 7.165, p < .001			
	Financial Management Factors:				
	- Financial Flexibility	.1935 (.2971, .7281)	.0539 (.0017, .1369)	.1938 (.0041, .1476)	.1400 (-.0178, .1274)
	- Financial Independence	.3139 (.0830, .1963)	.0874 (.0161, .1847)	.2255 (.0290, .1946)	.1381 (-.0206, .1576)
	- Resource Management	.2448 (.0094, .0334)	.0681 (.0116, .1408)	.2098 (.0029, .0380)	.1417 (-.0043, .0319)
	Total Model	R^2 = .287, F (7, 117) = 6.734, p < .001			

All paths are included control variables (population size, poverty rate, and gender diversity)

SP= .181+.135FT+ .115AC+ .167IC+ .286FP+ .009Pop+ .001Pov+ .031Gdr (Equation 5.5)

SP= .281+ .140FF+ .138FI+ .142RM+ .278FP- .004Pop- .014Pov- .002Gdr (Equation 5.6)

In this study, the mediating role of financial performance on service performance is presented in two parts. The first part investigates the mediation effects of financial performance on the relationships between public sector governance (financial

transparency, accountability, and internal control) and service performance (Equation 5.5). The Equation 5.5 shows that the significant total effects are observed for financial transparency (β = .1962, 95%CI = .0043 to .3121), accountability (β = .1828, 95%CI = .0067 to .4449), and internal control (β = .2228, 95%CI = .0148 to .2024) on service performance after including population size measured by taking the natural logarithm, poverty rate, and gender diversity. The total effect of financial transparency, accountability, and internal control on service performance is significant since zero is not found in the lower level and upper level of 95% confidence intervals. Based on these findings, an increase in financial transparency, accountability, and internal control results in improved service performance after including control variables.

Table 5.4 shows direct effects of financial transparency, accountability, and internal control on service performance after including the mediator and control variables (respectively, β = .1349, CI = -.0464 to .2639; β = .1155, CI = -.0809 to .3661; β = .1666, CI = -.0129 to = .1753). These findings show that if a local government has a higher level of financial transparency, accountability, and internal control than other local governments, but they achieve equal financial performance level, then the local government is estimated to be .135, .116, and .167 units higher in-service performance than the other local governments respectively. However, the direct effect of financial transparency (β = .1349), accountability (β = .116), and internal control (β = .167) on service performance is insignificant as the bootstrapped confidence intervals contain zero.

Likewise, Table 5.4 shows indirect effects of financial performance on service performance (Equation 5.5). Zero is not found in the lower level and upper level of

95% confidence intervals of financial transparency (β = .0613, 95%CI = .0059 to .1339), accountability (β = .0673, 95%CI = .0054 to .1476), and internal control (β = .0561, 95%CI = .0011 to .1253). The positive sign of the coefficient of financial transparency, accountability, and internal control shows that service performance increases by .061, 067, and 056 units indirectly through financial performance for every unit increase in financial transparency, accountability, and internal control, respectively.

The second part of mediation analysis is examining the mediation effects of financial performance on the relationships between financial management factors (financial flexibility, financial independence, and resource management) and service performance after controlling for population size, poverty rate, and gender diversity (Equation 5.6). Table 5.4 shows that there are significant effects of financial flexibility (β = .1935, 95%CI = .2971 to .7281), financial independence (β = .3139, 95%CI = .0830 to .1963), and resource management (β = .2448, 95%CI = .0094 to .0334) on financial performance after including control variables since 95% bootstrap confidence intervals are entirely above zero. Also, Table 5.4 presents that the total effects of the financial flexibility (β = .1938, 95%CI = .0041 to .1476), independence (β = .2255, 95%CI = .0290 to .1946), and resource management (β = .2098, 95%CI = .0029 to .0380) on service performance are statistically significant after including control variables since 95% bootstrap confidence intervals are entirely above zero.

In addition, Table 5.4 presents the direct effect of financial flexibility, financial independence, and resource management on service performance. The direct effects of financial flexibility (β = .1400, 95%CI = -.0178 to .1274), financial independence (β = .1381, 95%CI = -.0206 to .1576), and resource management (β =

.1417, CI = -.0043 to .0319) on service performance, are positive after including the mediator and control variables. These results mean that if the local government ‘A’ that has a higher level of financial flexibility than local government ‘B’, but they have equal financial performance level, so the local government ‘A’ is estimated to be .140 units higher in-service performance than the local government ‘B’. However, after including financial performance and the control variables in the models, the direct effect of financial flexibility, financial independence, and resource management on service performance is insignificant since the bootstrapped confidence intervals are not statistically different from zero.

In Equation 5.6, this study examines the indirect effects of financial management factors (financial flexibility, financial independence, and resource management) on service performance through financial performance. Table 5.4 above presents that zero does not occur between the lower level and upper level of 95% confidence intervals for financial flexibility (β = .0539, 95%CI = .0017 to .1369), financial independence (β = .0874, 95%CI = .0161 to .1847), and resource management (β = .0681, 95%CI = .0116 to .1408). These results show that the service performance increases by .0539, .0874, and .0681 units indirectly through financial performance for every unit increase in financial flexibility, financial independence, and resource management, respectively. Thus, the study findings confirm that financial performance has a mediating role on service performance. Hypothesis 7 is accepted since financial performance has a significant effect on service performance.

7. Robustness Checks

This current study employs two types of robustness checks to determine which combinations of variables would best predict service and financial performance. First, this study conducts stepwise regression analysis. It is the combination of the forward selection approach and backward elimination method that aims to investigate the order of importance of variables and significantly improve the model to predict the dependent variable (Grignon 2019). The stepwise regression process is repeated until no more additional predictors have no statistical significance to the model (Lang 2016). It means that the variables that have a non-significant contribution to the model are excluded from the regression equation.

Table 5.5 below shows the stepwise regression results on service and financial performance (Equation 5.1 and 5.2). In the first step or model, internal control is the single most predictive variable for service performance (R^2 = .167, F (1,123) = 24.657, $p < .001$). This result means that the variable of internal control accounts for 16.7% of the variation of service performance. Internal control significantly predicts service performance (β = .409, $p < 0.01$). In the second model, two variables in combination are predictors of variance in service performance: internal control and accountability (R^2 = .214, F (2,122) = 16.632, $p < .001$). Internal control and accountability significantly predict service performance (respectively, β = .314, $p < 0.01$; β = .237, $p < 0.01$). The final step of the stepwise multiple regression analysis constitutes the best fit model that indicates three variables in combination are predictors of variance in service performance: internal control, financial transparency, and accountability (R^2 = .242, F (3,121) = 12.910, $p < .001$). Internal

control, accountability, and financial transparency significantly predict service performance (respectively, β = .230, $p < 0.05$; β = .190, $p < 0.05$; β = .202, $p < 0.05$).

Table 5.5: Stepwise Multiple Regression Analysis of Public Sector Governance on Service and Financial Performance

Independent Variables	Service Performance									Independent Variables	Financial Performance																	
	Model 1			Model 2			Model 3				Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
	B	SE	β	B	SE	β	B	SE	β		B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Public Sector Governance:																												
- Internal Control	.199	.040	.409**	.153	.043	.314**	.112	.046	.230*	Internal Control	.203	.035	.465**	.171	.032	.392**	.122	.033	.279**	.078	.035	.180**	.092	.035	.210**	.086	.034	.196*
- Accountability				.293	.108	.237**	.234	.110	.190*	Population Size				-.039	.008	-.386**	-.038	.007	-.373**	-.038	.007	-.373**	-.034	.007	-.337**	-.032	.007	-.315**
- Financial Transparency							.163	.077	.202*	Accountability							.321	.083	.290**	.259	.083	.234**	.249	.081	.225**	.261	.080	.235**
										Financial Transparency										.172	.058	-.238**	.175	.056	.242**	.155	.056	.214**
										Gender Diversity													.271	.102	.177**	.272	.101	.178**
										Poverty Rate																-.213	.100	-.143*
R^2	.167			.214			.242			R^2	.216			.359			.430			.469			.499			.518		
Sig.	.000			.000			.000			Sig.	.000			.000			.000			.000			.000			.000		

Note: * $p < 0.05$; ** $p < 0.01$
Including control variables (population size, poverty rate, and gender diversity)

In a similar vein, stepwise regression analysis shows the robustness of the combinations of variables that would best predict financial performance (Equation 5.2), as shown in Table 5.5 above. There are six models of equations based on stepwise regression analysis. In the first step or model, internal control is the single most predictive variable for financial performance (R^2 = .216, F (1,123) = 33.879, $p < .001$). This result means that the variable of internal control accounts for 21.6% of the variation of financial performance. Internal control significantly predicts financial performance (β = .465, $p < 0.01$). In the second model, two variables in combination are predictors of variance in financial performance: internal control and population size (R^2 = .359, F (2,122) = 34.233, $p < .001$). Internal control and population size significantly predict financial performance (respectively, β = .392, $p < 0.01$; β = -.386, $p < 0.01$). The third model of the stepwise multiple regression analysis presents that three variables in combination are predictors of variance in financial performance: internal control, population size, and accountability (R^2 = .430, F (3,121) = 30.429, $p < .001$). The fourth and fifth models of the stepwise regression indicate the predictors

explain 46.9% and 49.9% of variance in financial performance respectively (respectively, $R^2 = .469$, $F(4,120) = 26.539$, $p < .001$; $R^2 = .499$, $F(5,119) = 23.708$, $p < .001$). The final model of the stepwise multiple regression analysis constitutes the best fit model that indicates the six variables in combination are predictors of variance in financial performance: internal control, population size, accountability, financial transparency, gender diversity, and poverty rate ($R^2 = .518$, $F(6,118) = 21.119$, $p < .001$). The final model of the stepwise multiple regression analysis shows the best-fit combination of independent variables as its model has the greatest variance in financial performance. The higher R square indicates the best-fit model of the regression equation since it measures the percentage of variation of the dependent variable (Studenmund 2014). Internal control, population size, accountability, financial transparency, gender diversity, and poverty rate significantly predict financial performance (respectively, $\beta = .196$, $p < 0.05$; $\beta = -.315$, $p < 0.01$; $\beta = .235$, $p < 0.01$; $\beta = .214$, $p < 0.01$; $\beta = .178$, $p < 0.01$; $\beta = -.143$, $p < 0.05$).

Based on the robustness checks discussed in previous paragraphs, there are no different results from the primary findings that predict a significant relationship between public sector governance (financial transparency, accountability, and internal control) and service and financial performance. These findings indicate that Hypotheses 1, 2, and 3 are accepted after including population size, poverty rate, and gender diversity as control variables. The improvement of the public sector governance of local governments leads to the enhancement of the service and financial performance of local governments.

Likewise, Table 5.6 below shows the robustness check of the Equation 5.3. The results of robustness check show that financial flexibility is the single most predictive

variable for service performance (R^2 = .139, F (1,123) = 19.818, p < .001). This result means that the variable of financial flexibility accounts for 13.9% of the variation of service performance. Financial flexibility significantly predicts service performance (β = .373, p < 0.01). In the second model, two variables in combination are predictors of variance in service performance: financial flexibility and financial independence (R^2 = .196, F (2,122) = 14.872, p < .001). Financial flexibility and financial independence significantly predict service performance (respectively, β = .294, p < 0.01; β = .252, p < 0.01). The final step of the stepwise multiple regression analysis constitutes the best fit model that indicates three variables in combination are predictors of variance in service performance: financial flexibility, financial independence, and resource management (R^2 = .239, F (3,121) = 12.644, p < .001). Financial flexibility, financial independence, and resource management significantly predict service performance (respectively, β = .197, p < 0.05; β = .236, p < 0.01; β = .231, p < 0.01).

Table 5.6: Stepwise Multiple Regression Analysis of Financial Management Factors on Service and Financial Performance

Independent Variables	Service Performance									Independent Variables	Financial Performance																	
	Model 1			Model 2			Model 3				Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
	B	SE	β	B	SE	β	B	SE	β		B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Financial Management Factors:																												
- Financial Flexibility	.146	.033	.373**	.115	.033	.294**	.077	.036	.197*	Financial Independence	.211	.035	.474**	.195	.031	.439**	.170	.029	.381**	.148	.029	.332**	.144	.029	.323**	.140	.029	.314**
- Financial Independence				.125	.042	.252**	.117	.041	.236**	Population Size				-.043	.007	-.424**	-.037	.007	-.360**	-.037	.007	-.365**	-.035	.007	-.340**	-.032	.007	-.316**
- Resource Management							.022	.009	.231**	Resource Management							.028	.006	.320**	.021	.006	.236**	.021	.006	.238**	.021	.006	.245**
										Financial Flexibility										.074	.025	.210**	.066	.025	.189**	.068	.025	.193**
										Poverty Rate													-.216	.095	-.145*	-.222	.093	-.149*
										Gender Diversity																.196	.095	.129*
R^2	.139			.196			.239			R^2	.224			.403			.497			.530			.550			.566		
Sig.	.000			.000			.000			Sig.	.000			.000			.000			.000			.000			.000		

Note: * $p < 0.05$; ** $p < 0.01$

Including control variables (population size, poverty rate, and gender diversity)

This study also presents the robustness checks of Equation 5.4, as shown in Table 5.6. Table 5.6 above shows that there are six models of regression equations. The first model indicates that financial independence is the single most predictive variable for financial performance (R^2 = .224, F (1,123) = 35.573, p < .001). This

result means that the variable of financial independence accounts for 35.6% of the variation of financial performance. Financial independence significantly predicts financial performance (β = .474, $p < 0.01$). In the second model, two variables in combination are predictors of variance in financial performance: financial independence and population size (R^2 = .403, F (2,122) = 41.117, $p < .001$). Financial independence and population size significantly predict financial performance (respectively, β = .439, $p < 0.01$; β = -.424, $p < 0.01$). The third model of the stepwise multiple regression analysis shows that three variables in combination are predictors of variance in financial performance: financial independence, population size, and resource management (R^2 = .497, F (3,121) = 39.869, $p < .001$). The fourth and fifth models of the stepwise regression indicate the predictors explain 53% and 55% of variance in financial performance (respectively, R^2 = .530, F (4,120) = 33.88, $p < .001$; R^2 = .550, F (5,119) = 29.097, $p < .001$). The final model of the stepwise multiple regression analysis constitutes the best fit model that indicates the six variables in combination are predictors of variance in financial performance: financial independence, population size, resource management, financial flexibility, poverty rate, and gender diversity (R^2 = .566, F (6,118) = 25.642, p < .001). The final model of the stepwise multiple regression analysis shows the best-fit combination of independent variables as its model has the greatest variance in financial performance. Thus, the models of stepwise wise regression show the same findings as the primary models, which support Hypotheses 4, 5, and 6. These findings show that if financial management factors (financial flexibility, financial independence, and resource management) are strengthened, local governments' service and financial performance will be enhanced.

The second type of robustness check is Monte Carlo Simulation developed by MacKinnon, Lockwood, and Williams (2004). This second type of robustness check aims to examine the certainty of Equation 5.5. and 5.6, which investigate the mediation role of financial performance on service performance. Regarding the Monte Carlo test, this study applies the web-based calculator of Monte Carlo Simulation (Preacher 2012; Lachowicz, Preacher, and Kelley 2018). The R version 3.4.4 is generated as a free and open-source statistical computing software to conduct Monte Carlo Simulation (Lachowicz, Preacher, and Kelley 2018). The Monte Carlo approach is comparable with other methods for constructing the confidence intervals of the mediation effects (Preacher and Selig 2012; Zhang 2014).

Table 5.7 below shows that there is a significant mediating effect of financial performance on the relationship between public sector governance (financial transparency, accountability, and internal control) and service performance since zero is not found in the lower and upper levels (respectively, 95%CI= .0062 to .1097; 95%CI= .0133 to .1772; 95%CI= .0025 to .0637). Likewise, Table 5.7 below indicates the mediating role of financial performance on the relationships between financial management factors (financial flexibility, financial independence, and resource management) and service performance. Based on the Monte Carlo simulation, the lower and upper levels of confidence intervals of financial flexibility, financial independence, and resource management are statistically different from zero (respectively, 95%CI= .0018 to .0492; 95%CI= .0065 to .0886; 95%CI= .0001 to .0144). These results indicate that the Monte Carlo findings are the same as the primary findings, and Hypothesis 7 is accepted.

Table 5.7: Monte Carlo Simulation of the Indirect Effects of Financial Performance on Service Performance

Dependent Variable	Independent Variables	95% Confidence Interval	
		LL	UP
Service Performance	**Public Sector Governance:**		
	- Financial Transparency	.0062	.1097
	- Accountability	.0133	.1772
	- Internal Control	.0025	.0637
	Financial Management Factors:		
	- Financial Flexibility	.0018	.0492
	- Financial Independence	.0065	.0886
	- Resource Management	.0001	.0144

8. Conclusion

This chapter presents the findings of the proposed hypotheses using the Statistical Package for Social Sciences version 24 (SPSS 24). The correlation tests, multiple regression analysis, and Bootstrapping method are used to test the study hypotheses. All the assumptions underlying the multiple regression analysis are met. Based on the correlation and the multiple regressions analysis results, it can be concluded that Hypothesis 1, 2, and 3, which predict a positive and significant impact of public sector governance (financial transparency, accountability, and internal control) on service and financial performance, are supported. It means that if public sector governance is strengthened, then financial and service performance will be enhanced. Additionally, this study found that an increase in financial management factors (financial flexibility, financial independence, and resource management) leads to an increase in financial and service performance. Thus, these findings are consistent with Hypotheses 4, 5, and 6.

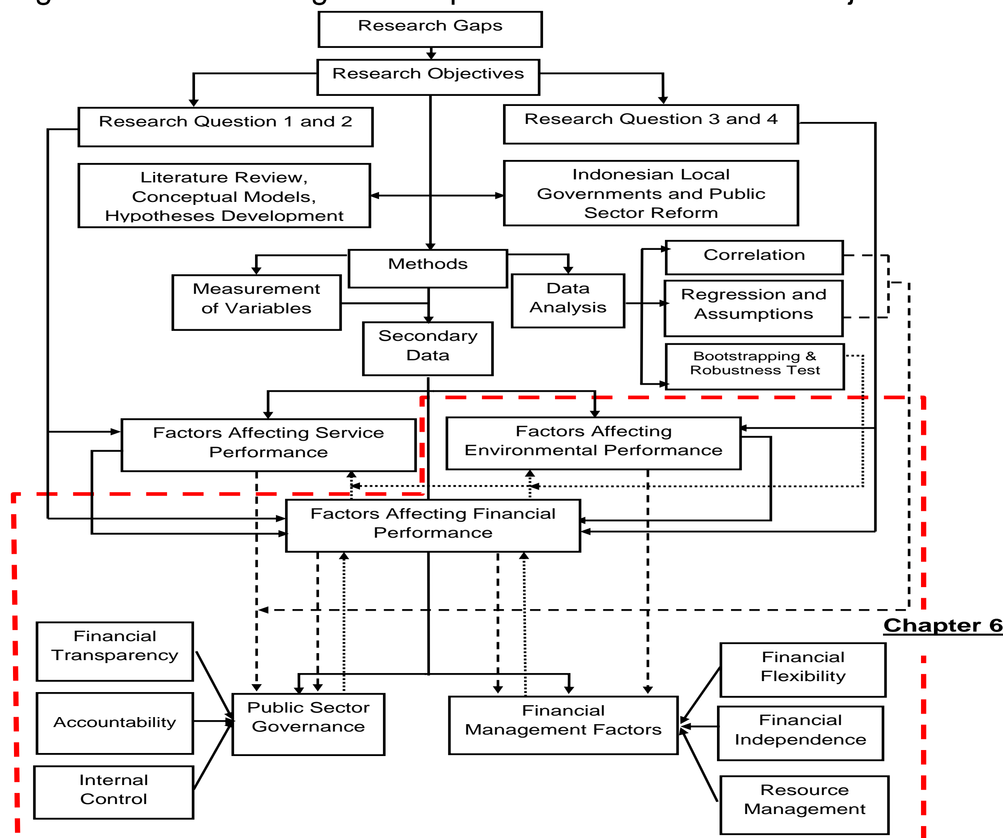
The findings of this study also support Hypotheses 7, suggesting that the effect of public sector governance and financial management factors on service performance is mediated by financial performance. This study generates stepwise regression and the Monte Carlo Simulation to strengthen the robustness of the analyses. The results show the same as the primary findings. The next chapter analyses the mediating role of financial performance on the relationship between of public sector governance, financial management factors, and environmental performance.

Chapter 6
Local Government's Environmental Performance: Hypotheses Testing

1. Introduction

In this chapter, data analysis and hypothesis testing are conducted to address two research questions. First, what are the influences of public sector governance and financial management factors on environmental performance? Second, are the relationships between public sector governance, financial management factors, and environmental performance mediated by financial performance? Validity and reliability tests are presented prior conducting data analysis to test the hypotheses related to the environmental performance. These tests aim to ensure how well and consistent the indicators of environmental performance used in this study. The linkage of Chapter 6 with the current research objectives are shown in Figure 6.1 below.

Figure 6.1: The Linkage of Chapter 6 with the Research Objectives



2. Descriptive Statistics and Correlations

The descriptive statistics of environmental performance variable shows that the skewness and kurtosis of environmental performance are -.352 and -.640, respectively. These results are within the acceptable limit (between -2 and +2). Mean and standard deviation of the environmental performance are .575 and .173 respectively. The relatively high standard deviation value shows that environmental performance has adequate variability in the data. Table 6.1 below shows Pearson's correlation matrix between public sector governance (financial transparency, accountability, internal control), financial management factors (financial flexibility, financial independence, resource management), and environmental performance. It is found that there is a positive and significant correlation between internal control, financial transparency, accountability, and environmental performance (respectively, $r = .409$, $p < 0.01$; $r = .411$, $p < 0.01$; $r = .371$, $p < 0.01$). These results show that the higher internal control, financial transparency, and accountability, the better the environmental performance of local government.

In respect to financial management factors, it is found that there is a positive and significant correlation between financial flexibility, financial independence, resource management, and environmental performance (respectively, $r = .378$, $p < 0.01$; $r = .368$, $p < 0.01$; $r = .347$, $p < 0.01$). These results indicate if financial flexibility, financial independence, and resource management exist, environmental performance is likely to be achieved. It is also found that financial performance is significantly and positively correlated with environmental performance ($r = .606$, $p < 0.01$). This result shows that if financial performance is strengthened, environmental

performance will be enhanced. Thus, it appears the probability of financial performance as a mediating variable.

Table 6.1: Pearson's Correlation Matrix

Group	Variables	Descriptive statistics							Correlations							
		Mean	Med.	SD	Min	Max	Sk.	Ku.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1. Environmental Performance	.575	.595	.173	.135	.881	-.352	-.640	1							
	2. Financial Performance	.329	.323	.081	.159	.566	.485	.150	$.606^{**}$	1						
Public Sector Governance	3. Financial Transparency	.192	.204	.112	.000	.425	-.003	-1.025	$.411^{**}$	$.462^{**}$	1					
Public Sector Governance	4. Accountability	.546	.546	.073	.316	.702	-.387	.529	$.371^{**}$	$.446^{**}$	$.401^{**}$	1				
Public Sector Governance	5. Internal Control	.508	.525	.186	.135	.854	-.079	-.923	$.409^{**}$	$.465^{**}$	$.509^{**}$	$.399^{**}$	1			
Financial Management	6. Financial Flexibility	.495	.488	.231	.000	1.000	.040	-.731	$.378^{**}$	$.447^{**}$	$.360^{**}$	$.370^{**}$	$.371^{**}$	1		
Financial Management	7. Financial Independency	.463	.474	.182	.001	.952	.006	-.045	$.368^{**}$	$.474^{**}$	$.304^{**}$	$.357^{**}$	$.388^{**}$	$.310^{**}$	1	
Financial Management	8. Resource Management	2.56	2.500	.928	1.000	4.000	-.024	-.991	$.347^{**}$	$.472^{**}$	$.292^{**}$	$.295^{**}$	$.285^{**}$	$.442^{**}$	$.196^{*}$	1

N= 125; Med. = Median; SD = Standard Deviation; Min. = Minimum; Max. = Maximum; Sk. = Skewness; Ku. = Kurtosis
* $p < 0.05$; ** $p < 0.01$

3. Multiple Regression Analysis

The multiple regression analysis is applied to test the prediction level of financial transparency, accountability, internal control, financial flexibility, financial independence, resource management on environmental performance. Population size (measured by taking natural logarithm), poverty rate, and gender diversity are included as control variables. This study uses Bootstrapping approach generated by PROCESS macro to test the mediating effects of financial performance on environmental performance (Hypotheses 8). The assumptions of the OLS regression analysis are conducted to draw a valid interpretation and avoid the distortion of regression analysis.

3.1 Effects of Public Sector Governance on Environmental Performance

Hypothesis 1, 2, and 3 predict that public sector governance represented by financial transparency, accountability, and internal control has positive effects on

environmental performance. Multiple regression analysis is conducted after controlling for population size, poverty rate, and gender diversity to test the effects of financial transparency, accountability, and internal control on environmental performance. Population size, poverty rate, and gender diversity are included in the analysis since prior literature suggested that those variables would likely influence the environmental performance of organisations (Asadi et al. 2008; Gorenflo et al. 2011; Asteria, Brotosusilo, and Apriana 2018; He and Jiang 2019).

The values for Centered Leverage and Cook's Distance of Equation 6.1 are less than one and close to zero. These results indicate that the outliers do not have any influences on Equation 6.1. The regression model (Equation 6.1) has no evidence of multicollinearity since the VIF value of the regression model is considerably less than the generally accepted maximum level of 10 (Allen, Bennett, and Heritage 2019). There is no autocorrelation since the Durbin Watson value of Equation 6.1 (d = 1.887) is between 1 and 3, which is considered an acceptable level. The Kolmogorov-Smirnov test indicates that the assumption of normality of residuals is fulfilled since the *p*-value is .200, which is higher than 0.05 (Drezner, Turel, and Zerom 2010; Ghozali 2016). The assumption of linearity and homoscedasticity of Equations 5.1 and 5.2 are also fulfilled because the scatterplot of the standardised residual graph of both models is scattered (Hair, Black, and Babin 2010; Garson 2012). Based on these analyses, the regression model of Equation 6.1 meets the assumptions of ordinary least squares (OLS) regression analysis.

Table 6.2: The Effects of Public Sector Governance on Environmental Performance

Independent Variables	Environmental Performance		
	B	SE	β
Public Sector Governance:			
- Financial Transparency	.386	.147	.250*
- Accountability	.421	.209	.178*
- Internal Control	.207	.090	.222*
Control Variables:			
- Population	-.024	.018	-.109
- Poverty Rate	.458	.260	.144
- Gender Diversity	.092	.263	.028
R^2	.281		
Sig.	.000		

Note: * $p < 0.05$; ** $p < 0.01$

EP= .371 + .250FT + .178AC + .222IC - .109Pop + .144Pov + .028Gdr (Equation 6.1)
EP = environmental performance; FT = financial transparency; AC = accountability; IC = internal control; Pop = population size; Pov = poverty rate; Gdr = gender diversity

In combination, financial transparency, accountability, internal control, and control variables accounted for a significant 28.1% of the variability in environmental performance (R^2 = .281, F (6,118) = 7.673, *p* < .001), as shown in Table 6.2. Financial transparency, accountability, and internal control significantly predict environmental performance (respectively, β = .250, *p* < 0.05; β = .178, *p* < 0.05; β = .222, *p* < 0.05). The positive sign means that an increase in the coefficient of financial transparency, accountability, and internal control by one-unit leads to an increase of .250, .178, and .222 in the environmental performance respectively, while other variables held constant. Thus, it can be concluded that the hypotheses H1, H2, and H3 are accepted.

3.2 Effects of Financial Management on Environmental Performance

Table 6.3 below shows that the regression model of Equation 6.2 has no evidence of multicollinearity because the VIF values of the model range from 1.041 to 1.354, which are considerably less than the generally accepted maximum level of 10 (Allen, Bennett, and Heritage 2019). Also, there is no autocorrelation since the Durbin Watson value of the regression model (*d* = 2.082) is considered acceptable, in a

range between 1 and 3 (Field 2013). Kolmogorov-Smirnov test indicates that the assumption of normality of residuals has been fulfilled since the *p*-value is .200, which is higher than 0.05. The assumptions of linearity and homoscedasticity are fulfilled as the scatterplot of the standardised residual graph of this model are scattered (see Appendix). Thus, the regression model of the Equation 6.2 meets the assumptions of OLS regression analysis.

Financial flexibility, financial independence, resource management, and control variables in combination accounted for a significant 27.1% of the variability in environmental performance (R^2 = .271, F (6,118) = 7.307, p < .001). It is found that financial flexibility, financial independence, and resource management significantly predict environmental performance (respectively, β = .227, p < 0.05; β = .269, p < 0.01; β = .179, p < 0.05). The positive sign means that an increase in the coefficient of financial flexibility, financial independence, and resource management by one unit leads to an increase of .227, .269, and .179 in environmental performance, respectively, while other variables held constant. Based on the aforementioned hypotheses testing, the study's findings show the empirical support for hypotheses H4, H5, and H6.

Table 6.3: Multiple Regression Analysis of Financial Management Factors on Environmental Performance

Independent Variables	Environmental Performance		
	B	SE	β
Financial Management Factors:			
- Financial Flexibility	.170	.069	.227*
- Financial Independence	.256	.079	.269**
- Resource Management	.034	.017	.179*
Control Variables:			
- Population	-.027	.018	-.126
- Poverty Rate	.399	.258	.126
- Gender Diversity	-.087	.262	-.027
R^2	.271		
Sig.	.000		

Note: * p < 0.05; ** p < 0.01

EP= .640 + .227FF + .269FI + .179RM - .126Pop + .126Pov - .027Gdr (Equation 6.2)

EP = environmental performance; FF = financial flexibility; FI = financial independence; RM = resource management; Pop = population size; Pov = poverty rate; Gdr = gender diversity

4. The Mediating Role of Financial Performance on Local Government's Environmental Performance

Table 6.4 below presents the mediating effects of financial performance on environmental performance. This study found that the outliers do not have any influence on Equations 6.3 and 6.4 because the values for Centered Leverage and Cook's Distance of both equations are less than one and close to zero. The Equation 6.3 and 6.4 have no evidence of multicollinearity as the VIF values of the models range between 1.041 and 2.074, which are less than the generally accepted maximum level of 10. There is no autocorrelation as well since the Durbin Watson values of Equation 6.3 (d = 1.8), and Equation 6.3 (d = 2.082) are considered an acceptable level. Kolmogorov-Smirnov test indicates that the assumption of normality of residuals has been fulfilled since the p-value is .200, which is higher than 0.05. In combination, the independent variables of Equation 6.3 and 6.4 after including control variables account for a significant 46.2% and 27.1% of the variability in environmental performance (respectively, R^2 = .462, F (7,117) = 14.353, p < .001; R^2 = .271, F (7,117) = 7.307, p < .001).

Table 6.4: Mediating Role of Financial Performance on Environmental Performance (β, 95% CI). Standardised Coefficients Results

Dependent Variable	Independent Variables	*a* path	Indirect effect (*ab*)	*c* path (total effect)	*c'* (direct effect
Environmental Performance	**Public Sector Governance:**				
	- Financial Transparency	.2145 (.0437, .2667)	.1315 (.0498, .2182)	.2499 (.0953, .6775)	.1183 (-.0779, .4439)
	- Accountability	.2355 (.1022, .4197)	.1444 (.0570, .2382)	.1779 (.0068, .8357)	.0334 (-.2966, .4550)
	- Internal Control	.1963 (.0179, .1536)	.1204 (.0277, .2176)	.2216 (.0297, .3846)	.1012 (-.0635, .2528)
	Total model	R^2 = .462, F (7, 117) = 14.353, p < .001			
	Financial Management Factors:				
	- Financial Flexibility	.1935 (.0189, .1170)	.1238 (.0127, .2285)	.2268 (.0343, .3063)	.1030 (-.0452, .1999)
	- Financial Independence	.3139 (.0830, .1963)	.2008 (.1029, .3283)	.2688 (.0987, .4125)	.0680 (-.0856, .2149)
	- Resource Management	.2448 (.0094, .0334)	.1566 (.0813, .2419)	.1793 (.0003, .0667)	.0227 (-.0263, .0347)
	Total Model	R^2 = .271, F (7, 117) = 7.307, p < .001			

All paths are included control variables (population size, poverty rate, and gender diversity)

EP= -.163+ .118FT+ .033AC+ .101IC+ .613FP+ .084Pop+ .232Pov- .081Gdr (Equation 6.3)
EP= -.061+ .103FF+ .068FI+ .023RM+ .640FP+ .076Pop+ .221Pov- .109Gdr (Equation 6.4)
EP = environmental performance; FT = financial transparency; AC = accountability; IC = internal control; FP = financial performance; Pop = population size; Pov = poverty rate; Gdr = gender diversity; FF = financial flexibility; FI = financial independence; RM = resource management.

In this study, the mediating role of financial performance on environmental performance is presented in two parts. The first part investigates the mediation effects of financial performance on the relationships between public sector governance (financial transparency, accountability, and internal control) and environmental performance (Equation 6.3). Table 6.4 above presents that there is a significant total effect of financial transparency (β = .2499, 95%CI = .0953 to .6775), accountability (β = .1779, 95%CI = .0068 to .8357), and internal control (β = .2216, 95%CI = .0297 to .3846) on environmental performance. As explained in the previous chapter, the total effect is the effect of an independent variable on a dependent variable when the mediating variable is not present in the model. The total effects of the internal control, financial transparency, and accountability on environmental performance are statistically significant after including control variables because 95% bootstrap confidence intervals are entirely above zero. These findings indicate that the increased financial transparency, accountability, and internal control lead to higher environmental performance after including control variables.

Table 6.4 above shows the direct effects of financial transparency, accountability, and internal control on environmental performance. The direct effect is the effect of an independent variable on a dependent variable when the mediator variable is included in the model. After including financial performance in the models, the direct effect of financial transparency (β = .1183, CI = -.0079 to .4439), accountability (β = .0334, CI = -.2966 to .4550), and internal control (β = .1012, CI = -.0635 to .2528) on environmental performance is positive. These results show that if a local government has a higher level of financial transparency, accountability, and internal control than another local government, but they achieve equal financial performance level, then

the local government is estimated to be .118, .033, and .101 units higher in environmental performance than another local government respectively. However, the direct effect of financial transparency, accountability, and internal control on environmental performance is insignificant since the bootstrapped confidence intervals contain zero.

Likewise, Table 6.4 above shows the indirect effects of financial performance on environmental performance. It is found that financial performance mediates the relationship between financial transparency and environmental performance after including control variables indicated by the lower level and upper level of 95% confidence intervals. Zero is not found in the lower level and upper level of 95% confidence intervals of financial transparency (β = .1315, 95%CI = .0498 to .2182). The positive sign indicates that the environmental performance increases by .1315 units indirectly through financial performance for every unit increase in financial transparency. Likewise, zero does not occur between the lower level and upper level of 95% confidence intervals for indirect effects of accountability (β = .1444, 95%CI = .0570 to .2382) and internal control (β = .1204, 95%CI = .0277 to .2176) on environmental performance. These results indicate that the environmental performance increases by .1444 and .1204 units indirectly through financial performance for every unit increase in accountability and internal control, respectively.

The second part of the mediation analysis investigates the mediation effects of financial performance on the relationships between financial management factors (financial flexibility, financial independence, and resource management) and environmental performance after controlling for population size, poverty rate, and

gender diversity (Equation 6.4). Table 6.4 above presents that there are significant total effects of financial flexibility (β = .2268, 95%CI = .0343 to .3063), financial independence (β = .2688, 95%CI = .0987 to .4125), and resource management (β = .1793, 95%CI = .0003 to .0667) without the influence of the mediator variable on environmental performance after including the control variables. The total effects of financial flexibility, financial independence, and resource management on environmental performance are statistically significant since 95% bootstrap confidence intervals are entirely above zero. Thus, an increase in financial flexibility, financial independence, and resource management leads to the improvement of environmental performance.

Table 6.4 above also presents the direct effects of financial flexibility, financial independence, and resource management on environmental performance after including control variables and the mediator. The financial performance as a mediating variable and control variables are included in the model to measure the direct effect. The direct effect of financial flexibility (β = .1030, CI = -.0452 to .1999), financial independence (β = .0680, CI = -.0856 to .2149) and resource management (β = .0227, CI = -.0263 to .0347) on environmental performance is positive. These results show that if the local government 'X' has a higher level of financial flexibility than other local governments, but the local government 'X' and the other local governments have equal financial performance level, then the local government 'X' is estimated to be .103 units higher in environmental performance than the other local governments respectively. However, the direct effect of financial flexibility, financial independence, and resource management on environmental performance is insignificant since the bootstrapped confidence intervals contain zero.

Similarly, Table 6.4 above presents that there are the indirect effects of financial flexibility (β = .1238, 95%CI = .0127 to .2285), financial independence (β = .2008, 95%CI = .1029 to .3283), and resource management (β = .1566, 95%CI = .0813 to .2419) on environmental performance via financial performance after including control variables. The indirect effect of financial flexibility, financial independence, and resource management on environmental performance is indicated by the lower and upper-level values that are above zero. The positive sign of the mediating effect of financial performance indicates that the environmental performance increases by .1238, .2008, .1566 units indirectly through financial performance for every unit increase in financial flexibility, financial independence, and resource management, respectively. Thus, these findings provide support for Hypothesis 8, suggesting that the effect of financial transparency, accountability, and internal control on environmental performance is mediated by financial performance after including control variables.

5. Robustness Checks

This study employs two types of robustness checks. First, the robustness of the models developed in this study are checked by stepwise regression analysis. The stepwise regression analysis investigates which variables' combinations would best predict environmental performance (Equation 6.1 and 6.2). As shown in Table 6.5 below, there are three models of equations based on the stepwise regression. The first model presents that financial transparency is the single most predictive variable for environmental performance (R^2 = .169, F (1,123) = 24.967, p < .001). This result shows that the variable of financial transparency accounts for 16.9% of the variation of environmental performance. In the second model, in combination, financial

transparency and internal control account for a significant 22.3% of the variability in environmental performance (R^2 = .223, F (2,122) = 17.485, p < .001). Financial transparency and internal control significantly predict environmental performance (respectively, β = .273, p < 0.01; β = .270, p < 0.01). The final step of the stepwise multiple regression analysis constitutes the best fit model that indicates three variables in combination are predictors of variance in environmental performance: financial transparency, internal control, and accountability (R^2 = .253, F (3,121) = 13,638, p < .001). Financial transparency, internal control, and accountability significantly predict environmental performance (respectively, β = .221, p < 0.05; β = .219, p < 0.05; β = .195, p < 0.05). Thus, the results of the robustness checks show the same as the primary findings, which predict a relationship between financial transparency, accountability, internal control, and environmental performance. If the internal control of local governments is improved, then the environmental performance of local governments will be enhanced.

Table 6.5: Stepwise Multiple Regression Analysis of Public Sector Governance on Environmental Performance

Independent Variables	Environmental Performance								
	Model 1			Model 2			Model 3		
	B	SE	β	B	SE	β	B	SE	β
Public Sector Governance:									
- Financial Transparency	.635	.127	.411**	.422	.143	.273**	.342	.146	.221*
- Internal Control				.253	.087	.270**	.205	.088	.219*
- Accountability							.461	.210	.195*
R^2	.169			.223			.253		
Sig.	.000			.000			.000		

Note: * p < 0.05; ** p < 0.01

Table 6.6 below shows the results of the robustness checks of Equation 6.2. It is found that financial flexibility is the single most predictive variable for environmental performance (R^2 = .143, F (1,123) = 20.546, p < .001). This result means that the variable of financial flexibility accounts for 14.3% of the variation of environmental

performance. Financial flexibility significantly predicts environmental performance (β = .378, $p < 0.01$). In the second model, two variables in combination are predictors of variance in environmental performance: financial flexibility and financial independence (R^2 = .213, F (2,122) = 16.498, $p < .001$). Financial flexibility and financial independence significantly predict environmental performance (respectively, β = .292, $p < 0.01$; β = .278, $p < 0.01$). The final step of the stepwise multiple regression analysis constitutes the best fit model that indicates three variables in combination are predictors of variance in environmental performance: financial flexibility, financial independence, and resource management (R^2 = .246, F (3,121) = 13.182, $p < .001$). Financial flexibility, financial independence, and resource management significantly predict environmental performance (respectively, β = .206, $p < 0.05$; β = .264, $p < 0.01$; β = .204, $p < 0.05$). Thus, it can be concluded that the stepwise regression analysis shows the same findings as the primary models.

Table 6.6: Stepwise Multiple Regression Analysis of Financial Management Factors on Environmental Performance

Independent Variables	Environmental Performance								
	Model 1			Model 2			Model 3		
	B	SE	β	B	SE	β	B	SE	β
Financial Management Factors:									
- Financial Flexibility	.284	.063	.378**	.219	.063	.292**	.155	.068	.206*
- Financial Independence				.264	.080	.278**	.251	.079	.264**
- Resource Management							.038	.016	.204*
R^2	.143			.213			.246		
Sig.	.000			.000			.000		

Note: * p < 0.05; ** p < 0.01

The second type of robustness check is related to the Monte Carlo Simulation of the indirect effects of financial performance on environmental performance. The Monte Carlo Simulation is recommended to check the robustness of the mediation analysis (Rungtusanatham, Miller, and Boyer 2014; Schoemann, Boulton, and Short 2017;

Caron 2019). This study uses the web-based calculator of Monte Carlo Simulation provided as a free and open-source statistical computing software (Preacher 2012). Table 6.7 below shows that zero is not found in the lower level and upper level of 95% confidence intervals of internal control (95%CI= .0237 to .2142). This finding indicates a significant mediating effect of financial performance on the relationship between internal control and environmental performance. Similarly, the lower and upper-level values of financial transparency (95%CI= .0566 to .3755) and accountability (95%CI= .1260 to .5953) are above zero. The Monte Carlo simulation also presents that the lower and upper limit 95%CI of financial flexibility, financial independence, and resource management (respectively, 95%CI = .0257 to .1743; 95%CI = .1033 to .2973; 95%CI = 0109 to .0506) are above zero. These results indicate an indirect effect of financial flexibility, financial independence, and resource management on environmental performance via financial performance. Thus, it can be concluded that the Monte Carlo simulation has the same findings as the primary findings, and Hypothesis 8 is supported.

Table 6.7: Monte Carlo Simulation of the Indirect Effects of Financial Performance on Environmental Performance

Dependent Variable	Independent Variables	95% Confidence Interval	
		LL	UP
Environmental Performance	**Public Sector Governance:**		
	- Internal Control	.0237	.2142
	- Financial Transaprency	.0566	.3755
	- Accountability	.1260	.5953
	Financial Management Factors:		
	- Financial Flexibility	.0257	.1743
	- Financial Independence	.1033	.2973
	- Resource Management	.0109	.0506

6. Conclusion

To conclude, Hypotheses 1, 2, and 3 that predict a positive and significant impact of public sector governance represented by financial transparency, accountability, and internal control on environmental performance are supported after including control variables. These findings show that environmental performance will be enhanced if public sector governance is strengthened. Additionally, this study found that an increase in financial management factors (financial flexibility, financial independence, and resource management) leads to improved environmental performance. Thus, these findings support Hypotheses 4, 5, and 6. Concerning the mediating effects of financial performance, the findings of this study support Hypothesis 8, suggesting that public sector governance and financial management factors have indirect effects on environmental performance via financial performance. The robustness checks also provide the same results as the primary findings. The next chapter presents a discussion of the study.

Chapter 7
Discussion and Conclusion

1. Introduction

This study investigates the relationships between public sector governance, financial management factors, and public service and environmental performance of local government. This study also sought to critically investigate the mediating role of financial performance on public service and environmental performance. The drawing on the institutional theory, this study shows that central government has taken active steps to improve public sector governance and financial management of local governments in Indonesia. This has occurred through the enactment by central government of several regulations, including Indonesian Government Regulation 61/2010, Presidential Regulation 29/2014, Government Regulation 60/2008, Indonesian Law 33/2004, and Law 23/2014, as discussed in Chapter 2. Based on these regulations, the central government has potential coercive power over local governments. There is no market competition within local governments in Indonesia, and this contributes to local governments tending to be highly homogenous in their approaches, without incentive to innovate, be flexible, or strive for excellence of public service delivery. Instead, they tend to simply follow standards, processes, and activities as stated by central government. All subnational governments in Indonesia also still depend heavily on central government for financial resources and awards (Akbar, Pilcher, and Perrin 2012), as discussed in more detailed in the following subsections related to the findings of the study.

2. Service Performance of Local Government

As discussed in Chapter 5, financial transparency significantly predicted service performance, for local governments in Indonesia. It indicates that the more transparency a local government has, the better its service performance. The finding of the present study is in line with those of previous studies, which found that when the local governments provided public-sector financial information to communities, to facilitate monitoring of the local government educational programs, this led to an improvement in the quality of these programs (Reinikka and Svensson 2005; Alcaide Munoz, Rodriguez Bolivar, and Lopez Hernandez 2017; Bauhr and Carlitz 2020). Previous research has indicated that the facilitation of public participation in development planning is a strong example of transparency and an effective way to help meet public needs and expectations (Akbar et al. 2020). Our study’s findings align also with those of Bauhr and Carlitz (2020), who found a significant positive relationship between financial transparency of district-level governments in Vietnam, and the quality of their health and education programs.

An efficient tool to increase the financial transparency of local government is to conduct community-based monitoring of public service delivery. Indeed, the availability and accessibility accuracy of disclosure of financial information on local government websites are key components of financial transparency of local government, alongside overall availability and accessibility accuracy of disclosure of financial information. The aim of this requirement is to increase public trust and strengthen the relationship between the local government and communities; and in turn, increase local people's involvement in identifying and prioritising the community’s needs. According to the institutional theory, such disclosure of financial

information, constitutes a symbol of trust and modernity adopted by the public sector (Alcaide Munoz, Rodriguez Bolivar, and Lopez Hernandez 2017). Thus, it is expected that when local governments have high financial transparency, this will greatly increase the likelihood of high-quality public service which meets the public's needs.

With respect to accountability, this study also found that accountability significantly predicted service performance for local governments in Indonesia. It means that the more accountable a local government is, the better their service performance. This finding supports those of previous studies which have reported the positive impacts of accountability on public service performance (Kluvers 2003; Hwang 2013; Han and Hong 2016; Ardigó, Martinez, and Jackson 2019). For example, adequate accountability of public sector agencies in Pakistan has been shown to lead to improvements in waste management in that country (Rana et al. 2019). The present study also aligns with the findings of previous studies which have reported that accountability initiatives by government, such as public expenditure tracking surveys, citizen report cards, social audits, and monitoring of government activities by communities, lead to higher-quality health and educational services (Joshi 2013), and increased community satisfaction regarding the provision of public services (Abidin, Singaravello, and Zakaria 2015).

In contrast, low accountability by local government leads to lower quality of public service (Haryanto 2010). Some researchers have proposed that a lack of accountability by local governments may increase citizens' reluctance to pay taxes, given that they do not know what public services their taxes are supporting (Chigwende, Mukuze, and Musasa 2014). Without sufficient finances from taxes,

municipalities are unable to finance important public expenditures such as roads, waste disposal, domestic water supply, and health and education services. In an effort to increase the accountability of local governments, central governments tend to decentralise various responsibilities to lower-level governments. It is hoped that this will reduce unnecessary bureaucracy and increasing efficiencies, local relevance, and overall effectiveness of public services, to better meet local communities' needs (Uhaib and Djani 2018).

Central government's efforts to improve the accountability of local governments include the issuance of Presidential Regulation 29/2014, and the Regulation of the Ministry of Administrative and Bureaucratic Reform 25/2012 and 12/2015. Together these regulations direct all local governments in Indonesia to report on and publish relevant aspects of their activities and performance, such as their strategic plans, annual development programs, standard operating procedures for delivery of services and other processes, and annual performance reports, including progress towards stated goals. The implementation of these accountability measures is assessed by central government, and local governments which achieve adequate levels of organisational accountability will receive public sector awards from central government. Receipt of these awards is considered important for the heads of local government because the awards publicise their achievements regarding the building of public service accountability.

This study also found that internal control significantly predicted service performance for local governments in Indonesia. These findings align with those of previous studies which have reported that more effective internal control associates with better provision of public services (Coram, Ferguson, and Moroney 2006;

Muraleetharan 2011; Vijayakumar and Nagaraja 2012; Badara and Saidin 2013; Tolley, Ridwan, and Kasim 2017; Ong'unya and Abbey 2019). As argued by Nuswantara and Maulidi (2017), effective internal control is expected to improve public service performance because strong internal control reduces the risk of fraud and other corrupt or self-interested behaviour by public officials. Other recent research supports this proposition; for example Salin, Zakaria, and Nawawi (2018) report that fraud and other misuses of funds by public officials is facilitated by a lack of internal control (Salin, Zakaria, and Nawawi 2018). The establishment of mechanisms to ensure adequate internal control within local government is essential for effective implementation of development programs and overall provision of services. This will include effective monitoring and compliance efforts by heads of local government, who have responsibilities to ensure that all their employees follow organisational ethics and standard operating procedures and meet required competencies to perform their duties. It should also include effective capacity to monitor the decisions and actions of senior local government officials; for example, by an adequately resourced and preferably independent 'watch-dog' agency that has strong compliance powers, and by the community and wider public.

With respect to financial management, the present study found that financial flexibility of local governments significantly predicted service performance. The finding of the present study is consistent with those of previous studies (Rubio 2011; Soto, Farfan, and Lorant 2012). Research by Ma and Jin (2016) and Al-Slehat (2019) indicates that financial flexibility leads to better service performance in part by facilitating opportunities of investment, thereby generating economic and social benefits. Financial flexibility can not only generate additional local revenue for local government, it can also increase job opportunities and community well-being

(Kusmayadi 2015). Research by Fiona, Taufik, and Ratnawati (2016) showed that the financial capacity of local government was directly related to their capital expenditure to fulfil community needs. Likewise, a lack of financial flexibility by local government has been linked to difficulties with meeting community needs (Drew and Ryan 2016). Together this indicates that local government flexibility to raise local revenues and other financial resources is an important part of effective service delivery. Financial flexibility empowers the local governments to maintain a sufficient cash balance, which can in turn sustain the provisioning and quality of public services.

The present study also found that the financial independence significantly predicted service performance of local government. This finding aligns with those of Siregar and Pratiwi (2017) and Sri and Suyana (2019), which reported a positive effect of financial independence on service performance, as indicated by the Human Development Index (Niswaty, Manno, and Akib 2015; Sri and Suyana 2019). Similarly, research by Solechah (2013) reported that local governments' independence to manage their local budgets has a significant positive relationship with strong public service outcomes, especially the educational sector.

A range of different types of local revenue can be collected by local government, including from local taxes, retributions, licensing, and income from interest and sale of assets. This revenue can be generated at a relatively low cost, without burdening the private sector. Higher revenue will give local government more capacity to carry out regional developments and deliver services without depending on fiscal transfer from central government or support from other organisations. In contrast, local governments with low self-generation of revenue are more vulnerable (Králik 2019),

especially during financial crises, since they will depend on other resources, such as fiscal transfer and debts, to finance their local expenditures. This financial dependency will limit a local government's capacity and authority to manage its finances (Kotarba and Kolomycew 2014). Financial dependency by local government will increase the asymmetry of power between the of the organisations that are providing the funds, and the local government in question, which may increase the risk that the local government may need to meet the interests of the fund provider at the cost of optimal delivery of public services.

This study's findings also support research hypothesis H6; specifically, this study found that local government's resource management significantly predicted service performance. These findings align with those of previous research reporting that the achievement of budget targets has a positive impact on the efficiency and effectiveness of public service provision (Sarr 2015). Likewise, the present study's findings align with those of Arniwita et al. (2019), who found that budget realisation has a significant positive relationship with organisational performance.

Local governments must plan their expenditures and revenues accurately before the start of the fiscal year to achieve effective resource management. If local governments can achieve their revenue targets and have cash available, this will give them flexibility to deliver their public services appropriately. It is also important for local governments to conduct their public spending within appropriate timeframes, as timely budget spending stimulates local economies and the availability of services. In contrast, slower realisation of budgets may affect economic growth, especially during financial crises (Prasidya 2020), and may delay the procurement of public services; with risks that in the absence of adequate oversight and quality

control, local governments may deliver poor-quality works or services to meet time deadlines. When budget realisation by local government is too slow, this poses two risks; the risk of poorer-quality public services (in the absence of effective quality control), and the downsides of cash sitting idle and depreciating without being used (Abdurrohman and Marsus 2017; Erlina and Muda 2017).

Thus, it can be concluded that many previous studies found that public sector governance and financial management factors were associated with organisational performance in the context of developed countries. However, there has been little research into the relationship between public sector governance, financial performance, and public service performance in developing countries. Therefore, the findings of this current study about these relationships in the context of the Indonesian local governments add a valuable theoretical contribution to the public service performance research in developing countries.

3. Financial Performance of Local Government

This study found that each of the public sector governance measurements examined – financial transparency, accountability, and internal control – significantly predicted financial performance of local government. This finding aligns with those of previous studies (Alt and Lassen 2006; Montes, Bastos, and de Oliveira 2019), which have found that financial transparency contributes to fiscal performance as indicated by low public debt and deficit, with financial transparency enhancing fiscal discipline and facilitating the control of public expenditure. These findings align also with findings by Mashayekhi and Kalhornia (2016) that transparency of financial information leads to investment efficiency. The disclosure of financial reporting can improve decision-making and reduce the risk of under- or over-investment (Mashayekhi and Kalhornia

2016). Public sector transparency has also been found to have a positive effect on Foreign Direct Investment inflows, which are a valuable tool for local government to increase economic development (Seyoum and Manyak 2009) and financial stability (OECD 2003). Other studies have reported similarly that when local governments implement professional and transparent administrative services, there is an increase in the flow of international capital (Dorożyński, Dorożyńska, and Urbaniak 2014).

Financial transparency reduces the risk of fraud, other corruption, and financial scandals, as the public can monitor misuse of budgets and submit reports and complaints if they have concerns. This in turn encourages local governments to act with professionalism and integrity, and put their own monitoring in place to ensure they comply with regulations when undertaking their regional financial management.

Likewise, for local government in Indonesia, this study found that accountability significantly predicted financial performance. This finding aligns with those of the previous studies, which have reported that accountability plays an important role in maintaining financial efficiency in the public sector (Kluvers 2003; Kim and Lee 2010; Han and Hong 2016; Nasution 2018; Rana et al. 2019). The present study also aligned with findings by Nasution (2018) and Karim and Mursalim (2019) that accountability has a positive effect on the financial performance of local government. The higher the level of accountability of local government institutions, the lower the risk of misuse of finances (Sari, Arza, and Taqwa 2019). In contrast, a lack of financial accountability leads to reduced efficiency and effectiveness of financial management (Rabrenović 2007).

With respect to internal control, this study also found that internal control of local government significantly predicted financial performance. This finding aligns with those of earlier studies which have reported positive relationship between internal control and the financial performance of local government (Karim and Mursalim 2019). This finding also supports previous studies (Odoyo et al. 2013; Collins 2014; Channar, Khan, and Shakri 2015; Al-Thuneibat, Al-Rehaily, and Basodan 2015; Florio and Leoni 2017) that have reported positive effects of internal control on earnings, liquidity, return on assets, market value-added, and return on equity. Previous research has also reported that organisations without adequate internal control will face financial challenges (Gamage, Lock, and Fernando 2014).

This study's findings align also with those of Gololo (2018) and Chepsikor (2014), who have both reported that internal control has a positive effect on local government's financial management. Internal control preserves assets and efficiency, and facilitates the accuracy of accounting information (Adekola and Olayinka 2018). Local governments with effective internal control will have the capability to manage their local budgets efficiently, in turn facilitating financial solvency. Mature internal control is supported by well-qualified and experienced internal audit unit staff, who will monitor for compliance with policies and regulations and thereby reduce the risk of financial mismanagement. Sound financial management will, in turn, facilitate the attainment of development program targets and overall sound public service delivery.

Local governments in Indonesia use an electronic internal control system developed by the Finance and Development Supervisory Agency of Indonesia to evaluate and report on the implementation of internal control. This supervisory agency acts as a

representative of the central government has and is responsible for improving the effectiveness of internal control at the level of local government and other public institutions. The internal control units of local governments investigate and evaluate areas of financial management that are likely to have a significant influence on financial performance overall, such as local budgets and asset management. When internal control processes are conducted effectively, this facilitates the achievement of revenue and expenditure targets, and supports overall financial performance.

Similarly, this study found that each of the financial management factors examined – financial flexibility, financial independence, and resource management – significantly predicted financial performance of local government. This finding aligns with those of previous studies which have found that financial flexibility leads to higher levels of cash holdings as well as lower leverage ratios; which in turn supports effective financial performance within an organisation (Yung, Li, and Jian 2015; Embaye and Haile 2019). Likewise, the findings are aligned with previous research which has demonstrated a positive influence of financial flexibility on the organisation's value (Tobin's Q) (Bilyay-Erdogan 2020), as well as other measures of financial performance such as return of assets and return on equity (Embaye and Haile 2019).

When local governments have sufficient financial flexibility, this allows them to take advantage of investment opportunities to increase their local government revenues. They are also more likely to be able to finance their local expenditures without depending on external funds. As a result, they can maintain low levels of leverage, especially during financial crises. A low level of financial leverage is likely to give greater financial flexibility to generate revenue and improve financial performance overall (Embaye and Haile 2019). Financial flexibility is particularly useful during

financial crises because it can act as a buffer against high uncertainty and external financial constraints (Tran 2019). The availability of cash holdings alleviates the need for an organisation to become indebted to external institutions. For local governments, the higher their cash value, the lower their debt; with positive effects on both short- and long-term solvency.

Here again, this study found that financial independence of local government significantly predicted its financial performance. These findings align with those of previous studies which have reported the positive effects of financial independence on financial performance for local government (Antari and Sedana 2018, Ningrat and Supadmi 2019, Apridiyanti 2019, Yuliansyah, Susanti, and Yanti 2019, Prastiwi and Aji 2020). The findings of this study also align with prior studies which have shown that the fiscal independence of local government facilitates efficient spending (Geys, Heinemann, and Kalb 2010; Renyaan et al. 2012; Boetti, Piacenza, and Turati 2012). Financial independence is an important factor for local government to enable funding from local taxes and other local revenue generation, which can be used to finance local expenditures and meet the expectations and needs of local communities without excessive interference from external funding bodies.

As described above, the central government in Indonesia has enacted Laws 33/2004 and 23/2014, to support the autonomy and financial independence of local government to obtain their own local revenues and manage their financial resources. The financial independence of local governments is not absolute; the central government retains functional and fiscal relations with subnational governments; for example, to undertake fiscal transfers to manage financial inequities among local governments. With respect to resource management, this study found that for local

governments in Indonesia, local resource management significantly predicted financial performance. In this study, resource management refers to the capacity of local government, over a fiscal year, to ensure that their approved budget matches their budgetary target achievements for both revenues and expenditures. These findings align with those of prior studies which have reported a positive effect of revenue and expenditures target achievement on local governments' financial performance (Priagung, Sinoeraya, and Mafudi 2016). When revenue targets are achieved, local governments will have short- and long-term solvency to finance their local expenditures, which in turn leads to good financial performance. Likewise, when expenditure targets are met and not over-reached, the associated local budgets and cash holdings will have greater capacity to fulfil service delivery and community needs (Fajar and Arfan 2017). Local governments are encouraged to ensure that their budget targets are met on time (Priagung, Sinoeraya, and Mafudi 2016), to avoid the problem of 'idle cash' that might otherwise arise (Gunarto, Sentri, and Said 2018; Okoye et al. 2019).

Based on the abovementioned findings, it can be concluded that many prior studies found positive impacts of public sector governance and financial management factors on financial performance in the context of private sectors or developed countries. However, there are limited research found these relationships in the context of public sector in developing countries. Therefore, the findings of this current study about these relationships add to the existing knowledge in the areas of financial performance of the public sector in developing countries.

4. Mediating Role of Financial Performance on Service Performance

The relationship between accountability and service performance was likewise found to be mediated by financial performance. Here, local government accountability, for example, compliance with required standards, regulations, and laws, enables the government to maintain adequate financial performance and solvency, which in turn supports service performance. Finally, this study found that the relationship between internal control and service performance is also mediated by financial performance. Here, local governments with strong internal control tend to manage their finances well, which in turn facilitates effective public service performance. The necessity to improve, the internal control of local governments in Indonesia has been recognised by the central government. To this end, as described earlier, the central government has issued several regulations to encourage local governments to undertake effective internal control, which in turn should improve financial performance and ultimately service performance.

Together these findings suggest that local governments in Indonesia which have with high levels of financial transparency, accountability, and internal control will be more likely to deliver sound financial performance, with less risk of fraud and other mismanagement of funds. In turn, the sound financial performance should increase the local governments' capacity to provide effective public services (Batafor 2011; Tamawiwy, Sondakh, and Warongan 2016; Tampubolon 2019). In contrast, when local governments have poor financial performance, they face associated difficulties in to delivering their social, health, and economic development services (Bauducco, Bulíř, and Čihák 2011; Carlson, King, and Lewis 2011; Creel, Hubert, and Labondance 2015). This study's findings that financial performance can act as a

mediating variable between public sector governance (financial transparency, accountability, and internal control) and service performance are supported by previous research; a number of previous studies have described an indirect positive relationship between governance factors and organisational performance, through the mediating role of financial performance (Haryono and Paminto 2015; Purnomosidi et al. 2014; Afiani and Bernawati 2019; Fatimah, Mardani, and Wahono 2019; Suryaningtyas and Rohman 2019).

This study also found that for each of the financial management factors – financial flexibility, financial independence, and financial resource management – their relationship with service performance is mediated by financial performance. For example, when financial management is sound and local government has adequate cash holdings available, this can increase their short-term solvency, which can support the provision of public services. Similarly, adequate financial flexibility, financial independence, and achievement of budget targets will enable local government to raise local revenue, spend local expenditures, and manage their short- and long-term solvency as all of which are indicators of sound financial performance and which in turn increase the effectiveness of public service delivery.

Based on these findings, financial flexibility, financial independence, and effective management of financial resources assist with the achievement of revenue targets, which in turn supports the effective delivery of public services by local government. Therefore, financial performance mediates the relationships between each of these financial management factors (financial flexibility, financial independence, and resource management) and service performance. These findings align with those of the prior studies which have reported that when local governments have high levels

of financial flexibility and financial independence, this has a positive effect on their financial performance, and that this in turn improves their public service delivery to communities (Cantarero and Pascual 2008; Geys, Heinemann, and Kalb 2010; Rubio 2011; Soto, Farfan, and Lorant 2012; Meier, Bozec, and Laurin 2013).

Based on the abovementioned findings, it can be concluded that the previous studies have not investigated the mediating role of financial performance on public service performance. Therefore, the findings of this present study enrich the management accounting literature because this current study provides evidence of the relationship between public sector governance, financial management, and service performance through the mediating role of financial performance.

5. Environmental Performance of Local Government

For local government in Indonesia, financial transparency significantly predicted environmental performance: the more transparent the local government, the better its environmental performance. This finding aligns with previous studies which have shown a positive relationship between financial transparency and environmental performance (Bernauer and Koubi 2009; Halkos and Tzeremes 2014; Sahide et al. 2016). As one of the instruments of democracy, financial transparency has been found to have a significant positive effect on air quality (Bernauer and Koubi 2009) and is an important aspect of the sustainable management of forests (Wollenberg et al. 2006). The commitment of local governments to manage their local forests and environments sustainably faces many challenges, particularly given the influence of powerful developers and industries, which are reluctant to adopt sustainable development practices that they perceive may increase costs and reduce marginal net profits.

When local governments make their financial information readily available and accessible to the public, this can empower local communities and relevant stakeholders to monitor local governments' actions towards safeguarding the environment. The commitment of local government to protect the environment can only be assessed accurately by independent monitoring to check for compliance with environmental sustainability principles and practices in development programs and other initiatives; for example, programs focused on forest rehabilitation and revegetation, sustainable irrigation and water management, and environmental education initiatives in schools and communities are all programs that can help to support the environment. Transparency of financial information, for example, the timely and full publication of relevant information on the internet, facilitates this monitoring by local communities, non-governmental organisations, and other key stakeholders.

Here again, for local governments in Indonesia, this study found that accountability significantly predicted environmental performance: higher accountability meant better environmental performance. This finding aligns with those of previous studies which have reported the positive effects of accountability on environmental performance (Han and Hong 2016; Jeremiah 2018; de Silva, Yapa, and Vesty 2020). One author proposes that the influence of the accountability on environmental performance can be explained by Vroom’s Expectancy Theory, which states that rewards and punishments act as accountability drivers which influence personal behaviour and performance (Chinander 2001). This highlights the importance of the senior management in an organisation ensuring that all employees are familiar with environmental regulations, products and technologies, and that monitoring is effective to ensure compliance with requirements (Chinander 2001).

With respect to internal control, this study also found that for local governments in Indonesia, internal control significantly predicted environmental performance. This finding aligns with those of the prior studies which have reported that the higher the effectiveness of internal control, the higher the level of environmental sustainability (Enofe and Uwaifo 2016; Li et al. 2018; Liu 2018; Kareem, AlHassani, and Ali 2019). The findings align also with studies which have found that high-quality internal control has a significant positive effect the environmental performance of organisations as measured by environmental information disclosure (Huang and Huang 2020) and sustainable development (Li et al. 2018).

As discussed in Chapter 4, the enactment of Indonesian Law 23/2014 has increased the authority of local governments to manage forest use permits, mining land rent, and mining royalties. However, without effective oversight and management by higher authorities, In Indonesia (and elsewhere) this has led to increased misuse and destruction of forests and the environment, as local elites prioritise self-interest over sustainable environmental practices (Wollenberg et al. 2006; Saito-Jensen et al. 2015). Given these demonstrated and serious problems when local government autonomy is too great, local authorities need to be managed effectively, with sufficient monitoring and compliance efforts to avoid decisions and policies that do not align with environmental sustainability. In Indonesia, most deforestation and other destruction of natural resources is caused by the issuing of resource exploration permits that do not meet the requirements or standards of clean and clear exploration of business permits. Those tasked with issuing permits and making decisions often choose short-term self-interest (such as bribes or cronyism) over longer-term environmental public interest, unless an effective system is in place to

minimise this (Wollenberg et al. 2006; Saito-Jensen et al. 2015). Such a system must include both effective internal control by local government and effective independent oversight, as identified by Indonesian Government Regulation 60/2008 and Presidential Decree 9/2014.

Required elements of internal control for local government have been specified and mandated by central government (Government Regulation 60/2008, the President Decree 9/2014). As stated in these regulations, for effective internal control, local governments are obliged to develop (and follow) ethical and environmentally sustainable policies, guidelines and standards, with associated information systems and regular reviews of policies and guidelines. Local governments also need to develop effective mechanisms for risk analysis, communication, and monitoring, to ensure consistency of decisions and actions with environmentally sustainable development. Local governments are also required to support the inspectorates and the internal control task forces within local government units, who are tasked with working with the head of each local government to ensure good governance and environmentally sustainable development programs.

Likewise, this study found that each of the financial management factors significantly predicted environmental performance of local government. These findings align with those of previous studies, which found local governments with high levels of financial flexibility and financial independence are more likely to be concerned about environmental sustainability (García-Sánchez, Frías-Aceituno, and Rodríguez-Domínguez 2013; Alcaraz-Quiles, Navarro-Galera, and Ortiz-Rodríguez 2014; Zhang, Zhang, and Steklova 2020). Other recent research has proposed that when local governments are able to obtain financial resources in a timely manner, this

increases their opportunities to implement their environmental sustainability programs effectively (Zhang, Zhang, and Steklova 2020). Previous research has also identified the importance of the timely spending of budgets on environmental projects; it was found that for many major environmental problems in Indonesia, such as large-scale forest fires, governments did not respond in time to avert disaster; and one of the reasons was a lack of funds by local governments (Trinirmalaningrum et al. 2015).

To conclude, while previous research found that public sector governance and financial management factors in the private sector were positively related to environmental performance, the findings of this current study present a significant relationship between public sector governance, financial management, and environmental performance in the context of the Indonesian local governments. Thus, this present study adds to existing knowledge regarding environmental performance in the public sector.

6. Mediating Role of Financial Performance on Environmental Performance

This subsection investigates the mediating role of financial performance in the relationships between public sector governance (financial transparency, accountability, and internal control) and environmental performance. This study found that for each of the relationships of financial transparency, accountability, and internal control with environmental performance, the relationship was mediated by the local government's financial performance. Based on these findings, local governments with high levels of financial transparency, accountability, and internal control are more likely to deliver strong financial performances, and this in turn improves their ability to deliver environmentally sustainable public services.

These findings align with the concept of ‘Triple Bottom Line’ (Elkington 1998), which states that organisational performance should be measures not only by considering financial performance, but also social and environmental performance; often summarised as ‘profit, people and the planet’ or ‘the three pillars of sustainability’). The Triple Bottom Line model states that organisations should focus not only generating revenues, but also on performing both socially and environmentally; and that these three aspects of performance are often positively associated each other; for example, disclosure of financial information represents a commitment to both social and environmental responsibilities, which in turn reduces the risk that poor social or environmental outcomes will compromise future economic outcomes.

This study’s findings regarding the mediating role of financial performance on the relationships that financial transparency, accountability, and internal control each have with environmental performance also align with slack resources theory (Waddock and Graves 1997); which suggests that management of social and environmental needs is influenced by the availability of financial resources. These findings align with those of studies that have reported that financial performance and environmental performance are positively related (Orlitzky, Schmidt, and Rynes 2003; Al-Tuwaijri, Christensen, and Hughes Ii 2004; Salama 2005). In another study of the environmental performance of Czech pollution-emitting firms, sound financial performance was found to improve environmental performance; the authors stated that this is consistent with the proposal that greater financial liquidity increases capacity to invest resources in environmental management (Esty and Porter 2005). Likewise, this study's finding is commensurate with previous studies that found financial performance has a positive relationship with environmental performance. Good financial performance increases the ability to invest more resources in

alleviating pollution problems (Earnhart and Lizal 2006). Thus, higher levels of public sector governance by local governments will increase their capacity to improve their financial performance, which in turn can positively influence their environmental performance.

While this study identifies that for local governments in Indonesia, financial performance is a mediating variable in the relationships that financial transparency, accountability, and internal control have with environmental performance, it is critical to clarify that this research does not claim that financial performance is the only mediating variable. Nor does this research say anything about the relative influence of financial performance, compared with other mediating variables. Indeed, it is likely that other important mediating variables exist. For example, research across 40+ countries has revealed that at the national level, although a positive relationship exists between financial performance (using GDP) and various indicators of environmental performance, this relationship is not straightforward; and environmental performance is also influenced by a country's regulatory regime and its 'economic and social context', including its extent of good governance, civil and political liberties, and scientific and technological capacity (Esty and Porter 2005). These caveats do not, however, negate the finding that financial performance plays a mediating role on environmental performance.

Similarly, this study found that for each of these financial management factors, their relationship with service performance is mediated by financial performance. When the local government has appropriate financial flexibility, financial independence, and financial resource management, this can improve its financial capacity, which can in turn support their capacity to deliver effective environmental performance. Financial

flexibility and financial independence can enable local governments to raise and spend revenue and spend those revenues, and enhance their financial solvency, in turn increasing their capacity to undertake development programs that support environmental sustainability. Claims that organisations must make choose between financial performance and environmental performance are an example of a 'false dichotomy' (Aras and Crowther 2008) because financial performance can increase the opportunities of environmental sustainability programs (Wahba and Elsayed 2015); strong environmental performance is a factor in strong financial performance (Salama 2005), and likewise strong financial performance can improve environmental performance (Wahba and Elsayed 2015) as this study demonstrates.

Similar to the caveat mentioned earlier, while this study identifies that for local governments in Indonesia, financial performance is a mediating variable in the relationship between key financial management factors and environmental performance, it is critical to clarify that this research does not claim that financial performance is the only mediating variable. Nor does this research say anything about the relative influence of financial performance, compared with other mediating variables. As described above, research across a large number of countries has found that environmental performance at the national level is correlated with national wealth (GDP), but not always; and that environmental performance is also influenced by the effectiveness of environmental regulatory regimes, and by the extent of a country's civil and political liberties and scientific/technological capacities (Esty and Porter 2005). With these caveats, however, it remains clear that financial performance plays a mediating role on environmental performance.

While the previous research found a direct effect of financial performance on environmental performance, the findings of the present study contribute to the body of knowledge about the influences of public sector governance and financial management on the environmental performance of local governments through the mediating role of financial performance. Thus, this study is one of the first to have examined the mediating role of financial performance on environmental performance of local governments.

7. Theoretical and Practical Contributions of the Study

Scholars and practitioners have investigated the relationships between public sector governance, financial management factors, and service performance of the public sector in many developed countries. However, much less research into these relationships has been conducted in developing countries. Likewise, with much of the environmental performance literature focusing on the private sector, there remains a gap in research on environmental performance in the public sector, especially at the local-government level. This study addresses these gaps and adds to the existing knowledge in the areas of service and environmental performance of local governments in developing countries; by providing both theoretical and practical contributions. Details of these contributions are discussed in the following sections.

First, this study contributes to relevant theory by supporting the concept that institutional isomorphism acts as the underpinning framework to explain the practices of public sector governance (financial transparency, accountability, internal control), and financial management factors (financial flexibility, financial independence, and

resource management) in the public sector. This study's findings support those of previous researchers (e.g., Fogarty 1996; Modell 2001; Akbar, Pilcher, and Perrin 2012) that coercive isomorphism is a major factor influencing the implementation of public sector governance and financial management factors by local governments. There is no market competition within local governments in Indonesia; instead, local governments tend to prioritise organisational homogenisation, and try to maintain institutional legitimacy through political power and their compliance with regulations issued by central government.

A second contribution of this study to the theory is its contributions to support slack resources theory proposed by Waddock and Graves (1997), which suggests that organizational performance is influenced by the availability of financial resources. The availability of spare or 'slack' resources empowers local governments to invest more resources in improving organizational performance (Stanwick and Stanwick 1998; Earnhart and Lizal 2006; Qi et al. 2014). As previously mentioned, the empirical results show the mediating role of financial performance on the relationships between public sector governance, financial management factors, and service and environmental performance. These findings align with the previous studies that have reported the association between financial performance and environmental performance (Orlitzky, Schmidt, and Rynes 2003; Al-Tuwaijri, Christensen, and Hughes Ii 2004; Salama 2005); although in the former paper, the authors were interested in the potential influence of environmental performance on financial performance rather than vice versa.

A third contribution of this study is to contribute to the growing body of literature on public sector governance, and public financial performance, by performing a

simultaneous analysis of the effects of public sector governance (financial transparency, accountability, internal control) on the financial performance of local government. The study found that the disclosure of financial information via the internet is an effective and efficient tool to empower local communities in Indonesia to monitor local government budget processes. Specifically, in agreement with Benito and Bastida (2009) and Tejedo-Romero and de Araujo (2018), this financial transparency reduces the asymmetry of information between local government and the community. Moreover, this study supports the findings of Rabrenović (2007), Harrison and Horngren (2008), Kim and Lee (2010), and Han and Hong (2016) that financial transparency and accountability reduce the risk of corruption and other misuses of power and finances at local-government level, and improve local government efficiency, financial productivity, and overall effectiveness. This study also shows that internal control facilitates financial performance, for example by fostering efficient and effective revenue collection and expenditure while reducing financial mismanagement.

A fourth contribution of this study is to add to the body of knowledge regarding the relationships that key financial management factors – financial flexibility, financial independence, and financial resource management – have with financial performance for local governments in Indonesia. This study's findings suggest that local government capacity to preserve cash holdings can minimise their dependency on external institutions; and support Petkovska (2011) and Scutariu and Scutariu (2015), who suggest that adequate levels of local government autonomy are necessary to support their capacity to raise their own revenue and spend this revenue in ways that meet local community needs.

A fifth contribution of this study is to enrich the management accounting literature; as this study develops theoretical models which investigate the mediating effect of financial performance on the relationships between public sector governance, financial management factors, and service performance. Despite the hypothesised role of financial performance in mediating the relationships between public sector governance, financial management factors, and service performance, such hypotheses have not previously been tested empirically. This research provides empirical evidence of the relationships between, on the one hand, public sector governance, and key financial management factors, and service performance on the other hand; as well as empirical evidence of the mediating role of financial performance. This is a valuable theoretical contribution to the field of financial and service performance research.

A sixth contribution of this study is to add to the limited literature regarding environmental performance in the public sector. While many previous studies have investigated environmental performance in the private sector, including how public sector governance and financial management factors in the private sector are related to environmental performance, there has been little research into these relationships in the public sector. This study makes a useful contribution by presenting findings about these relationships in the context of the Indonesian public sector, with likely implications for our understanding of these relationships in local governments in other developing countries.

A seventh contribution of this study to the theory in this field is its contribution to understanding the relationships between public sector governance (financial transparency, accountability, and internal control), financial management factors

(financial flexibility, financial independence, and resource management), financial performance, and environmental performance. Although the variables of public sector governance, financial management factors, and financial performance are necessary components of sound environmental performance by local government, this study is one of the first to have investigated relationships among these variables, particularly in the context of a developing country. This study has also developed a theoretical model that explores the influences of multiple variables on the environmental performance of organisations through the mediating role of financial performance.

This study makes a practical contribution to efforts to improve government and corporate environmental performance, by highlighting the positive effects of public sector governance and financial management factors on financial performance and, thereby, increasing the capacity for sound environmental performance. This study demonstrates that strong financial performance can help to improve the environmental performance of local government, specifically when combined with adequate levels of financial transparency, accountability, internal control, financial flexibility, financial independence, and resource management.

Broadly, this study’s findings have direct practical applications for central government, policymakers, and local government authorities in developing countries to improve local governments' service and environmental performance. This study's findings indicate that to improve service and environmental performance, local government authorities should strengthen their public sector governance and financial management to strengthen their financial performance and, ultimately, their service and environmental performance. Sound financial performance should equate

to short- and long-term solvency and both budgetary and service-level solvency. This study proposes the central government policymakers should give local governments sufficient autonomy to raise local revenue without dependency on fiscal transfer from the central government; and this autonomy should always be made available in the context that local government authorities can demonstrate effective internal control and disclosure of financial information. This study's findings that high levels of internal control and disclosure of information make a positive impact on local government's performance have immediate practical applications for local governments, central governments, and the communities they serve.

8. Limitations of the Study

While This study's findings offer several theoretical and practical contributions to the field, as outlined above, these findings should be considered in the context of the study's limitations. One limitation is that this study's empirical analyses have been conducted using data from local governments in Indonesia. The findings may not be applicable to some other countries, depending on government and other contextual similarities and differences. A second potential limitation of this study is the use of cross-sectional data; due to data availability and time limitations, the study used data from a single year (2016), and therefore reflects a single point in time. It would be expected that as policies and other contextual factors change, so too may the findings. While using panel data or other longitudinal data would have provided a more nuanced understanding of the links between public sector governance (financial transparency, accountability, internal control), financial management factors (financial flexibility, financial independence, and resource management),

financial performance, and service and environmental performance, this was not feasible within the time constraints of PhD research.

A third limitation of this study is that time and funding constraints prevented the inclusion of both quantitative and qualitative research approaches. Using a combination of both quantitative and qualitative methods would have provided a greater understanding of the institutional constraints that influence local governments' ability to optimise their service and environmental performance. A final limitation of the study is suggested by the values of the R^2 in the models, which indicates the existence of other factors that are not identified or included in this study. It is important to recognise that other key explanatory variables are likely to be present that may influence service and environmental performance as indicated by the literature (e.g., Esty and Porter 2005). A larger study could identify additional potential factors and add them to the models to test their influence; however, this was not possible in this current research due to the time and funding constraints of PhD research.

9. Recommendations for Future Research

Several future research directions have been identified which could mitigate the limitations of this study and extend the research. First, it would be useful to test the theoretical models in other contexts – including contexts that are both like and different from the context of this research – to identify the extent to which this study's empirical insights may be relevant and applicable in other contexts. A second recommendation is to undertake a longitudinal study to investigate in more detail the short- and long-term effects of public sector governance, financial management

factors, and financial performance on service and environmental performance. Analysing the same set of samples over time would help to identify and understand any changes and patterns that occur over an extended period.

A third recommendation is that further research could include both quantitative and qualitative methodologies. The qualitative research could include in-depth semi-structured interviews with a wide range of government officials and other relevant stakeholders to examine the institutional and other constraints that influence local government's ability to provide effective service and environmental performance. Another recommendation is that future research could, first, identifies key strengths and weaknesses of local governments' financial, service, and environmental performance in a particular country or context, and use this information alongside other relevant information from peer-reviewed literature and other reliable sources to design and test a set of guidelines for effective local government performance. Finally, future studies could investigate other variables that may affect financial, service, and environmental performance; including, for example, innovation, managerial styles, and the sets of factors identified by previous research as being important for environmental performance at the national level, including the local regulatory regime and its economic and social context (Esty and Porter 2005).

10. Conclusions

This study is a contribution to the understanding of local government performance in a developing country: Indonesia. This conclusion section summarises the previous chapters, which have presented findings regarding the relationships between public sector governance (financial transparency, accountability, internal control), financial

management factors (financial flexibility, financial independence, and resource management), and the service and environmental performance, for local government in Indonesia. First, the literature review for this thesis identified and discussed existing gaps in this research field, including about the need to investigate service and environmental performance in the public sector, especially in developing countries. This research aimed to address this research gap by developing conceptual models to help understand the relationships between public sector governance, financial management factors, and service and environmental performance of local governments in Indonesia, through the mediating role of financial performance. This thesis has discussed how local governments in Indonesia currently have relatively extensive political, administrative, and financial autonomy to conduct their responsibilities, as central government has largely decentralised its authority to local government (while retaining control of foreign policy, national defence and security, the judicial system, fiscal and monetary policy, and religious affairs. However, central government still influences local governments in other areas through laws and other regulations, with the aim of overseeing and improving local government performance.

This thesis used multiple regression analysis and bootstrapping methods to test the four conceptual models and four research questions developed for this research. In the first conceptual model, public sector governance represented by financial transparency, accountability, and internal control are each positively associated with the local government's financial and service performance. This thesis noted full disclosure by local governments of financial and information and government decisions, plans and actions via the internet, and a demonstrated commitment to

accountability, reduces the asymmetry of information between local government and communities, which in turn empowers the public and other stakeholders to conduct community-based monitoring of public service delivery. Likewise, a demonstrated commitment to effective internal control by local government improves service performance, by reducing the risk of corruption and other government mismanagement and underperformance at the local level. The establishment of best-practice internal control measures, including policies and guidelines regarding organisational ethics; employee competency and training; standard operating procedures; risk assessments; and effective monitoring and compliance, are essential for effective organisational performance. This research also highlights the role of financial performance in mediating the relationships that public sector governance has with service performance.

The findings from this study's second conceptual model indicate that for local government in Indonesia, financial management factors measured by financial flexibility, financial independence and financial resource management are each positively associated with financial and service performance. Local governments with greater financial flexibility and better achievement of financial targets will have more opportunities to increase their local revenue and cash holdings, thereby reducing their dependency on external funds. Adequate levels of flexibility and independence of local governments to manage their financial budgets are important to enable them to meet community needs. This study showed that local governments' financial performance is a mediating variable that helps to explain the positive influence of financial management factors on service performance.

The findings from the third conceptual model of this study showed that for local governments in Indonesia, public sector governance represented by financial transparency, accountability, and internal control are each positively associated with environmental performance. With respect to transparency, when local governments' financial and other relevant information is publicly available and accessible, this facilitates local communities to monitor government decisions and actions for environmental sustainability. With respect to accountability, a key component of sound environmental performance for local government is to ensure that all employees have an adequate understanding of environmental values, risks, regulations, products, and technologies; and that effective monitoring and enforcement or other compliance systems are in place. With respect to internal control, the presence of an effective inspectorate and internal control task force within local government units will facilitate local governments' compliance with the requirements of environmentally sustainable development. Here again, the research found that financial performance acts as a mediating variable in the positive influence of financial transparency, accountability, and internal control on environmental performance. This indicates that the maintenance by local governments of their short- and long-term, budgetary, and service-level solvency will increase their capacity to deliver a strong environmental outcome.

In the last conceptual model, this study investigated the relationships between several key financial management factors and environmental performance. This study found that the three financial management variables investigated – financial flexibility, financial independence, and financial resource management –influence the financial performance of local government directly and influence environmental performance indirectly via financial performance. When local governments have

adequate flexibility and independence to meet revenue and expenditure targets and manage their budgets well, this increases their capacity for programs that support biodiversity conservation and manage the environment sustainably. Together, this study's findings indicate that central and local government authorities should optimise the financial flexibility, financial independence, and financial resource management of local governments (with appropriate monitoring) to improve local government financial performance, as an essential component of effective environmental performance.

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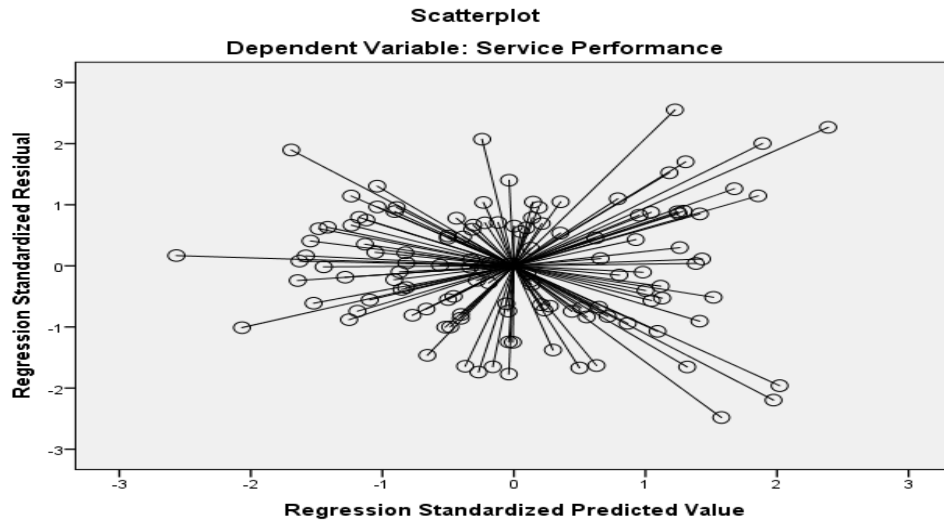
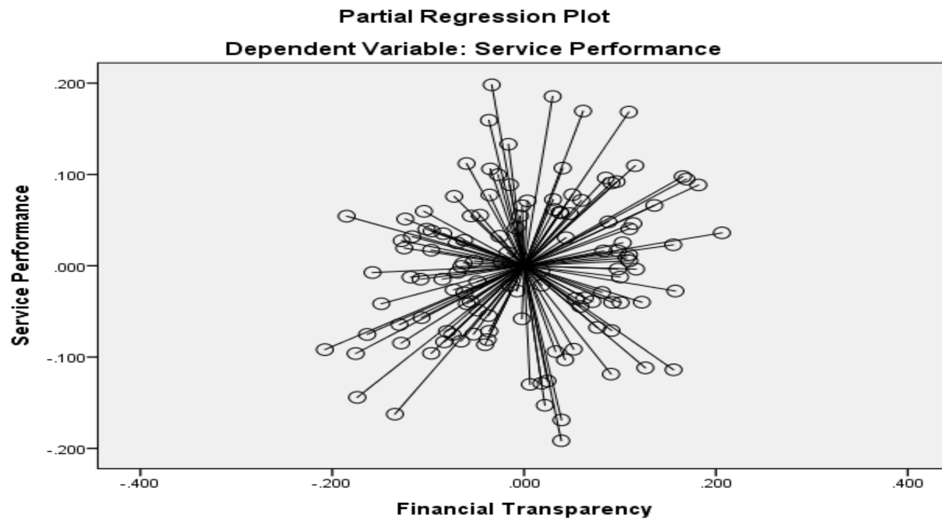
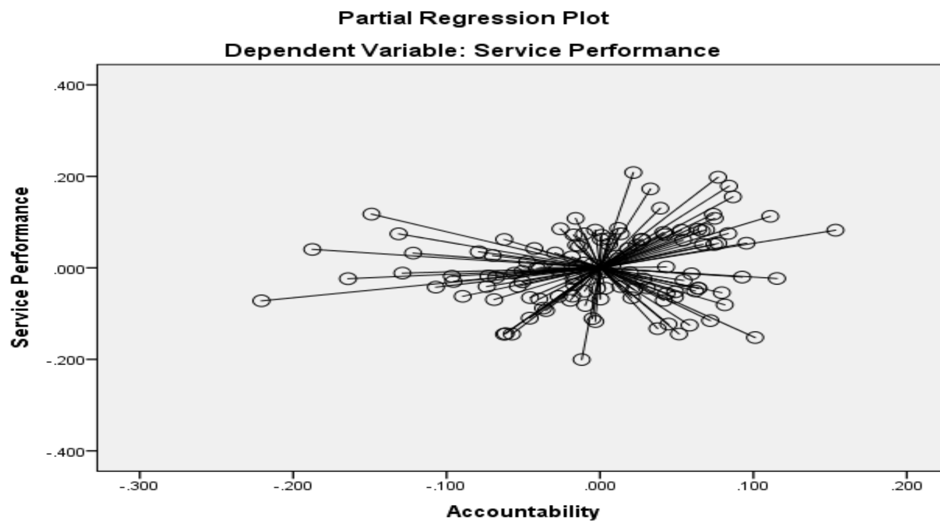
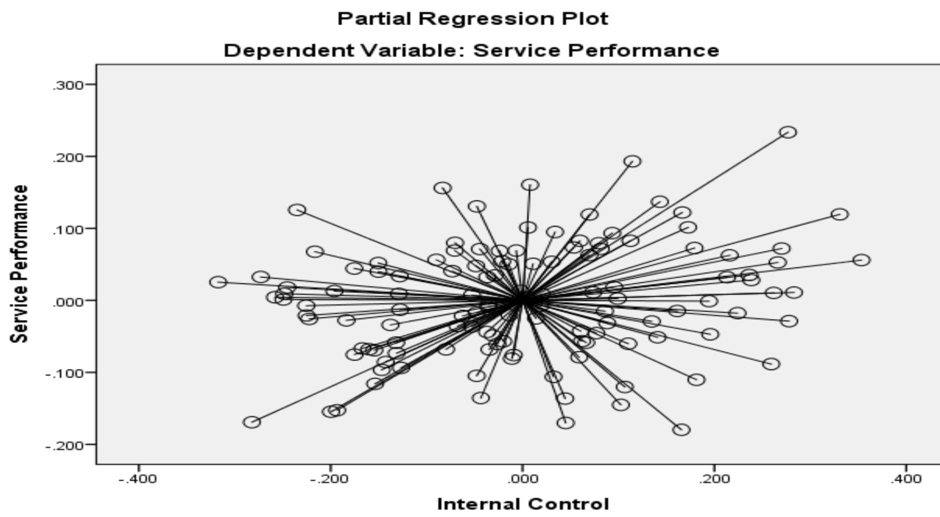
Appendix

Appendix Linearity and Homoscedasticity





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.000
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-.400
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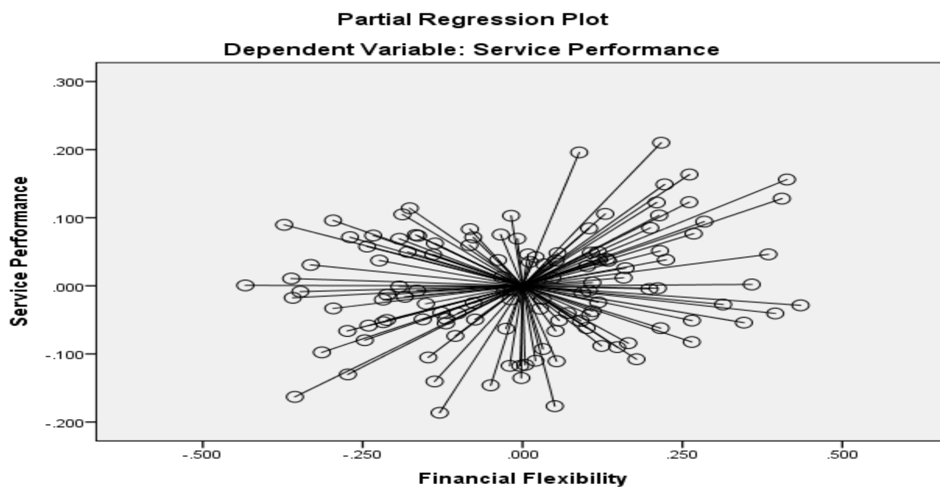
.000
.200
.400
Internal Control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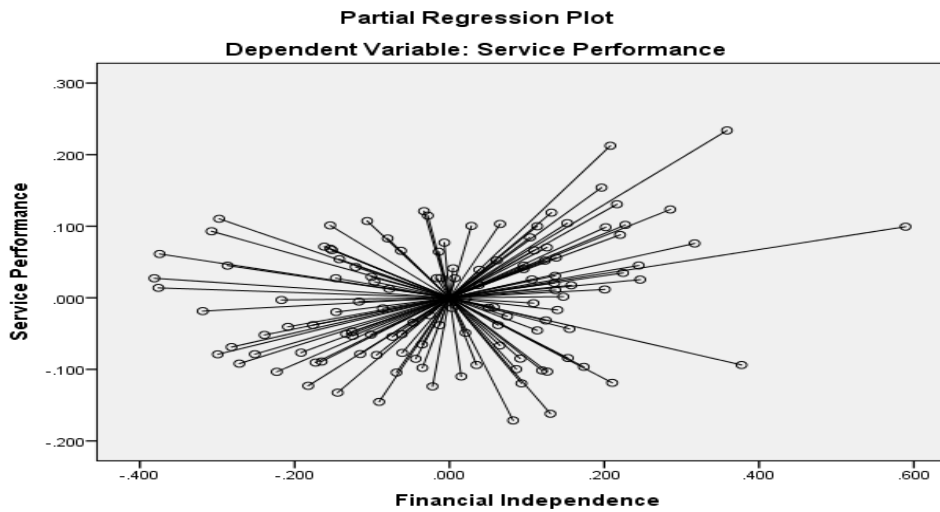
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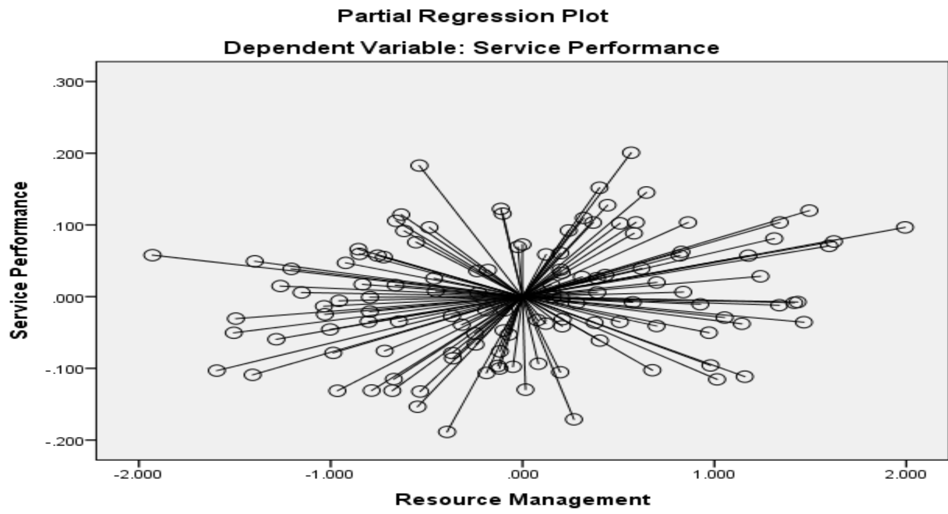
Financial Independence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-.200
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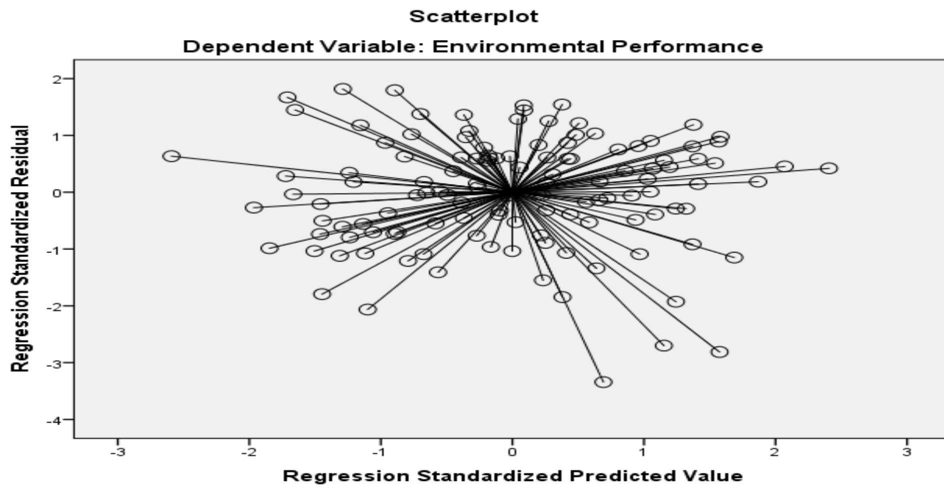
-1.000
.000
1.000
2.000
Resource Management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Regression Standardized Residual
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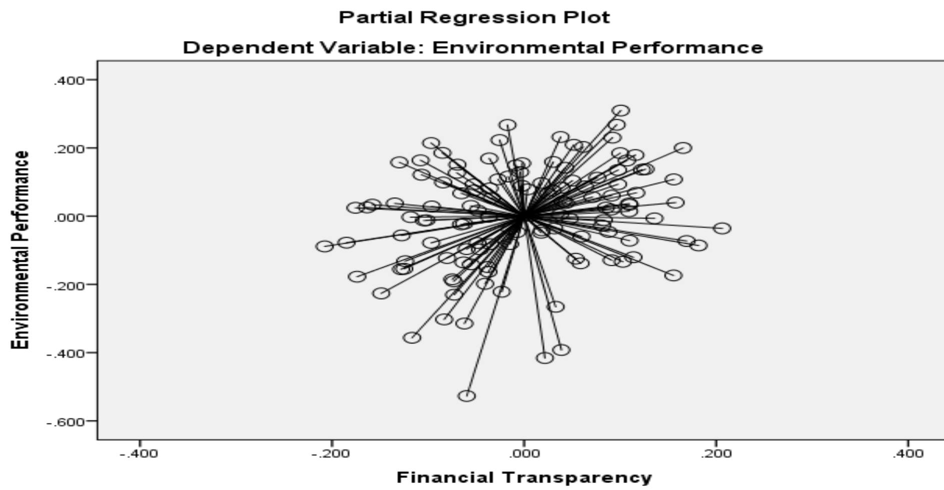
0
1
2
3
Regression Standardized Predicted Value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.200
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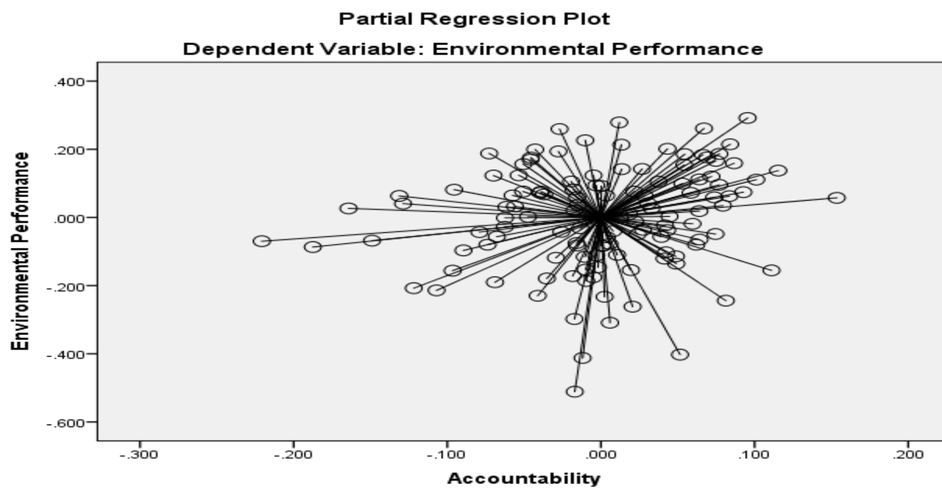
Financial Transparency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-.200
-.400
-.600
Environmental Performance
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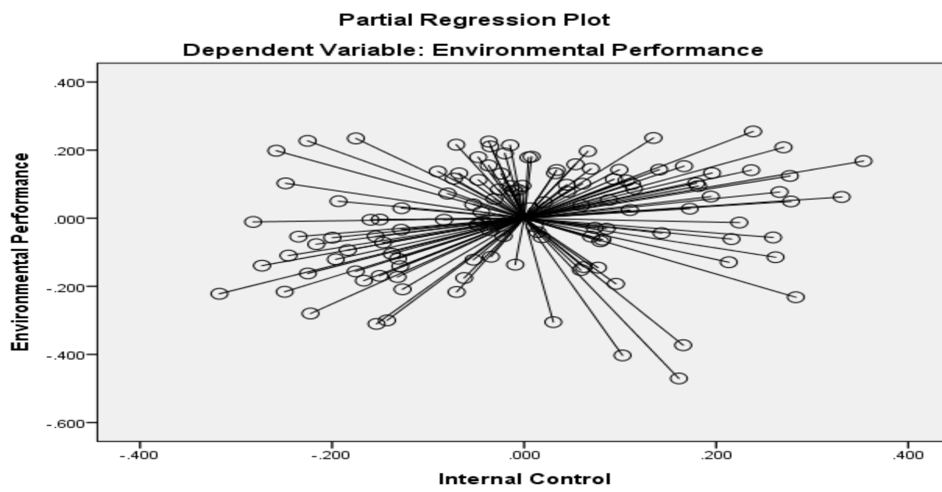
-.200
-.100
.000
.100
.200
Accountability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Environmental Performance
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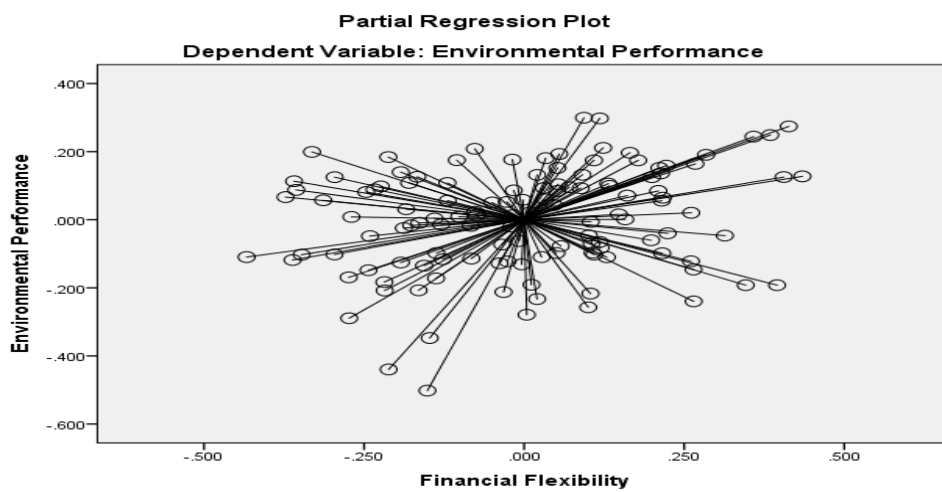
Internal Control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Environmental Performance
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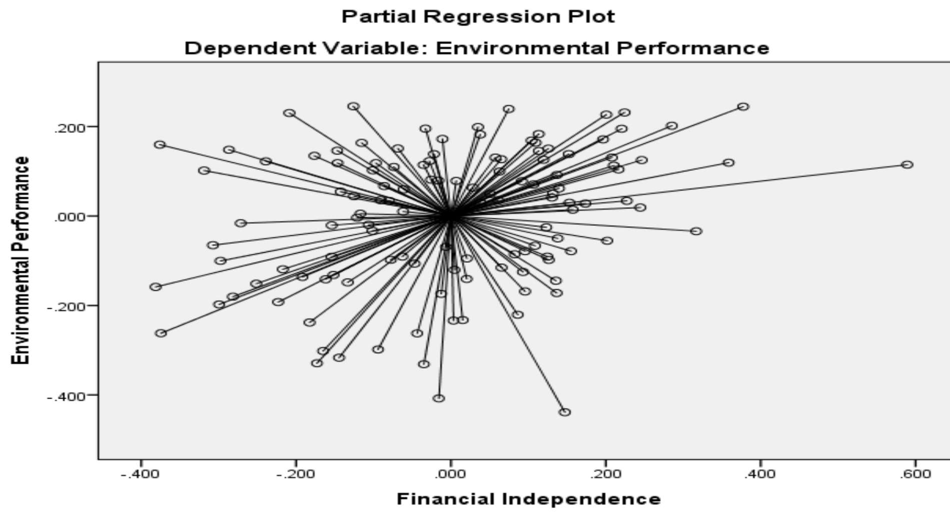
Financial Flexibility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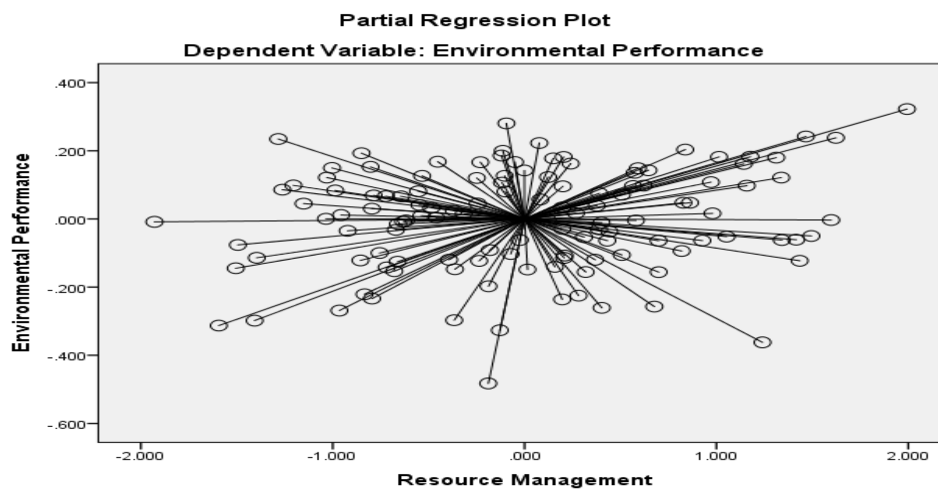
Financial Independence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-.600
-2.000
-1.000
.000
1.000
2.000
Resource Management