

**ACCRUAL ACCOUNTING AND WAYS FORWARD FOR
FINANCIAL REPORTING IN THE GOVERNMENT
OF THAILAND**

Oraphan Nakmahachalasint

**A Dissertation Submitted in Partial
Fulfillment of the Requirements for the Degree of
Doctor of Philosophy (Business Administration)
School of Business Administration
National Institute of Development Administration
2017**

**ACCRUAL ACCOUNTING AND WAYS FORWARD FOR
FINANCIAL REPORTING IN THE GOVERNMENT
OF THAILAND**

**Oraphan Nakmahachalasint
School of Business Administration**

Associate Professor *Kanogpon Narktabtee* Major Advisor
(Kanogporn Narktabtee, Ph.D.)

The Examining Committee Approved This Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy (Business Administration).

Associate Professor *K. Zhe* Committee Chairperson
(Tatchawan Kanitpong, Ph.D.)

Associate Professor *Kanogpon Narktabtee* Committee
(Kanogporn Narktabtee, Ph.D.)

Assistant Professor *chw8* Committee
(Natchanont Komutputipong, Ph.D.)

Assistant Professor *Viput Ongsakul* Dean
(Viput Ongsakul, Ph.D.)

May 2018

ABSTRACT

Title of Dissertation	Accrual Accounting and Ways Forward for Financial Reporting in the Government of Thailand
Author	Mrs. Oraphan Nakmahachalasint
Degree	Doctor of Philosophy (Business Administration)
Year	2017

The adoption and implementation of accrual accounting in Thailand was influenced by the 1997 financial crisis in Asia and was endorsed by international organizations such as the International Monetary Fund and the World Bank. As argued by most researchers in public sector accounting that accrual accounting is superior to cash basis of accounting, accrual accounting information and financial statements would enhance the transparency and accountability of the government.

This research aims to explore the transition barriers of the accrual accounting implementation and to evaluate the outcomes of the accrual accounting implementation in the central government departments of Thailand. The sample consists of 139 central departmental departments. The research participants are public financial managers and accountants of Thailand's central governmental agencies. The improvements of financial transparency and accountability after the adoption are concluded from the interpretation of the practitioners' points of view using the quantitative research method, the structural equation modelling.

Significant transition barriers that deteriorate the outcomes of the accrual accounting implementation are the lack of incentive, the lack of supportive management culture, the lack of accrual accounting manuals, and the difficulty of accrual information that cannot be easily understood by users or public managers. The findings of transition barriers that influence the implementation of accrual accounting would help the late adopters in planning their transition processes.

The investigation of the relationships between the implementation of accrual accounting and its outcomes. The findings show that the implementation of accrual accounting has promoted the financial transparency and accountability of the departments. The completeness of reporting entries, completeness of financial information relating to assets, liabilities, and commitments, the faithfulness, verifiability, and relevance of financial information, are financial transparency characteristics that have been achieved. Moreover, the perceived accountability of the departments has been enhanced by providing sufficient financial information for the assessment of the accountability of the departments; for the achievement of objectives, the ability to finance their activities, liabilities and commitments, the compliance with law; the effectiveness of resources used, and the financial results in long term.

The public sector accounting regulator should issue more accrual accounting manuals; the guidelines for the preparation of cash flow statement and financial forecasts; and the disclosure of budget information accompanying with the financial statements. Accrual financial information should be tied with the incentive system. In addition, the understanding of accrual information among users and managers should be promoted to enhance the usefulness of accrual financial information.

ACKNOWLEDGEMENTS

The author would like to express sincerely deepest gratitude to my advisor, Associate Professor Dr. Kanogporn Narktabtee for giving me such a great experience in fulfilling my thirst for knowledge and supporting me throughout my doctoral study.

I would like to deeply offer my sincere appreciations to both committee members, Associate Professor Dr. Tatchawan Kanitpong and Assistant Professor Dr. Natchanont Komutputipong, for their crucial recommendations to improve this dissertation.

I would like to thank you all my professors for giving and sharing their kindness, wonderful lectures, and generous advices during my advancement towards the degree at National Institute of Development Administration (NIDA). Thanks also to all my friends for our enjoyable times in classes, and all the Ph.D. program staffs for assistances.

I would like also to thank the Ministry of Finance for granting a scholarship for my study in the Ph.D. program in business administration at NIDA business school. Without the scholarship, the research might not be possible. The findings of this research would be crucial for shaping the financial reporting policies of Thailand.

I also would like to thank all financial managers and accountants who participated in the survey and interviews. Without them, the research findings would not be achievable. Thanks to my colleagues at the Comptroller-General's department who are in the same journey to find the ways to the improvements of government accounting and financial reporting of Thailand.

Finally, I would like to thank my dad and my mom for their unconditional loves, hard works, and patience. Many thanks to Shia for his wholeheartedly supports and encouragements.

Oraphan Nakmahachalasint

April 2018

TABLE OF CONTENTS

	Page
ABSTRACT	iii
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vi
LIST OF TABLES	x
LIST OF FIGURES	xii
ABBREVIATIONS	xiii
CHAPTER 1 INTRODUCTION	1
1.1 Research Objectives	5
1.2 Reserch Questions	6
1.3 Contribution to Knowledge and Practices	13
1.3.1 Contribution to Knowledge	13
1.3.2 Contribution to Practices	13
CHAPTER 2 LITERATURE REVIEW	16
2.1 The Departmental Government Accounting	17
2.1.1 Before the Adoption of Accrual Accounting	17
2.1.2 After the Adoption of Accrual Accounting	18
2.2 Accrual Accounting in Public Sector	22
2.3 The Transition Barriers to Accrual Accounting	24
2.4 The Concept of Governance	29
2.5 Transparency	30
2.6 Accountability	34
2.7 Hypotheses Development	39
2.7.1 The Relationship between Transition Barriers of Accrual Accounting and the Implementation of Accrual Accounting	39

2.7.2	The Relationship between the Accrual Accounting Implementation and Financial Transparency	40
2.7.3	The Relationship between Transparency and Accountability	42
2.7.4	The Relationship between the Implementation of Accrual Accounting and Accountability	43
2.7.5	The Relationship between Transition Barriers of Accrual Accounting and Financial Transparency	45
2.7.6	The Relationship between Transition Barriers of Accrual Accounting and Accountability	47
2.8	Conceptual Framework	49
2.9	The Measurement of Constructs	51
CHAPTER 3 RESEARCH DESIGN		62
3.1	Data Setting: Thailand Case	62
3.2	Unit of Analysis	63
3.3	Target Population and Sampling	63
3.4	Research Methodology	65
3.4.1	Instrument Development	65
3.4.2	Confirmatory Factor Analysis	67
3.5	Operational Definitions, Variables, and Measurement	68
3.5.1	Transition Barriers Measures	68
3.5.2	The Implementation of Accrual Accounting Measures	71
3.5.3	Financial Transparency Measures	74
3.5.4	Perceived Accountabilities Measures	77
3.6	Reliability Analysis	79
3.6.1	Convergent Reliability	79
3.6.2	Discriminant Validity	80
3.7	Data Processing and Analysis	80
CHAPTER 4 DATA ANALYSIS AND RESEARCH RESULTS		82
4.1	Sample Characteristics	82
4.2	Descriptive Statistics	84
4.2.1	Transition Barriers	84

4.2.2	The Implementation of Accrual Accounting	85
4.2.3	Financial Transparency	87
4.2.4	Perceived Accountability	88
4.3	Normality of Data	88
4.4	Confirmatory Factor Analysis	91
4.4.1	The 38-Item CFA Model	92
4.4.2	The 15-Item CFA Model	94
4.4.3	Reliability Testing of CFA Model	96
4.4.4	Discriminant Validity Testing of CFA Model	97
4.4.5	Summary Results of the 15-Item CFA Model	98
4.5	The Structural Model	100
4.6	Hypothesis Test	104
CHAPTER 5	DISCUSSION AND CONCLUSION	106
5.1	The Transition Barriers Affecting a Lower Level of Accrual Accounting Implementation Progress	107
5.2	The Implementation of Accrual Accounting Affecting a Higher Level of Financial Transparency	108
5.3	The Financial Transparency Having a Positive Influence on the Perceived Accountability	110
5.4	The Implementation of Accrual Accounting Affecting a Higher Level of the Perceived Accountability	111
5.5	The Transition Barriers Affecting a Lower Level of the Financial Transparency	112
5.6	The Transition Barriers Affecting a Lower Level of the Perceived Accountability	113
5.7	Research Implications	114
5.7.1	Theoretical Implication	114
5.7.2	Practical Implication	115
5.8	Conclusion	115
5.9	Limitations of the Study	116
5.10	Recommendations for Future Research	117

BIBLIOGRAPHY	118
APPENDICES	129
Appendix A Survey Questionnaire	130
Appendix B Returned Questionnaires and Correlation Matrix	136
BIOGRAPHY	148

LIST OF TABLES

Tables	Page
2.1 Strategic Three-Year Implementation Plans	20
2.2 Government Transition to Accrual Accounting	21
2.3 Transition Barriers to Accrual Accounting Implementation	27
2.4 Definitions of Transparency	31
2.5 Definitions of Accountability	36
2.6 Transition Barriers to the Implementation of Accrual Accounting	55
2.7 Financial Transparency	57
2.8 Perceived Accountability	59
3.1 Population of the Study	64
3.2 Measures of Transition Barriers to Accrual Accounting	69
3.3 Calculation for the Implementation of Accrual Accounting Index	71
3.4 The Measures of Financial Transparency	74
3.5 Measures of Financial Transparency	77
3.6 Summary of the Goodness-of-Fit Indices	81
4.1 Distribution of Sample by Type of Organization	83
4.2 Data Distribution of the Transition Barriers	84
4.3 Data Distribution of the Implementation of Accrual Accounting Index	85
4.4 Data Distribution of the Implementation of Accrual Accounting	85
4.5 Data Distribution of the Financial Transparency	87
4.6 Data Distribution of the Perceived Accountability	88
4.7 Univariate Test of Normality	89
4.8 Factor Loadings of the 38-Item CFA Model	93
4.9 Factor Loadings of the 15-item CFA Model	95
4.10 Correlation between Constructs	96
4.11 Fit Indices of CFA Model	96
4.12 Summary Result and Reliability Test of the 15-Item CFA Model	99

4.13 Regression Weights for 15-Item Structural Model	102
4.14 Hypotheses Testing of Regression Weights for 15-Item Structural Model	103

LIST OF FIGURES

Figures	Page
2.1 Summary of Literature Cited in Section 2.7.1	40
2.2 Summary of Literature Cited in Sections 2.7.2, 2.7.3, and 2.7.4	45
2.3 Summary of Literature Cited in Sections 2.7.5 and 2.7.6	49
2.4 Representation of Conceptual Framework	50
2.5 The Conceptual Framework	61
4.1 Histogram Describing the Distribution of the TotalAI Variable	89
4.2 The 38-Item CFA Model	92
4.3 The 15-Item CFA Model	94
4.4 The 15-Item Structural Model	101

ABBREVIATIONS

Abbreviations

Equivalence

AFMIS	Agency Financial Management Information System
AusAID	Australian Agency for International Development
CGD	The Comptroller-General's Department
GASB	Governmental Accounting Standards Board
GFMS	Government Fiscal Management Information System
GFS	Government Finance Statistics
IFRSs	International Financial Reporting Standards
IMF	International Monetary Fund
IPSASB	International Public Sector Accounting Standards Board
IPSASs	International Public Sector Accounting Standards
NPFM	New Public Financial Management
NPM	New Public Management
SNA	System of National Accounts
TFRSs	Thai Financial Reporting Standards
TPSASs	Thai Public Sector Accounting Standards

CHAPTER 1

INTRODUCTION

The adoption of accrual accounting is a crucial element of the financial reform as an integral part of public accountability. The New Public Financial Management (NPFM) reform of public sector, focusing on the reform of financial reporting system, has been spread out internationally. The association of the adoption of accrual accounting with the NPFM has brought the private sector accounting norms to public organization to ensure that the governmental agencies are managed in a more efficient and effective way.

As argued by most public accountants and governmental accounting professionals, accounting information is superior to cash basis accounting information. The adoption and implementation of accrual accounting would enhance fiscal transparency because it provides public financial managers with necessary financial information for discharging of accountability (Christiaens, & Rommel, 2008; Hyndman, & Connolly, 2011).

The New Public Management (NPM) is a fundamental rationale for NPFM and the financial reform in public sector. The emergence of NPM as an alternative to the traditional public accountability has been embedded in public administration frameworks. The NPM changes the management approach from input control to a new way of administration with more freedom, market based, and output focused (Hood, 1991, 1995). For reinventing a new government administration, the incentives, accountability systems, power structure, and culture are needed to be changed (Osborne, 2007).

Accrual accounting had been introduced in UK public sector since 1828, concerning with the government cash accounting fails to track the movement of budget spending in an effective way of fiscal management and delaying in preparation of annual report (Edwards, Coombs, & Greener, 2002). The early enthusiastic was described as a desire to achieve the market principles. Financial reporting objectives

had shifted to private sector financial practices (Barton, 2005b; Wynne, 2003). The adoption of accrual accounting is accepted as better principle for accounting throughout the whole of public sector internationally.

There are many research relating to the adoption and implementation of accrual accounting in public sector. The provided of Anglo Saxon Original countries such as Australia, New Zealand, and other European Union countries research are noted. The contexts of research including all levels of government; central, departmental agencies, local government and other public organization entities. The research mostly are historical analysis of the accrual accounting implementation in each government and issues or unsolved technical accounting techniques relating to unique characteristic of the public sector. The methodology and scope of consolidated financial statements and whole of government financial reporting were also focused. Lastly, the alignment of budget report, accounting report and statistical report are currently the most area of the studies.

However, there are limited studies in case of the outcome of the adoption and implementation of accrual accounting in developing countries especially in the area of transparency of financial information and the discharging of accountabilities of governmental agencies. This study is the first study in Thailand to examine the outcome of the implementation of accrual accounting since the initial adoption of accrual accounting in government since in year 2003. The actual evidence on transparency's impacts on accountability should be investigated in order to examine the conventional wisdom that transparency generates accountability. The literature on the implementation of accrual accounting in public sector reveals debating outcomes, therefore the benefits of implementation remain inconclusive and elusive (Lapsley, Mussari, & Paulsson, 2009).

Even though international comparison, transparency and accountability are the aims of the accrual accounting implementation, several fundamental concepts and standards are required to be modified for their application to public sector because the characteristics of public and private sector are fundamental different (Barton, 2005b). In Portugal, the government maintains three different accounting systems; budgetary, financial and cost accounting since the implementation of accrual accounting (Jorge, da Costa Carvalho, & Fernandes, 2007). This problem is commonly found in other

countries. The actual implementation of accrual accounting is very different, in effect and in cost. The result is a complex and expensive system that has provided few benefits to date (Connolly, & Hyndman, 2006).

As there were recent corporate financial scandals of Enron and WorldCom, which demonstrated the reliability issues of financial reporting that can be undermined by the manipulation. This situation also can happen in public sector when considering the vulnerability of the government in developing countries (Chan, 2006) The accrual accounting basis provided a better quality of financial information in which significantly improved for larger entities (Falkman, & Tagesson, 2008).

In Asia, almost all government realized the important of financial reform and moving forward to adopt accrual accounting such as Korea, Thailand, Indonesia, Philippines and Malaysia. However, it was surprisingly found that some developed countries such as Germany, France, Italy, Japan, are still currently adopting cash basis accounting and reluctantly to adopt accrual accounting.

The benefits promised by the proponents of accrual accounting is difficult to obtain the hard evidence. It was accomplished with difficulties. The benefits and effects on efficiency, accountability and decision making on priority was founded. However, there was some difficulties in accounting, auditing and the measurement of outcome. The needs to change the way to manage governments had been developed to face the challenge of the governance requirements of the government (Pallot, 2001).

In developing countries, the motivation to change their public sector practices usually came from donor countries and international organizations on the recipients of aids or loans (James, & Manning, 1996). These international organizations are the promoters for financial reform in which an adoption of accrual accounting is a component of the reform to ensure that the government can improve the efficiency in its spending and operations. In Thailand, Due to the 1997 financial crisis in Asia called TOM YAM KUNG, and the endorsement of accrual accounting by the international organizations such as the International Monetary Fund (IMF) and World Bank, the recipient of aid and loan conditions, the government decided to adopt the accrual accounting in 2003 in which the first accrual basis financial reporting of government department was published in 2004.

The transitional to fully implementation of accrual accounting is a long process. Several transition barriers to accrual accounting have been reported in a comparative study of the US, Canada, and some European countries such as legal system, staff qualification, size, and organizational characteristics (Lüder, 1992). The lack of accrual accounting expertise in public sector and improper assets information have been reported as obstacles for the implementation of accrual accounting in Australia (Christensen, 2002). External expertise assistant has been found to be helpful during the transition process in the New South Wales Government (Christensen, 2005). The establishment of accrual accounting standards, the proper of asset recording and valuation, the integration of budget and accounting , the capacity of information technology and the participation of accounting professional are crucial for the success of accrual accounting implementation in the UK (Hepworth, 2002). To utilize the accrual accounting information in public sector administration, the lack of incentive in public sector can be another significant barrier. The understanding of accrual accounting reports has remained an important barrier because of its complexity (Newberry, 2014; Pollanen, & Loiselle-Lapointe, 2012).

Government accounting has been viewed as a foundation for the principle of democratic control over the spending of public funds (Pallot, 1992). The cash basis of accounting has been used in assessing the macro-economic impact of government spending. However, the fiscal policies could benefit from accrual accounting in which sustainability and intergenerational equity issues are important concerns (Robinson, 1998). Since the implementation of accrual accounting is a gradual process, a variety of implementation stages occur internationally.

Accrual accounting is a crucial element for transparency in the public sector (Ball, 2012). The direct use of accounting information in measuring transparency is the measure of the quality of reporting and the dissemination to the public (Bushman, Piotroski, & Smith, 2004). The achievement of transparency can be a presentation of true and fair view, sincerity and credibility, and the open of information (Hood, 2001). Also, transparency is an expression of the achievement of full qualitative characteristics of financial reporting (IPSASB, 2013).

Accountability is described as the foundation of all financial reporting (GASB, 1987). In the earlier period of financial reporting, the entity was held accountable for

the achievement of objectives, compliance, efficiency, and future operations (Patton, 1992). At present, the accountability has taken a broader view to include cost management and systematic performance measurement, thus connecting accounting with performance evaluation in terms of outputs and outcomes (Aucoin, & Heintzman, 2000). In addition, the entity could discharge its accountability by providing general purpose financial statements that do not have specific users but intend to be useful to all stakeholders (Laughlin, 2008).

At present, In Thailand, the question whether to adopt accrual accounting has been surpassed, however, the outcome of the implementation still remains inconclusive.

A better understanding of the transition barriers would provide avenues of handling them or create recommendations for new policies and practices dealing with these problems in order to enhance financial transparency and accountability. In this study, participants are public accountants and accounting managers with adequate accounting knowledge of both cash basis and accrual basis in Thai central government departments which include the departments under ministry or not under ministry, parliament agencies, court, independent organizations, and public organizations. This study does not include local government due to the fact that the accounting basis of local government remains on cash basis. Also, the state enterprises are not included in the study.

Yet the implementation of accrual of accounting have been proposed and undertaken with the presumption that, once the accrual accounting system is implemented, transparency and accountability will somewhat enhance. However, due to the specific circumstances of each department, practical problems or transition barriers may preclude the outcome.

1.1 Research Objectives

This study is conducted with the main objectives to help the public administrations gaining more understanding of the transition barriers of the implementation of accrual accounting and its outcome or its effect to financial information transparency and perceived accountability. This study also investigates

the impact of accrual accounting implementation on enhancing of financial transparency and perceived accountability of Thai central government departments. This study asserts whether the financial information transparency and perceived accountability of the central government departments are influenced by the transition barriers of the implementation of accrual accounting.

The main arguments of this study, which include the influence of transition barriers to accrual accounting implementation of Thai central government departments and the influence of transition barriers on the outcome of the accrual accounting implementation including financial transparency and perceived accountability of Thai central government departments. The main objectives are:

- 1) To examine the impact of transitional barriers to accrual accounting on the implementation of accrual accounting in Thai central government departments.
- 2) To examine the impact of the implementation of accrual accounting on financial transparency in Thai central government departments.
- 3) To examine the impact of financial transparency on perceived accountability of Thai central government departments.
- 4) To examine the impact of the implementation of accrual accounting on perceived accountability of Thai central government departments.
- 5) To examine the impact of transitional barriers to accrual accounting on financial transparency in Thai central government departments.
- 6) To examine the impact of transitional barriers to accrual accounting on perceived accountability of Thai central government departments.

1.2 Research Questions

In developing countries, there are greater demands for transparency and accountability of the governmental agencies. The past literature revealed that the results of the implementation differ across the global and levels of government (Hepworth, 2002), the US (Lüder, 1992), Canada (Pollanen, & Loiselle-Lapointe, 2012), New South Wales (Christensen, 2002, 2005), Indonesia (Harun, An, & Kahar, 2013), and Malaysia (Saleh, & Pendlebury, 2006). Thus, it is important to study how the implementation of accrual accounting enhances the transparency and

accountability in Thai central government departments that have different contexts of financial arrangements. This study focuses on how the implementation of accrual accounting effect the financial transparency and discharging of accountability of central government departments. Therefore, the main research questions developed for this study are presented as follow:

1) Research Question 1: Do the transitional barriers to accrual accounting affect the implementation of accrual accounting of Thai central government departments?

Based on the previous literature and the results from the structural interviews with the finance managers of central government departments, 14 transition barriers of accrual accounting are used in this study; 1) lack of management support, 2) lack of qualified human resource, 3) lack of sufficient training and development, 4) cost of new accounting system, 5) lack of fiscal law and regulations, 6) shortage of budget in accounting function, 7) accounting and budget classification inconsistency, 8) lack of incentive, 9) management culture, 10) lack of accounting manuals, 11) lack of information communication ability, 12) lack of information technology capacity, 13) lack of accrual accounting standards, 14) lack of support from external experts.

The accrual accounting practices of central government departments are developed by the Comptroller-General's Department (CGD); Thai Public Sector Accounting Standards (TPSASs). In case that there is no TPSASs issues for certain financial activities, the departments could comply with IPSASs or Thai Financial Reporting Standards (TFRSs), issued by the Federation of Accounting Profession based on International Financial Reporting Standards (IFRSs). To examine the implementation of accrual accounting in central government departments, this study employs the combined accrual accounting index, similar to (Hung, 2001) but modified with current Thai governmental accrual accounting standards and practices. The modified index called "the implementation of accrual accounting index" consisting of 19 elements of accrual accounting practices as shown in Table .

With the objective to examine the impact of transitional barriers to accrual accounting on the implementation of accrual accounting, the confirmatory factor analysis of the measurement model of transition barriers latent variable and the structural equation modelling (SEM) are conducted.

Although, the previous literature shows that the implementation of accrual accounting have improved the transparency of the government financial position by providing information covering all government financial activities, the improved transparency of the Thai central departments has not been examined since the accrual accounting adoption. Therefore, this study explores the effect of the implementation of accrual accounting on financial transparency. This leads to the second research question.

2) Research Question 2: Does the implementation of accrual accounting affect the financial transparency of Thai central government departments?

If the implementation of accrual accounting promotes the financial transparency of the departments, this study should find the positive effect of the accrual accounting information on financial transparency of the departments. As mentioned in previous literature, transparency is an expression of the achievement of full qualitative characteristics of financial reporting (IPSASB, 2013). To examine the effect of the accrual accounting implementation on financial transparency especially in public sector, the financial transparency of the central government department is determined by the alignment of the six concepts of transparency of the new IMF's fiscal transparency code (coverage, integrity, quality, timeliness, understandability, and openness) and the qualitative characteristics of financial reporting of in the Conceptual Framework for General Purpose Financial Reporting by Public Sector Entities of the International Public Sector Accounting Standards Board (IPSASB). Thus, there are 13 financial transparency characteristics in this study: 1) Coverage-Entities, 2) Coverage-Financial Statement, 3) Coverage-Cash Flow, 4) Coverage-Note to Financial Statement, 5) Coverage-Budget Information, 6) Verification, 7) Faithful representation, 8) Relevance, 9) Comparability, 10) Consistency, 11) Timeliness, 12) Understandability, and 13) Openness. The confirmatory factor analysis of the measurement model of financial transparency latent variable and the structural equation modelling (SEM) are conducted to examine the effect of the accrual accounting implementation on financial transparency.

As stated in the previous literature, transparency is interlaced with accountability and becomes mandatory for the government (Ball, 2009). Transparency is a complement to accountability in a sense that it is a disclosure of information relating to government activities as a foundation for assessing

accountability (Hood, 2010). Thus, the effect of financial transparency on the accountability of central government departments is addressed in the third research question.

3) Research Question 3: Does the financial transparency affect the perceived accountability of Thai central government departments?

This study examines the effect of financial transparency on the perceived accountability of central government departments by investigating of the perceptions of public financial managers or accountants on government departments' obligations to provide information sufficient enough for assessing the accountability of the departments. There are 10 observed variables used to measure the perceived accountability as stated in a conceptual framework for general purpose financial reporting by public sector (IPSASB, 2013); 1) accountability for the accomplishment of entities' objectives, 2) accountability for managing resources by providing sufficient information regarding sources, of revenue sources of funds, 3) accountability for allocating resources, 4) accountability for liquidity management, 5) accountability for compliance with approved budget, 6) accountability for compliance with law, 7) accountability for efficiency uses of resources, 8) accountability for effectiveness of resources used in entities' operation, 9) accountability for financial results in the context of the long term, and 10) accountability for achieving service delivery expectations in future. The confirmatory factor analysis of the measurement model of perceived accountability latent variable and the structural equation modelling (SEM) are conducted to examine the effect of the financial transparency on the perceived accountability of central government departments.

In addition to the investigation of the effect of the implementation of accrual accounting on the improved financial transparency, this study also investigates the effect of the implementation of accrual accounting on the perceived accountability of central government departments as mentioned in the fourth research question, as follows.

4) Research Question 4: Does the implementation of accrual accounting affect the perceived accountability of Thai central government departments?

In public sector, accountability has been conceptualized as the cornerstone of all financial government reporting since citizens have rights to receive

openly information. The objective of governmental accounting and reporting is to protect public spending and discharge of the accountability (Chan, 2003). An increasing level of the implementation of accrual accounting of the entity would enable citizens to hold the government agencies more accountable for their management of the departments by providing more complete picture of financial positions and performance of the departments. Thus, this study aims to examine the effect of the implementation of accrual accounting on the perceived accountability of central government departments. As previously mentioned, the modified index called “the implementation of accrual accounting index” is used to capture the progress of the accrual accounting in each department, and there are 10 observed variables of the perceived accountability as referring to the accountability stated in a conceptual framework for general purpose financial reporting by public sector (IPSASB, 2013). The confirmatory factor analysis of the measurement model of the perceived accountability latent variable is examined and the structural equation modelling (SEM) is conducted to examine the effect of the accrual accounting implementation on the perceived accountability of the departments.

In Thailand, the implementation of accrual accounting is to promote the financial transparency of the departments, however, there are some barriers of the implementation of accrual accounting that could affect the financial transparency of the departments that mentioned in the previous literature, for instance, the lack of accrual accounting standards and practices (Harun et al., 2013), and the management culture (Hepworth (2003). This leads to the development of the fifth research question.

5) Research Question 5: Do the transitional barriers to accrual accounting affect the financial transparency of Thai central government departments?

This study examines the effect of transitional barriers to accrual accounting on the financial transparency of central government departments by investigating 14 transition barriers of accrual accounting and their effects on the 13 financial transparency characteristics as aforementioned. The confirmatory factor analysis of the measurement model of transition barriers and financial transparency latent variables and the structural equation modelling (SEM) are conducted to examine the effect of the transitional barriers to accrual accounting on the financial transparency of central government departments.

In addition, the enhancing of the accountability of government departments is another crucial objective of the accrual accounting implementation. However, accrual accounting transition barriers could nevertheless prevent a successful outcome in enhancing accountability (Chan, 1994; Monsen, & Nasi, 1998). A lack of changes in other elements of public administration and management culture can prevent a successful outcome to improve accountability (Caperchione, 1995).

To apply private sector accounting techniques into public sector, specific accrual accounting issues must be modified due to the different purposes and objectives between the public and private sector (Barton, 2005b; Carnegie, & West, 2003; Mautz, 1981). The difficulty of accrual accounting techniques, the less communicating ability of accrual information, and a lack of incentive to use accrual information can be important barriers to effective accountability (Arnaboldi, & Lapsley, 2009; Connolly, & Hyndman, 2006). Thus, the effect of accrual accounting transition barriers on the accountability of central government departments is addressed in the sixth research question.

6) Research Question 6: Do the transitional barriers to accrual accounting affect the perceived accountability of Thai central government departments?

This study examines the effect of transitional barriers to accrual accounting on the perceived accountability of central government departments by investigating 14 transition barriers of accrual accounting and their effects on the 10 observed variables of the perceived accountability as previously mentioned. The confirmatory factor analysis of the measurement model of transition barriers and perceived accountability latent variables and the structural equation modelling (SEM) are conducted to examine the effect of the transitional barriers to accrual accounting on the perceived accountability of central government departments.

Exploring the implementation of accrual accounting in central government departments of Thailand, I find that the implementation of accrual accounting has improved the financial transparency and perceived accountability of the Thai central government agencies.

In the context of Thailand, the lack of accrual accounting manuals and the lack of accrual information communication ability are significant barriers due to a long history of rule-based cash basis practices. This study also finds that the other

significant barriers to accrual accounting implementation are the management culture and the lack of incentive to use accrual information.

This study also finds that the transition barriers cause a lower level of the progress of accrual accounting in central government departments. The central government departments are more likely to have less progress in accrual accounting implementation if they have unsupportive management culture, the lack of proper incentive, the lack of sufficient accrual accounting manuals and the lack of understanding of accrual accounting information by information users and departmental managers.

The implementation of accrual accounting in central government departments causes a higher level of financial transparency of central government departments. What have been achieved for the improvement of financial transparency since the adoption and implementation of accrual accounting in Thai government are the following: 1) the report of all financial information of all entities engaging in department, 2) the balance sheet of assets, liabilities, and net equity; and the statement of financial performance are presented completely, 3) these financial statements are faithful presented, 4) the annual financial statements of the department is subject to be audited for the verifiability of their reliability by Office of the Auditor General or Independent Auditor, and 5) the financial report of the departments has been used for budgeting and financial performance evaluation.

This study also finds that financial transparency has a positive influence on the perceived accountability of central government departments. It can be interpreted explicitly that financial transparency is effective in improving accountability of Thai central governmental agencies by providing sufficient financial information for discharging of their accountabilities.

Moreover, it is found that the more advance of accrual accounting implementation by the central government department, the higher level of the perceived accountability of the departments. The improvement the accountability of the department by providing financial information that is sufficient enough for citizens and public in assessing the accountability of the department since the adoption and implementation of accrual accounting are the following: 1) accountability for achieving the objectives of operations by providing sufficient

information relating to the department's service delivery, operating and financial goals, 2) accountability for liquidity management by providing sufficient information in evaluating the ability to finance activities and to meet liabilities and commitments, 3) accountability for compliance with law by providing sufficient information for evaluation if resources were obtained and used in accordance with legal and contractual requirements, 4) accountability for effectiveness of resources used by providing sufficient information regarding the accomplishment of the entity's service delivery activities, 5) accountability for achieving service delivery expectations in future by providing sufficient information for predicting of the level of resources required for continued operations

However, similar to what have been found in the previous literature, transition barriers to accrual accounting in Thai central government departments such as unsupportive management culture, the lack of proper incentive, the lack of sufficient accrual accounting manuals, and the lack of understanding of accrual accounting information, cause lower levels of the financial transparency and the perceived accountability of central government departments.

1.3 Contribution to Knowledge and Practices

1.3.1 Contribution to Knowledge

The findings of this study contribute to the knowledge of the implementation of accrual accounting in the context of Thailand. The investigation of the concepts of accrual accounting in settings that differ from previous literature such as the differences in public administration, institutional infrastructure, the economic development stage, the system of government, and political environment. Thai central government departments have a long history of cash basis management and rules-based accounting practices. It is found that the unchanged cash-based and bureaucratic management culture, the lack of incentive, the lack of accrual accounting manuals, and the difficult of accrual information are significant transition barriers. However, the implementation of accrual accounting has promoted financial transparency and accountability of central government departments.

1.3.2 Contribution to Practices

The contribution of this study is to provide empirical evidence on the implementation of accrual accounting in Thai central government departments. The findings of this study provide contributions to various agencies as follows.

The findings in this study can contribute directly to the roles and duties of the Comptroller-General's Department (CGD). The CGD has the responsibilities to regulate the public sector accounting practices, to issue public sector accounting standards, to monitor the quality of financial reporting, and to provide a financial and accounting training for public accountants and financial managers of the government departments and other public sector entities. Thus, the CGD should understand the barriers of the implementation of accrual accounting in government departments; the effects of these barriers to the implementation of accrual accounting and to the intended outcomes of the implementation; and the improved financial transparency and accountability of the departments. After adopting the accrual accounting in public sector, the CGD should monitor the progress and achievements of the implementation to ensure that the objectives of the adoption and implementation of accrual accounting are met.

The findings of the first research question help the CGD develop a better policy to eliminate the identified barriers or weaken their impacts. The CGD should issue more accrual accounting manuals and promote the understanding of accrual information among users and financial managers. The findings of the second research question assist the CGD in evaluating the status of the improvement of financial transparency and identifying the areas that need accounting practical guidelines or manuals to facilitate the success such as the guidelines for cash flow statement and the disclosure of budget information accompanying with the financial statements. The findings of the fourth question present the positive effect of the accrual accounting implementation on accountability. However, there are not sufficient information in the financial statements of the departments for assessing some aspects of accountability. In the future, The CGD need to develop more alignments between accounting and budgeting classification. The financial statements should also include financial information such as the source of funds, the allocation of resources in the departments, and comparison between expenditures and the approved budget. The

CGD should also issue the guidelines for preparing of the financial forecasts. These findings would lead to the roadmap of the CGD in planning of public sector accounting developments.

The findings in this study also contribute to those who are responsible for public administration reform in Thailand. The findings of the fifth and sixth research questions inform that accounting reform as a part of financial reform should not be separated from other components in a public administration reform such as administration culture changes and incentive systems. Hence, the development of incentive system that ties with accrual financial information, and the decentralized of asset and liability management to line departments would enhance the usefulness of financial statements and information for promoting of financial transparency and accountability. In addition, a timeframe for the publication of annual financial statements and a requirement for public accessibility of financial information should be set.

The findings in this study also contribute to public accountants of central government departments. The finding of the third and fourth research questions that the implementation of accrual accounting and financial transparency can enhance the discharging of accountability of the departments. Thus, public accountants should implement more accrual accounting practices to improve the quality and transparency of financial information.

Finally, the results of the study can also be applied to other developing countries in the region or in the other part of the world that are hesitating to adopt accrual accounting or in designing the transitional implementation process.

The remaining of this dissertation is organized as follows. Chapter 2 describes the literature review of the implementation of accrual accounting in public sector, history of the adoption of accrual accounting in Thailand, transition barriers to accrual accounting, transparency, accountability; and explains the development of hypotheses and conceptual framework. Chapter 3 explains the research design and methodology. Chapter 4, consists of data analysis and research results. Chapter 5, provides discussion and conclusion.

CHAPTER 2

LITERATURE REVIEW

The Comptroller-General's Department (CGD) under the Ministry of Finance of Thailand has the central role in developing the public sector accounting standards, implementing the accounting system, and preparing the government financial statement of Thailand. The CGD has its office in each province of Thailand called provincial treasury office which has similar functions to those of the CGD.

At the national level, there are three types of reporting system. The general purpose financial statement of the government prepared by the CGD, the national accounts under the System of National Accounts (SNA) prepared by the Bank of Thailand, and the government financial statistic reports prepared by the Fiscal Policy Office in compliance with the Government Finance Statistics (GFS) manual. The national accounts measure national income and net worth of variety of economic sectors. The government financial statistic reports contain fiscal information of economic flows and stocks of a public sector including all levels of the government.

At present, the government of Thailand prepares its general purpose financial statement based on modified accrual accounting; including current and non-current financial assets and short-term and long-term financial liabilities. The government investments in public enterprises and general investments are also included. Treasury Bills, Government short-term and long-term loans and bond are also presented. There is a certain class of government asset such as government land on the balance sheet of the country, however there is no information on property plant and equipment of all departmental agencies and pension liability on the balance sheet. The financial information for the preparation of government general purpose financial statement basically summarizes from the financial information of the inflow of revenue and outflow of expenditures through treasury reserve account deposited at the Bank of Thailand. The additional assets and liabilities information are then adjusted to the financial statement.

Thailand has a single government with three levels of public administration: a central administration, a provincial or regional administration, and a local level of administration. The central administration is composed of ministries, departments, autonomous entities, and public organizations.

2.1 The Departmental Government Accounting

2.1.1 Before the Adoption of Accrual Accounting

The cash basis of governmental accounting and financial reporting of the Thai government was developed in a similar of governmental accounting and financial reporting of the US (Henry, & Attavitkamtorn, 1999).

2.1.1.1 Cash Basis Accounting for Revenue

Each disbursement unit was responsible for transferring its revenue to the government treasury reserve account of the CGD or its revenue to provincial receipt accounts of the provincial treasury offices. The money then was transferred to the CGD's account at the end of the day. The CGD recorded all revenue transactions when cash or cheques were received. The accounting of revenue transactions of each governmental agency would be prepared manually or by using its own-developed software for controlling purpose if the money received and transferred was a government revenue or its own revenue.

2.1.1.2 Cash Basis Accounting for Expenditures

The budget process of approval must be finished before October 1st (the beginning of the fiscal year). The allotment of the approved budget must be sent to each governmental agency before the disbursement can be done. Expenditures must conform to the budget authorization and within the allotment of the budget.

The disbursement vouchers of each department were processed by the CGD with the cheque payments to governmental agencies for disbursement to vendors. The provincial treasury office processed the disbursements and payments for the regional and local disbursement units. The accounting of expenditures transactions of each governmental agency were prepared manually or using its own-developed software for budget execution controlling purpose.

2.1.1.3 Financial Reporting: At the Departmental Government Level

Before the financial reform, there were no financial statements in all departments. The receipts and disbursement reports were prepared using cash basis of accounting. The recording of receipts and disbursements were kept in registers within the fiscal year that they were received or disbursed. This practice was also applied to the recording of extra budgetary funds.

The manual nature of accounting system at the departmental level and the incomplete pictures, the lack of fixed assets information, and the delay in preparing of government financial statement were the major reasons called for a financial reform of accounting in Thailand public sector. The cost of government operation was also calculated using cash basis information.

2.1.2 After the Adoption of Accrual Accounting

In Thailand, the announcement to adopt accrual accounting in 2003 was a part of fiscal reform after the 1997 Asian financial crisis. Since then, it has been an ongoing process for the implementation of accrual accounting standards of the International Public Sector Accounting Standards (IPSASs) by issuing the Thai Public Sector Accounting Standards (TPSASs) in accordance with the IPSASs.

The main rationale for accrual accounting adoption in Thailand was mentioned as following: 1) Accrual accounting information would enhance performance reporting because of its comparability of actual revenue and expenditure of period regardless of when revenue is received and payment is paid; 2) The complete picture of financial position of the country will be reported such as assets and liabilities information which had not been completely recognized in the financial statement; and 3) The full cost of government will be calculated from accrual accounting information including depreciation of assets used for providing public services of the government.

The roadmap for accrual accounting adoption was initially established with the priority in setting up accrual accounting standards (principle based regulatory) instead of details of accounting procedures (rule based regulatory). In 2001, the CGD issued Accrual Accounting Principles and Policies #1 on May 25, 2001 for departmental agencies to use as a guideline for departmental agencies to use as references for preparation of departmental financial statement submitted to the CGD for consolidation of whole-of-government financial statement.

In 2002, The CGD launched a government accounting system improvement project. The cost of the project was 16.5 million bahts supported by the World Bank loan. The main rationale of the project was to develop an infrastructure for fiscal management information system in order to improve the efficiency of a central receipt and expenditure system of the government. The project was divided into four sub-projects: 1) The development of government accounting policies and procedures; 2) The development of cash receipt, cash payment and cash management system; 3) The development of Government Fiscal Management Information System (GFMS); 4) The development of Agency Financial Management Information System (AFMIS). Basically, the project had two main objectives: the development of the governmental accounting standards and policies for accrual accounting implementation; and a creation of an accrual accounting financial information system. It was conducted with four-year timeframe started from 2002 to 2004. As a result, the following accrual accounting implementation guidelines were announced:

- 1) Government Accounting Principles and Policies
- 2) The Common Chart of Accounts
- 3) The guideline for Financial Statement Presentation of Thai Government and Departmental Agencies
- 4) The accounting procedures and manuals for the CGD and departmental agencies
- 5) The consolidation method for Consolidated Financial Statement

Providing sufficient and efficient training for departmental officials and the CGD staff

The responsibility of the CGD was to process all financial transactions for budgetary and non-budgetary accounts which deposited in the treasury account of all level of the government and prepared a government wide financial statement of Thai Government. During the initial plan, the consolidation of the financial statements would be consolidated from departmental financial statements submitted to the CGD for fiscal year 2003 (October 1, 2002 – 30 September, 2003).

In the process of the preparation of Government Accounting Principles and Policies, Thai government requested a technical assistant from Australian Government (AusAID) for setting up the first set of accrual accounting standards referring from the IPSASs and appointed an international accounting firm: KPMG Advisory (Thailand) Limited for accrual accounting consulting service.

For the GFMIS and the AFMIS, the scope of the development was to conduct preliminary study of accounting information system for central processing of the CGD and departmental accounting system for agencies. The AFMIS project included first time fixed asset recognition, depreciation, accrual accounting manuals, and modification of GFS reporting.

The transition from cash basis of accounting to accrual basis of accounting in the financial management environment of Thailand was similar to what mentioned in previous literature. The approach was a gradual process within the capabilities of departmental agencies and the CGD.

- 1) The transition plan had been identified and implemented
- 2) Identify what should be included as reporting entities as of the Fiscal Year End 2003 (September 30, 2003), the first year of accrual accounting adoption
- 3) Identify scope of the financial reporting
- 4) Determining of an opening Balance Sheet position (Assets, Account Receivable, Accounts Payable, Liabilities and Commitments)

However, the pace of accrual accounting reform and the difficulty of the implementation depended on the level of support from head of the government and authority exercised by the CGD. The strategic three-year implementation plans are shown in Table 2.1

Table 2.1 Strategic Three-Year Implementation Plans

As of September 30, 2002	As of September 30, 2003	As of September 30, 2004
<ul style="list-style-type: none"> • Chart of Accounts • Accounting Manuals • Identify controlled entities • Obtain/ Develop accounting skills • Improve database of assets and liabilities 	<ul style="list-style-type: none"> • Chart of Accounts • Accounting Manuals • Conduct training • Improve database of assets and liabilities • Establish opening balances for Balance Sheet • Development of accounting software; AFMIS and GFMIS 	<ul style="list-style-type: none"> • Implement GFMIS • Prepare accrual financial statements for individual entities • Consolidate Whole of Government financial statements for Thai Government

The Advisory Committee for Public Accounting Development was established within the CGD which comprising of public accounting experts, lecturers in renewed universities and responsible officials of the CGD in order to supervise the transition process and solving the implementation issues for departmental agencies and the CGD.

In an early stage of transition, it was found that the key issues were relating to reconciliation of cash basis of budgeting system and accrual basis of accounting, the understanding of accrual accounting information of the public managers, and the usefulness of accrual accounting information by the departments. The development stages of the transition to accrual accounting in Thailand up to the present are shown in Table 2.2

Table 2.2 Government Transition to Accrual Accounting

Year 1999 - 2002	Year 2003 - 2005	Year 2006- Present
<ul style="list-style-type: none"> • Cash Basis of Accounting 	<ul style="list-style-type: none"> • Accrual Accounting Adoption • Implementing of GFMIS 	<ul style="list-style-type: none"> • Accrual Financial Reporting for Government Agencies • Modified Accrual Financial Statement for Thai government

Although the public sector context is different, the fundamental objectives of financial reporting are the same across both public and private sectors. Thai Public Sector Accounting Standards and Policies Broad was established in 2002 for issuing government accounting standards. The issuance TPSASs in compliance with the IPSASs are listed as the following:

- 1) Issuance of Thai Public Sector Accounting Principles and Policies no.1 on 25th May 2001 (Accrual Accounting Standards)
- 2) Issuance of Thai Public Sector Accounting Principles and Policies no. 2 on 6th January 2003 (Accrual Accounting Standards for Assets, Liabilities, Equity, Revenues and Expenditures)
- 3) Issuance of Thai Public Sector Accounting Standards no.1: Presentation of Financial Statements on 11th February 2013

4) Issuance of Thai Public Sector Accounting Standards no.3: Accounting Policies, Changes in Accounting Estimates and Errors on 7th October 2013

5) Issuance of Thai Public Sector Accounting Standards no.5: Borrowing Costs on 17th October 2014

6) Issuance of Thai Public Sector Accounting Standards no.13: Leases on 13th December 2011

7) Issuance of Thai Public Sector Accounting Standards no.16: Investment Property on 17th October 2014

8) Issuance of Thai Public Sector Accounting Standards no.31: Intangible Assets on 25th November 2016

2.2 Accrual Accounting in Public Sector

The development of government accounting has been supported by two principles: the principle of control over the use of funds and the principle of budget spending as approved by parliament (Pallot, 1992).

The governmental accounting practice consists of three important features: 1) cash control and money management, 2) budget execution, and 3) accounting on budgeted expenditures and revenues with correspondence cash received and payments (Monsen, & Nasi, 1998).

The cash basis of accounting has been used in assessing the macro-economic impact of public sector activity and informing judgments about the relationship between fiscal and monetary policy. However, fiscal policy might benefit from accrual accounting information whereas the fiscal sustainability and intergeneration equity issues are a concern (Robinson, 1998). Accrual accounting in the context of public sector would generally be beneficial because it provides information about full resources of entity. Accrual accounting is expected to provide a greater transparency and accountability by providing a comprehensive view of assets and liabilities, and performance assessment of the government.

The objectives of government accounting are to safeguard the public fund and property, to measure and communicate the government's financial position. The

government uses the accounting information condition to demonstrate financial accountability, and facilitating decision making (Chan, 2003). Due to the fact that the purposes of public goods and revenue sources are different, applying of accrual accounting from a private practice should be done gradually and combining with fund reporting.

Since, the introduction of double entry accounting in UK in 1828 (Edwards et al., 2002), the implementation of accrual accounting is a continuous process which has various strategy and institutional arrangements.

It had been concerning within the government that cash accounting is not sufficient to track the movement of budget spending in an effective manner of fiscal management. The government also faced a problem in publishing a financial report to parliament in delaying. In Anglo Saxon Original countries such as Australia, UK, and other European Union countries, the research in accrual accounting adoption are noted.

The adoption strategies and transitional process are different among countries both within developed and developing countries. It can be a stage of implementation by recording of financial assets and short-term liabilities, adding long-term financial assets and liabilities, and then including capital assets and legislated entitlement types of liabilities (Chan, 2003)

The financial reporting of the government has been a significant issue for government around the globe. The issue was highlighted because of the fiscal crisis of the government of the developed and developing countries. There are greater demands for transparency and accountability for the government. The adoption of private accounting practices in financial reporting are implementing in public administration with the aims that it would provide more relevance information which help the government to run in an economy, efficiency, and effectiveness way. The implementation of accrual accounting is trusted in reaching these goals.

The improvement of accounting information in public sector generated from accrual accounting are studied in previous literature. The government of New Zealand was the first government which generated the accrual financial statement. Later on, the UK and Australian governments were accomplish in preparing the consolidated financial statement generated from accrual accounting. The whole-of-

government financial reporting was another accomplishment from the adopting accrual accounting. It is recommended that the adoption process of accrual accounting and consolidated financial statements of the whole of government should be on the gradual process (Chan, 2003).

With the development goals, the International organization, lenders and donors endorse International Public Sector Accounting Standards (IPSAS) for adoption in developing countries with the emphasis on the assurance of financial integrity (Chan, 2006). The IPSASs are deemed to be useful accrual accounting standards for the process of accounting reform from cash basis to accrual basis. The balance between an international norm and domestic practices is needed. However, it is not meant that the government will abolish cash accounting because it is used for budgeting and budget control purposes. In many countries budgeting has a greater role than financial reporting (Heiling, Schührer, & Chan, 2013).

In this study, the definition of the implementation of accrual accounting is defined as:

1) The Implementation of Accrual Accounting refers to the department's implementation of accrual accounting basis in which transactions are recognized as underlying economic events occur regardless of the timing of related cash receipts and payments.

2) The Implementation of Accrual Accounting Index captures the extent to which the government departments are implementing accrual accounting practices because the accrual accounting can be implemented in a gradual process that can be varying across the government departments.

2.3 The Transition Barriers to Accrual Accounting

Lüder (1992) stated that the success of implementation of more informative accounting system would depend on the specific combination of favorable and unfavorable conditions. Specific conditions include legal system, staff qualification, size, and organizational characteristics.

Jaruga and Nowak (1996) described that implementation barriers to the accrual accounting are system of values, modes of thought, content of accountability,

system of education, legal system and shape of jurisdiction. Management culture changes are needed to be carefully promoted in the level of executive policy-maker and senior officials (Barberis, 1998).

Christensen (2002) reported the stage of accrual accounting reform in the New South Wales Government and found that the significant barriers are inadequate public sector accounting expertise and inadequate of assets records.

Hepworth (2002) reported the accounting reform in the UK that the actual implementation of accrual accounting required the accrual accounting standards setting, the proper asset recording and valuation, the integration of budgeting and accounting, information technology capacity, and the participation of accounting professional in the process of the transition of accrual accounting. Without an information technology capacity, it would be difficult to assemble the information of accrual accounting. Moreover, the accountancy professional would promote the success of accrual accounting adoption.

Christensen (2005) studied the role of private consulting firms in facilitating implementation of accrual accounting in public sector. Private accounting firm's knowledge can be used when applying private sector accounting into public sector.

Hassan Ouda (2008) studied transition barriers to accrual accounting in Egypt and the Netherlands and found that personnel characteristics, political factors, communication barriers, legal, and bureaucratic management culture had significant effect on the adoption of Accrual Accounting in the Dutch central government. Moreover, the significant factors that impacted on the adoption of accrual accounting in Egypt were accrual accounting principle, lack of accounting standards, political factors, financial resources, organizational characteristics, specific accounting issues and personnel characteristics.

Khan and Mayes (2009) stated that the transition issues of accrual implementation were formulating of accounting policies and the alignment of accrual accounting and budgeting. Thus the preconditions of the transition were political support, technical capacity, qualified human resources and sufficient financial resources.

Caba-Perez, López-Hernández, and Ortiz-Rodríguez (2009) stated that there are implementation barriers when introducing accrual accounting in three Latin

American countries. These variables are incentives, staff qualification, international and financial aid, and the effective plan for progressive implementation.

The International Public Sector Accounting Standards Board (IPSASB) reported general practical implementation issues associated with accrual accounting. Factors that may impact the transition were the system of the government, the political environment and commitment, the current basis of accounting used, the capability of existing information systems, and the capacity and skills of the people. For developing countries, the capacity of their current accounting system, qualified accounting personnel, the resources available within and outside the government, and use of legislative for authority of accrual adoption would affect the success of the transition (IFAC, 2011).

Depending on administrative environment, at present there are issues concerning with success factors of implementation and specific accounting techniques related to public sector accounting and reporting. The obstacles which are often stated in other studies are constitutional and legal restrictions, and accounting resources including accrued based accounting system and proficiency of accounting staff in public sector especially in developing country (Ball, 2012). In case of developed and middle income countries, the management support or political will for transparency is the most obstacle of financial reporting (Ball, 2012). For any individual politician, the lack of incentive for transparency is the short term period in public sector. Moreover, the budgeting and appropriation rules or institutional arrangement provide weak incentives for high-quality reporting and financial management.

Due to the political adoption of accrual accounting in Canada in which was motivated by legitimacy and normative pressures by the accounting profession. Many governmental agencies are continuing using cash accounting for decision making by administrators and politicians (Pollanen, & Loiselle-Lapointe, 2012).

Newberry (2014) argued that government financial reports should be interpreted differently from those of businesses. Moreover, politicians and government officials do not necessarily have a business background for facilitating their understanding of accrual financial reporting.

Hassan Ouda (2015) argued that adopting the private sector accounting practices into public sector required a culture change and a consideration time period.

Lack of incentive affected the differences of accrual accounting practices internationally.

These transition barriers to accrual accounting implementation can be summarized in Table 2.3. In this study, the definition of the transition barriers to accrual accounting is defined as:

Transition Barriers to Accrual Accounting refers to transition barriers of government departments which influences the implementation of accrual accounting in Thai central government departments.

Table 2.3 Transition Barriers to Accrual Accounting Implementation

Source	Implement Barriers	Country Experiences
Lüder (1992)	<ul style="list-style-type: none"> • Legal Criteria • Staff Qualification • Size of Jurisdiction • Organizational Characteristics 	A comparative study of the United States, Canada, and several European countries
Jaruga and Nowak (1996)	<ul style="list-style-type: none"> • System of values • Modes of thought • Content of accountability • System of education • Legal system • Shape of jurisdiction 	Polish public finance sector
Christensen (2002)	<ul style="list-style-type: none"> • Inadequate public sector accounting expertise • Inadequate of asset records 	The New South Wales Government
Hepworth (2002)	<ul style="list-style-type: none"> • Accounting Standards setting • Asset recording and valuation • Accounting and budgeting integration • Information technology capacity • Accounting professional participation 	UK experience
Christensen (2005)	<ul style="list-style-type: none"> • External private accounting firms 	The New South Wales Government

Table 2.3 (Continued)

Source	Implement Barriers	Country Experiences
Ouda (2008)	<ul style="list-style-type: none"> • Personnel characteristics, Political factors, Communication barriers, Legal, and bureaucratic Management culture • Accrual accounting principle, Lack of accounting standards, Political factors, Financial resources, Organizational characteristics, Specific accounting issues and Personnel characteristics 	Netherlands Egypt Experiences
Khan and Mayes (2009)	<ul style="list-style-type: none"> • Lack of resources especially in accounting and information technology • Political and management support • Investment in human and financial resources • Changes in management framework 	International Experiences
Caba-Perez et al. (2009)	<ul style="list-style-type: none"> • Incentives • Staff qualification • International and financial aid • The time period of implementation 	The Argentina, Chile, and Paraguay Experiences
IFAC (2013)	<ul style="list-style-type: none"> • System of government and environment • Information technology capacity • Human capacity and skills • Financial resources • Use of legislative 	International Experiences
Bergmann (2012), Ball and Pflugrath (2012), Ball (2012)	<ul style="list-style-type: none"> • Lack of Management Culture Change or Bureaucratic management culture • Constitutional and legal restrictions design • Lack of proficiency staff or qualified accountant • Lack of the right incentive 	UK, Switzerland and Canada experiences

Table 2.3 (Continued)

Source	Implement Barriers	Country Experiences
Pollanen and Loiselle-Lapointe (2012), Newberry (2014)	<ul style="list-style-type: none"> • Lack of understanding of accrual accounting report for effectively utilization • Lack of understanding of accrual report by politicians and government officials 	Canada, Central Government of New Zealand Experiences
Ouda (2015)	<ul style="list-style-type: none"> • Cultural Changes • Lack of incentive 	International Experiences

2.4 The Concept of Governance

Transparency and accountability are components of public sector governance that public sector entities or individuals are responsible for their decisions and actions, and are subjected to scrutiny by external stakeholders. The integrity of uses of public funds, the stewardship, the efficiency of use of public resources, for the leadership, for the achievement of the entities objectives are also components of the public sector governance (Nolan, 1995, Barrett, 2003).

The concept of corporate governance in public sector is referred to the processes that the public entities are directed, controlled, and held in account. The reporting and public accessibility to information are essential components of public sector governance (Public Accounts and Estimates Committee, 2005). Accrual information is a key driver for improving the quality of financial information and is enable for improving governance (Barrett, 2004). Accountability is an important element of good governance in which relying on the relevant and timely information (Cameron, 2004). Accountability is usually an icon for good governance (Bovens, 2005).

The meanings of three types of governance are described by S.P. Osborne (2010); Corporate governance has concerned with the internal processes that can lead to the direction and the accountability of the entity; Good governance is defined by World bank for the normative models of social, political and administration; and

Public governance that has concerned with the institutional relationship that other social actors could involve in public policy, the public policies process, the management of the government, the public service contracts, and the network of entities to provide public services.

As the International Federation of Accountants (IFAC) described the good governance in the public sector that is the arrangements for ensuring the outcomes would be achieved for stakeholders and the entities have conducted their activities with public interests. The entities are required to implement good practices in the transparency of reporting to deliver effective accountability (IFAC, 2013). The concept of corporate governance in the private is defined as a concept of rules, structures and mechanisms for controlling of the corporations to ensure the integrity and trust from the shareholders and investors (OECD, 2015).

2.5 Transparency

While there has been a gradual improvement in transparency across the private and public sector and across the countries. The financial crisis of the Asian countries in 1990s highlighted that there is a shortcomings in financial reporting in both private and public sector.

The achievement of transparency can be the open of information and the elimination of secrecy to citizens that transparency can prevent corruption and promoting public accountability (Hood, 2001).

Transparency is in a concern of public sector because it is a central focus of integrity. In the report of the Auditor General of Canada (2002), transparency is a sustaining element of effective accountability that one can observe the activities of the government.

Barth and Schipper (2008) proposed that financial reporting transparency is the underlying economics of the entity can be readily understandable by those using financial reports.

Ball (2009) stated that transparency discloses a way that organizations conduct their activities. Transparency is subtly intertwined with accountability that encourages openness. The policy makers create transparency alongside accountability,

efficiency, and effectiveness. Transparency becomes an unofficial mandate by the public and is often a legal mandate.

Report on Fiscal Transparency, Accountability, and Risk of the IMF, fiscal transparency consisted of the clarity, reliability, frequency, timeliness, and relevance of public fiscal reporting and the openness to the public of the government's fiscal policy-making process. It was a critical element of effective fiscal management (IMF, 2012).

Focusing on the fiscal reporting, in the IMF's new fiscal transparency code stated that for transparency propose, fiscal reports should provide a comprehensive, relevant, timely, and reliable overview of the government's financial position and performance (IMF, 2014).

In the Conceptual Framework for General Purpose Financial Reporting by Public Sector Entities of the IPSASB, transparency was stated that Transparency is an expression of the achievement of full qualitative characteristics of financial reporting: relevance, faithful representation, understandability, timeliness, comparability, and verifiability (IPSASB, 2013).

For private sector, the conceptual framework for financial reporting stated that the qualitative characteristics are classified into the fundamental qualitative characteristics including the relevance and faithful representation which are useful for decision makings, whereas, comparability, verifiability, timeliness, and understanding are enhancing qualitative characteristics (IASB, 2010).

Table 2.4 shows the various definitions of transparency given by scholars and international organizations.

Table 2.4 Definitions of Transparency

Authors	Definitions	Jurisdiction/ Context	Concepts
1) Hood (2001)	'open to information and the elimination of secrecy'	UK / Public Sector	• Openness
2) Auditor General of Canada (2002)	'a sustaining element of effective accountability' 'one can see clearly into the activities of the government'	Australia / Public Sector	• Integrity

Table 2.4 (Continued)

Authors	Definitions	Jurisdiction/ Context	Concepts
3) Barth and Schipper (2008)	‘financial reporting transparency is the extent to which financial reports reveal an entity’s underlying economics in a way that is readily understandable by those using the financial reports’	International Experiences	<ul style="list-style-type: none"> • Reflecting underline economic • Understandability • Disaggregating financial information • Comparability
4) Ball (2009)	‘a public value embraced by society to counter corruption, transparency synonymous with open decision-making by governments and nonprofits, and transparency as a complex tool of governance in programs, policies, organizations, and nations’	International Experiences	<ul style="list-style-type: none"> • Openness
5) IMF (2012)	‘the clarity, reliability, frequency, timeliness, and relevance of public fiscal reporting and the openness to the public of the government’s fiscal policy-making process,	IMF Experiences / Public Sector	<ul style="list-style-type: none"> • Clarity • Reliability • Frequency • Timeliness • Relevance • Openness
6) IPSASB (2014)	‘an important expression of the qualitative characteristics of financial reporting’	International Experiences / Public Sector	<ul style="list-style-type: none"> • Coverage • Faithful Representation • Relevance • Comparability • Consistency • Understandability • Timeliness • Verifiability

Table 2.4 (Continued)

Authors	Definitions	Jurisdiction/ Context	Concepts
7) IMF (2014)	‘fiscal reports should provide a comprehensive, relevant, timely, and reliable overview of the government’s financial position and performance’	IMF / Public Sector	<ul style="list-style-type: none"> • Comprehensive • Relevant • Timely • Reliable

There are four dimensions of transparency: 1) Transparency upwards, means that the hierarchical superior/principal can observed the conduct, behavior, and the results of the hierarchical subordinate/agent; 2) Transparency downwards, means that the agent can observe the conduct, behavior, and the results of the rulers or principal prominently in democratic theory and practice of accountability; 3) Transparency outwards, means that the agent can observe what is happening outside the organization in order to understand the environments and the behavior of peers or competitors; 4) Transparency inwards, means that those outside the organization can observe what is going on inside the organization. It is relevant to freedom of information legislation. The distinctions between event transparency and process transparency are the former focuses on attention of open information about inputs, output, and outcomes whereas the latter focuses on open information about the transformations that take place between inputs, outputs and outcome. Transparency can be in real time or in retrospect. Transparency in real time means the accountability window is always open and surveillance is continuous meaning that the internal process of the organization are continuously liable to disclose. Transparency in retrospect means that the information will be available only after embargoes or time-delays. Moreover, there can be a divergent between nominal transparency and effective transparency, there must be receptors that capable of processing, digesting, and using the information (Heald, 2003, 2006).

Hood (2007) concluded that the tension between the pursuit of transparency and the avoidance of blame in public administration is crucial problems. The

observed behaviors of blame-avoidance strategy and the transparency could produce nil effects, side-effects and reverse effects in pursuit of transparency. There are four types of transparency when combining how transparency works (direct and indirect) and who transparency applies to (general or particular): 1) Open mutual scrutiny, all doings of everyone are directly observable by everyone else; 2) General surveillance, all doings are under scrutiny 3) Public forums, a set of ways in which public officers can be observed and scrutinized by citizens 4) Bureaucratic transparency, the various process by which public officers are audited by regulators, auditors, and various bureaucracies guardians (Hood, 2007).

In this study, Financial Transparency refers to an important expression of the qualitative characteristics of financial reporting; a comprehensive of fiscal activities, timeliness, quality and integrity, understandability of the public financial reporting and the openness to the public of the government's financial position and performance.

2.6 Accountability

Day and Klein (1987) defined accountability as a discharge of a duty or defending their conduct. The accountability relationship is the relationship between individuals, presupposes agreement both about a performance and about the justification of their conduct, a duty to explain their actions.

As explained by the Governmental Accounting Standards Board (GASB), accountability is the cornerstone of all financial reporting in government that citizens have a right to receive openly declared facts (GASB, 1987).

The objective of accounting that associates with accountability has determined the ways of financial reporting. The financial reporting has been divided into three dimensions: the reporting of comparison of forecast revenues and budget expenditure with actual amounts, the reporting of the accomplishment of services activities, and the demonstrating of inter period equity (Ives, 1987).

In the early financial reporting, the accountant is held accountable for achieving the objectives, compliance, efficiency, and future operations (Patton, 1992).

Sinclair (1995) mentioned that accountability entails a relationship in which government is required to explain and take responsibility for its actions.

The accountability has broader view to include cost information and systematic performance measurement that links accounting with budgeting and performance evaluation; the connections between accounting and reporting of outputs and outcome (Aucoin, & Heintzman, 2000).

The Auditor General of Canada (2002) defined accountability as a relationship based on obligations to demonstrate and take responsibility for performance, both the results achieved as agreed expectations and the means used.

The results as well as for the means adopted to achieve the results are focusing for performance accountability. The effective accountability is not just reporting the performance but also reviewing of appropriate of actions and activities to achieve the performance and possible consequences (Barrett, 2004).

Bovens (2005) stated that the concept of accountability is closely related to accounting particularly bookkeeping. It can be defined as a social relationship in which an actor feels an obligation to explain and to justify his or her conduct to some significant other. Accountability relies on the availability of relevant and timely information.

Laughlin (2008) stated that one of the key characteristics of “entity accountability” is that “it does not have a primary user group in mind, necessarily require a specification of who does the demanding”. Entity accountability is intended to be useful to all stakeholders without specific concerns of whom they are and what their information needs may be.

The dissemination of general propose financial statements or cost information of an entity to public is a mean of discharging of its accountability. Effective accountability is concerned not only with reporting of completed actions, but ensuring stakeholders are able to understand and response to an entity (IFAC, 2013).

The discharge of accountability obligation requires the provision of entity information relating to the entity’s objectives, management of the resource used, its compliance with legislation and regulations, its efficiency and effectiveness of the operations, and anticipated service delivery activities and financial needs (IPSASB, 2013). The various definitions of accountability was defined and given by scholars and international organizations as shown in Table 2.5.

Table 2.5 Definitions of Accountability

Authors	Definitions	Jurisdiction/ Context	Concepts
1) Day and Klein (1987)	‘ actions are open to inspection and scrutiny’ ‘ to answer for the discharge of a duty or conduct’; ‘to give a satisfactory reason for or to explain’	UK Public Sector	<ul style="list-style-type: none"> • Open to inspection • Scrutiny • Answer • Explain
2) Sinclair (1995)	‘ entails a relationship in which people are required to explain and take responsibility for their actions’	Australian Public Sector	<ul style="list-style-type: none"> • Explain • Take responsibility for their conducts
3) Aucoin and Heintzman (2000)	Functions of Accountability are ‘to control for the abuse and misuse of public authority, to provide assurance in respect to the use of public resources adherence to the law and public service values, to encourage continuing improvement in governance and public management’.	Public Governance and NPM	<ul style="list-style-type: none"> • Control misuse of fund • Assurance in respect to law • Continuing improvement in Governance
4) Bovens (2005)	‘a social relationship in which an actor feels an obligation to explain and to justify his or her conduct to some significant other’	Public Sector	<ul style="list-style-type: none"> • Explain • Justified the conduct
5) Laughlin (2008)	‘is not directly concerned with the needs of users but with the entity and its past actions and activities as well as future intentions’ ‘is intended to be useful to all stakeholders without specific	UK Public Sector	<ul style="list-style-type: none"> • Money is receipt and used as required by laws • Activities or process to convert inputs into outputs

Table 2.5 (Continued)

Authors	Definitions	Jurisdiction/ Context	Concepts
	concerns of whom they are and what their information needs may be'		<ul style="list-style-type: none"> • Transparent of expected and actual performance to relating objectives in terms of outcomes • Information on achievement of policy issues or programs at particular timeframes
6. IPSASB (2014)	'to provide information of entity objectives and resources allocation to its service or outputs', compliance with approved budgets or relevant legislation, how well an entity has met financial objectives, the efficiency and effectiveness of its operation, the entity' ability to meet future service delivery and financial commitments.	Public Sector	<ul style="list-style-type: none"> • Objectives • Resource allocation • Compliance • Efficiency • Effectiveness • Ability to meet future services delivery and financial commitment

An agency relationship is defined as a contract that the principals engage the agents to perform some services on behalf of them by delegating some authority in decision making to those agents. The relationship between the principals and agents is usually discussed in the accountability relationship (Jensen, & Meckling, 1976).

Accountability is a social relationship that the agents feel an obligation to explain and to justify their conducts. There are two types of accountability; political accountability, the accountable for those who delegate authority, and managerial accountability, the accountable for carrying tasks according to performance criteria's (Day, & Kline, 1987).

An approach to enhance accountability by imposing managerial controls is likely to be effective than informing process that is a new concept of accountability. There were five types of accountability: political accountability, managerial accountability, a more direct and informal accountability to the public or public accountability, professional accountability, a relying on a sense of duty of skilled or expert officials, and personal accountability, an internalized ethical values of people (Sinclair, 1995).

Lerner and Tetlock (1999) mentioned that the outcome accountability would heighten self-justification to the outcome of decision, in contrast to process accountability or the use of proper decision strategies before reaching a decision.

A 360-degree of accountability or the accountability to all others that were parts of the entities environment, financial accountability, the obligation to use public fund wisely, accountability for fairness, accountability for the use of power, accountability for performance were described (Behn, 2001).

Bovens (2005) explained the relationship of the components of accountability were the actors and the relationship between them. The relationship consisted of three elements: 1) the obligation to inform by the individuals or public managers; 2) the demand for or question the adequacy of information and the evaluation of performance by stakeholders or citizens; and 3) the consequences that the individuals or public managers face such as fines and civil remedies. NPM had introduced a horizontal form of accountability into public sector: contractual accountability that is the accountable roles and responsibilities in conducting government services and horizontal Accountability that was the accountable to the citizens.

Osborne (2007) focused on the accountability relating to the customers of public services, customer accountability that put pressure to public entities to improve their performances.

In this study, Perceived Accountability is defined as:

Perceived Accountability captures the perceptions of public financial managers or accountants on government departments' obligations to provide information sufficient enough for assessing the accomplishment of entities' objectives, sources of funds, management of the resources for delivering public services, their compliance with budget, legislation, regulation, or other authority that governs, the efficiency and effectiveness of the entities' operation, and the ability to meet their service delivery and financial commitments in future.

2.7 Hypotheses Development

Based on the review of the accrual accounting implementation in previous literature and the current status of its implementation in Thailand, the following issues are explored.

2.7.1 The Relationship between Transition Barriers of Accrual Accounting and the Implementation of Accrual Accounting

The implementation results in the central governments of UK and New Zealand show that accrual accounting is a complex and expensive system that has provided few benefits with some drawbacks because the information is complex, and the lack of understanding by the users (Connolly, & Hyndman, 2006; Newberry, 2014). The lack of accounting expertise and the flawed asset accounting records were major problems during the transition process in the New South Wales Government (Christensen, 2002). Lack of incentive, qualified staff, and financial aids were important barriers for the implementation in the Argentina, Chile, and Paraguay (Caba-Perez et al., 2009). The organization culture, the lack of sufficient information system, the lack of technical capability of accrual accounting techniques, and insufficient training for preparers and users of accrual information are challenging problems in Malaysia and Indonesia, (Harun et al., 2013; Saleh, & Pendlebury, 2006; Wan, 2017).

The culture differences could be important factors that prevent the embedded of accrual accounting in the Republic of Ireland government (Hyndman, & Connolly, 2011). In order to apply private sector accounting techniques into public sector, it is

required considerable period of time, proper incentive, and continuing administration cultural changes (Ouda, 2015). After reviewing the literature summarized in Figure 2.1, it is found that these transition barriers have a negative relationship with the implementation of accrual accounting. Therefore, the first hypothesis of this study is developed:

H1: The transition barriers cause a lower level of the progress of accrual accounting implementation

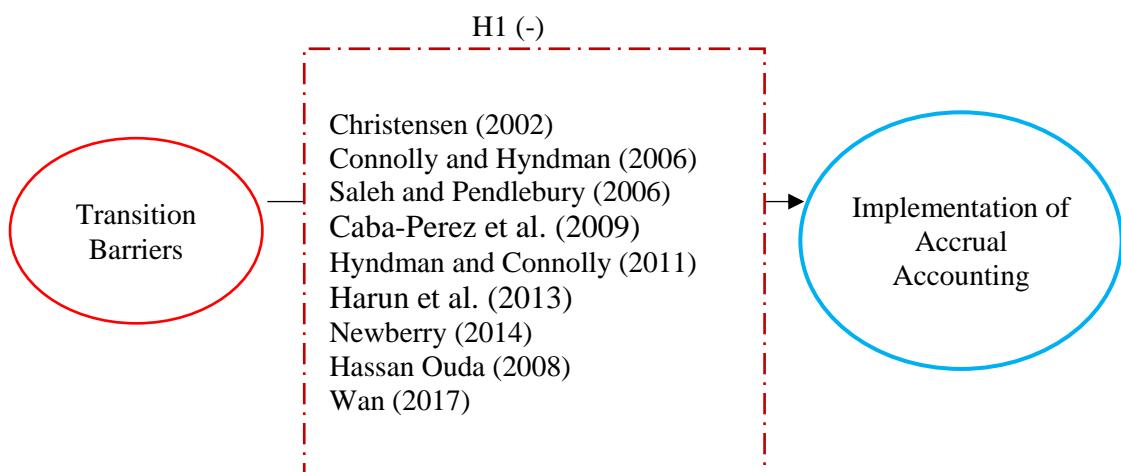


Figure 2.1 Summary of Literature Cited in Section 2.7.1

2.7.2 The Relationship between the Accrual Accounting Implementation and Financial Transparency

The implementation of accrual accounting has improved the transparency of the government financial position. The useful accounting information must satisfy the requirements of relevance, reliability, understandability and comparability and must be customized to suit the operating environment of government and the purpose for which accounting information is required (Barrett, 2004).

One of the functions of transparency is to cover the whole picture of activities that the government interacts with the rest of economy. Hierarchy and Comprehensive coverage of financial reporting on accrual basis would provide full disclosure of any remaining extra-budgetary and off-balance sheet activities (Heald, 2012).

Accrual financial information is an integral component of good financial information in government. It provides the users with a more complete picture of the government financial activities; the resources, obligations, financing, costs and impacts of its activities. Without high quality of governmental financial reporting, transparency cannot be assured, thus accrual accounting is a core component of financial reporting in public sector (Ball, 2012).

Hood (2007) stated that the development of more elaborate accounting rules is claimed to increase transparency. Moreover, the disaggregated cost center in budget process is one example of transparency. The exposure of inter-department transactions between government entities could promote the transparency by exposing the arm's-length transactions within the government.

Rodríguez Bolívar et al. (2015) stated that the IPSASs could enhance the quality of financial information for greater comparability, understandability and timeliness of the financial statements issued by public entities that could contribute to improving of transparency.

In addition, the implementation of accrual accounting in Iranian public sector has promoted efficient financial transparency (Bastani, Abolhalaj, Molania Jelodar, & Ramezani, 2012; Mehr, Hejazi, & Pourmehr, 2015). Implementation of accrual accounting is one of the necessary steps being taken to improve financial transparency in governmental organizations in Indonesia and Malaysia (McLeod, & Harun, 2014; Saleh, & Pendlebury, 2006).

The adoption and implementation of accrual accounting or IPSAS accrual accounting standards by government worldwide will improve the quality of financial information reported by public entities (Bergmann, 2014). For example, the implementation of IPSAS accrual accounting basis in the Nigerian public sector has enhanced the quality of accounting information and transparency in the financial reporting (Ofoegbu, 2014). After reviewing the literature summarized in Figure 2.2, the second hypothesis is established:

H2: The implementation of accrual accounting causes a higher level of financial transparency

2.7.3 The Relationship between Transparency and Accountability

In the report of Auditor General of Canada (2002), transparency is described as a sustaining element of effective accountability. An essential characteristic of accountability is an access of information which relying on reliable and timely information (Cameron, 2004).

Heald (2003) mentioned that transparency is a central focusing in public sector reform since open access to information, the elimination of secrecy, is considered to be a condition for the prevention of corruption and promoting public accountability. Openness and Transparency are essential elements of accountability. They make all stakeholders to monitor and review the government performance in achieving established goals or public policies, for fairness, for propriety, and for stewardship.

Hood (2001) defined the relevance of transparency as the elimination of secrecy which is a condition for the prevention of corruption and promoting public accountability. Transparency is a complement to accountability in a sense that it is a disclosure of information relating to government activities as a foundation for assessing accountability (Hood, 2010). Transparency is interlaced with accountability and becomes mandatory for the government (Ball, 2009; Saremi & Mohammadi, 2015).

The Chairman of the International Accounting Standards Board noted that “without transparency, neither can there be trust or accountability” (Hoogervorst, 2011). The International Monetary Fund explained that fiscal transparency is a critical element of fiscal management and accountability to ensure that the government has an accurate fiscal position and prospects. In the new fiscal transparency code, the fiscal transparency would allow for a better debate of a design and results of the fiscal policy, which helps to establish accountability (IMF, 2014).

After reviewing the literature as summarized in Figure 2.2, it is found that transparency is an important prerequisite for achieving accountability. Thus, the third hypothesis of this study is stated:

H3: Financial Transparency has a positive influence on the accountability.

2.7.4 The Relationship between the Implementation of Accrual Accounting and Accountability

NPM was a fundamental rationale for financial management reform in public sector. The association of NPM to accounting implication by applying private-sector accounting norms formed an integral part of public accountability and public administration (Hood, 1995). The objectives of financial reporting and accrual accounting implementation are to provide information to users in assessing of the financial positions and performance of the entity for accountability purposes (IPSASB, 2013).

The objective of governmental accounting and reporting is to protect public spending and discharge of the accountability (Chan, 2003). In general, the accounting standards are possessing a greater social role of accountability requirement. The government accounting standards are becoming the accountability standards (Chan, 2006). The government-wide financial statements would show the various type of accountability in government. For example, the statutory debt limitations of the government, the government-wide financial statements could protect the avoidance of accountability and giving more effective feedback of the financial management of the government (Chan, 2003).

An increasing level of the implementation of accrual accounting of the entity would provide more complete pictures of assets, liabilities and full cost information. This would enable legislatures to hold the government agencies more accountable for the management of assets, cost of its activities or services, and its ability to meet short-term and long-term obligations. Moreover, the accrual framework enhances a catalyst for change in the public sector reflecting in cost effectiveness, and 'value for money', and fosters an accountability for performance or results. The more complete picture enables legislatures to hold the government entity more accountable for the stewardship of assets, managing cost of its programs, and its ability to meet short term and long term obligations (Auditor General of Canada, 2002).

Ball and Pflugrath (2012) described that accrual accounting would enhance accountability of the government. The reporting of financial performance and position of the government that are prepared under accrual accounting is crucial for dealing with sovereign and debts crisis. Due to the fact that the government that has poor

accounting practices cannot make sound decisions on the allocation of scarce resources.

Schumesch (2013) reported the Price Waterhouse Global Survey on accounting and reporting of central government that the greatest benefits of adoption of accrual accounting and IPSAS or equivalent standards are for greater transparency and accountability. The financial reports prepared in accordance with international standards will facilitate comparability across governmental entities. The accrual based financial statements would help the government to demonstrate a discharge of accountability in public fund spending and would enable the users to evaluate the financial performance of the government.

The financial reports prepared in accordance with IPSASs would improve the quality of financial information. Thus, the implementation of IPSASs as reference framework will enhance accountability in the government and facilitate international comparison (Bergmann, 2014).

Moshdei et al. (2015) studied the relationship between the implementation of accrual accounting and accountability in Iran governmental organization. The result show that the implementation of accrual accounting has a positive effect on accountability. In Nigerian, practitioners, accountants, and auditors indicated that IPSAS accrual basis would guarantee accountability, transparency and improvement in financial reporting (Ofoegbu, 2014).

Kobayashi et al. (2016) explained that the adoption of accrual accounting and accounting information can be used to improve efficiency and effectiveness of public finance or the accountability of public finance. Moreover, the information produced from accrual accounting is useful for performance management.

However, there are some arguments that public assets such as library and museum collections, and heritage assets should not be included in the financial statements because the unreliability of their valuations would lessen the accountability of public managers and entities (Barton, 2005a; Carnegie, & West, 2003). The lack of outcome information of accrual statements have make them becomes useless for evaluating the efficiency and effectiveness of operations or performance accountability (Carlin, & Guthrie, 2003). These issues as summarized in Figure 2.2 are not undermined the main benefits of accrual accounting in enhancing accountability then the fourth hypothesis is specified:

H4: The implementation of accrual accounting causes a higher level of perceived accountability of central government departments.

The summary of the literature of the effect of the implementation of accrual accounting on transparency and accountability is showed in Figure 2.2

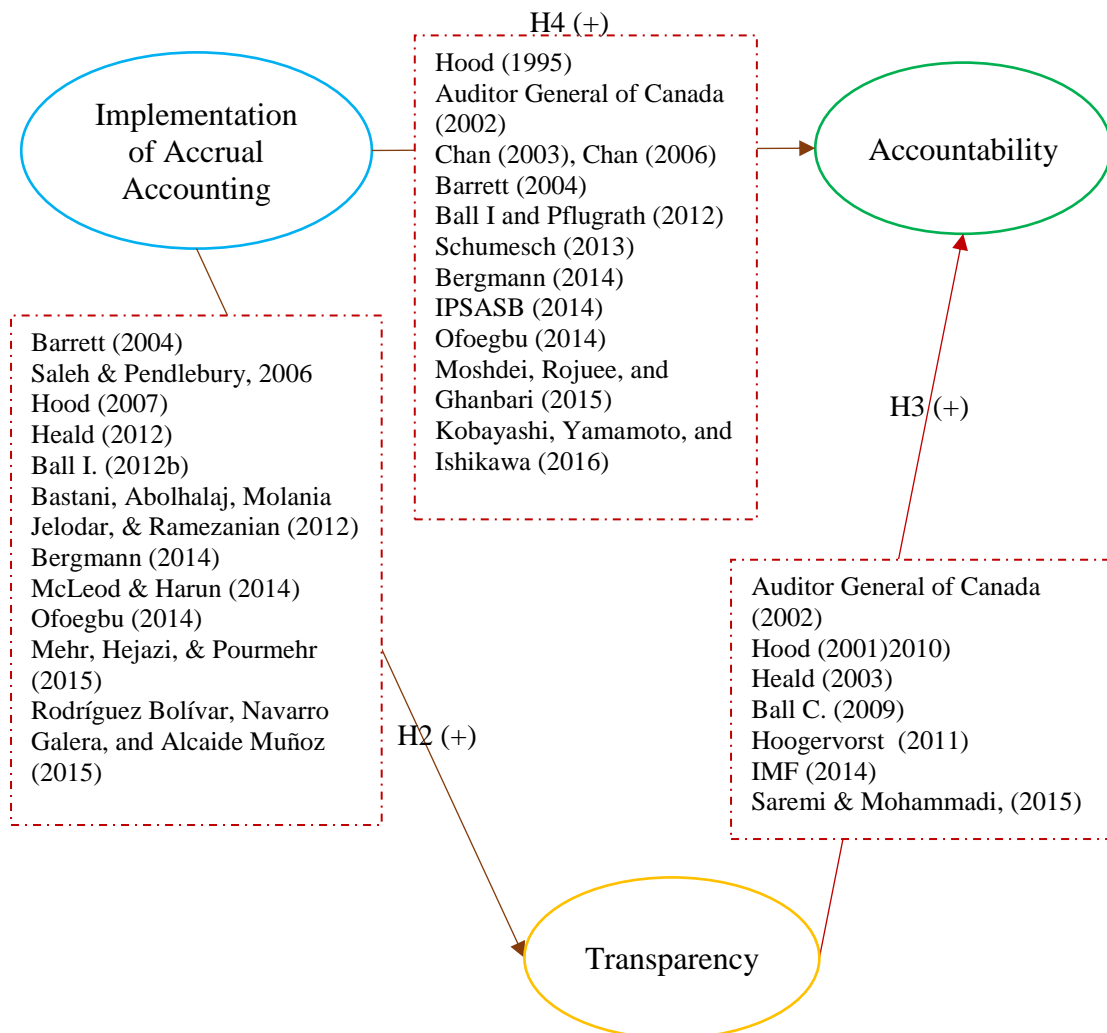


Figure 2.2 Summary of Literature Cited in Sections 2.7.2, 2.7.3, and 2.7.4

2.7.5 The Relationship between Transition Barriers of Accrual Accounting and Financial Transparency

Since the accrual accounting is more complicated than cash accounting, an investment in training and development must be provided to public accountants then

sound accounting practices can promote transparency of the government (Diamond, 2002). Also, the comprehensive management training programs for line managers in how to use an accrual accounting information is essential thus these managers would derive the benefits from its.

Hepworth (2003) explained that a proper implementation of an accrual accounting, public managers must have a willingness to promote more flexibility and less control of uses of funds. The whole management culture need a change to ensure that accrual accounting information can be used for making decisions. The financial incentives and penalties to encourage a practical management approach must be applied for the more efficient ways of resources used for delivery of public services.

There is no great motivation for line managers to proper manage their departments as in the private sector because any saving or unused funds that the departments generate from the operations must go back into the central pot or central government account (Paulsson, 2006).

The lacks of supportive management culture and right incentives would deter the proposed benefits of accrual accounting for transparency and efficient uses of public resources.

Hassan Ouda (2008) stated that the reason that political and management might not provide the right support or appreciate the accrual accounting was a lack of understanding of accrual information or they may have inadequate knowledge of financial reports generated by accrual accounting system.

Hyndman and Connolly (2011) stated that the unchanged management culture and accrual accounting technical problems have been preventing government officials from using accrual accounting reports for promoting transparency even in developed countries. Since, there are significant changes from cash to accrual accounting principles. Accrual information, mistaken by politicians and public finance officials, may lead to inappropriate judgment on policies and actions. If the accrual accounting information is not easily understandable to users, its usefulness for enhancing transparency is deterrent (Newberry, 2014)

In developing countries, such as in Indonesia, lack of qualified or properly trained public accountants are challenge problems. By sufficient training of accrual accounting techniques, these accountants will be then technically capable of producing

and using accrual accounting information for promoting transparency (Harun et al., 2013).

Heald (2015) stated that accrual accounting is implementing for the greater transparency in public sector. However, technical complexity of accrual accounting and the emphasis on ex ante budgeting, the changing nature of governmental activities, the fear of numbers of public officials, and a destructive of trust in government caused by the media, are obstacles to transparency.

In Malaysia, a well-planned training program is needed for introducing accrual accounting in the government. This training will also require both the preparers and users of accounting information to gain understanding in accrual accounting. If not, the benefits of accrual accounting will be lost if the information is provided but not used effectively for the promoting of transparency (Saleh, & Pendlebury, 2006). After reviewing the literature as summarized in Figure 2.3, the fifth hypothesis of this study is derived:

H5: The transition barriers cause a lower level of the financial transparency of central government departments.

2.7.6 The Relationship between Transition Barriers of Accrual Accounting and Accountability

Accrual accounting transition barriers could nevertheless prevent a successful outcome; enhancing accountability (Chan, 1994; Monsen, & Nasi, 1998).

It is important to change other elements of public administration at the same time of implementing accrual accounting, because bureaucratic and input based management culture could prevent a successful outcome in enhancing accountability (Caperchione, 1995).

The difficulty of accrual financial statements and the unreconciled numbers among cash budgeting and accrual accounting have made accrual accounting reports easily misunderstood by users and useless for discharging accountability (Guthrie, 1998; Steccolini, 2004).

Carlin and Guthrie (2003) stated that in many government, cash based budgeting have been used as a tool for assessing accountability, thus it is difficult for the government or stakeholders to use accrual accounting information to evaluate the

efficiency and effectiveness of the government operations because of the lack of outcome information.

There are different purposes and objectives between private sector and public administration. Accrual accounting is suitable only for business-like public entities (Christiaens, & Rommel, 2008). Thus, when applying private sector accounting techniques to public sector, specific accrual accounting issues and concepts must be modified before the effectively used in public sector for discharging accountability (Barton, 2005b; Carnegie, & West, 2003; Mautz, 1981). The ability to control the approved budget spending cannot be realized by accrual accounting (Christiaens & Rommel, 2008).

Barton (2005a) argued that public assets such as heritage assets are unsound to apply for applying accrual accounting method. The valuation of heritage assets also should not accounted in financial statement of public sector and should be held in trust of the custodial department only. The difficulty of accrual accounting techniques, the less communicating ability of information to users, and the validity of information provided, would be barriers to effective accountability (Connolly, & Hyndman, 2006).

The extent to which accrual accounting information is used for discharging accountability also depends on the specific organization context and the financial situation it is facing (Paulsson, 2006). The lack of incentives to use information would be barriers for effective accountability (Connolly, & Hyndman, 2006). One of the obstacles to the implementation of accrual accounting in public sector in Indonesia is a lack of public and parliament interest or pressure on the bureaucrats to adopt a more informative accounting system to improve the financial accountability of the government (Harun, 2007). The irrelevance between accrual accounting and the management would reduce the intended usefulness of accrual accounting in enhancing accountability (Arnaboldi, & Lapsley, 2009).

It is important that financial statements must be readable for all stakeholders. The low readability of accrual financial statements could be a significant obstacle to the improvement of accountability after the adoption of accrual accounting (Allini et al., 2017)

After reviewing the literature as summarized in Figure 2.3, the sixth hypothesis of this study is determined:

H6: The transition barriers cause a lower level of the perceived accountability of central government departments.

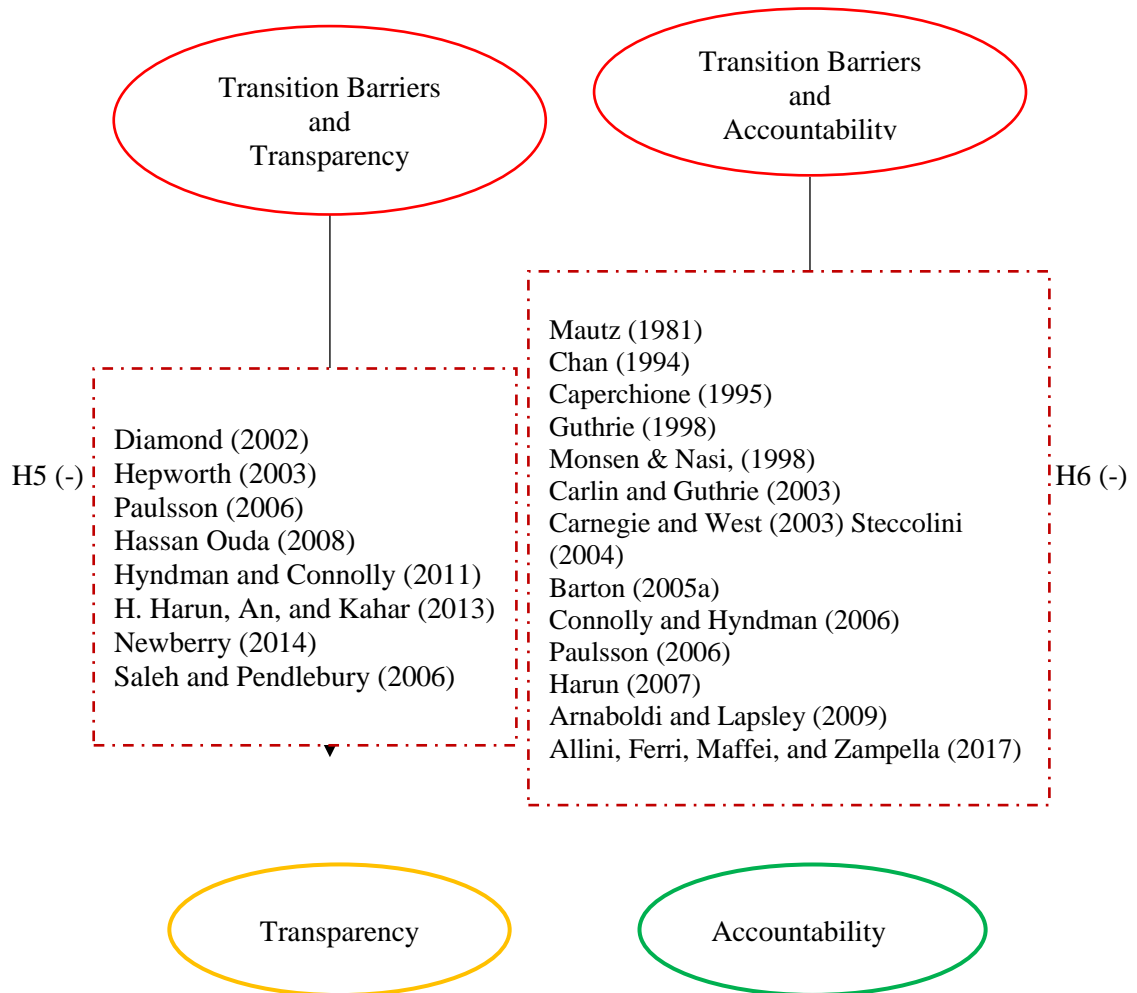


Figure 2.3 Summary of Literature Cited in Sections 2.7.5 and 2.7.6

2.8 Conceptual Framework

Although there are a number of studies on the accrual accounting implementation in public sector, these studies have not yet covered some areas: First, it has been found that the adoption of IPSASs accrual standards would generate a

better financial information. However, in countries with a long history of rule-based accounting practices, there may be other determinants of the implementation outcomes. Secondly, there are few quantitative research studies on the implementation of accrual accounting. Most previous studies discussed and debated on this topic or demonstrated historical analysis of the accrual accounting implementation. Lastly, the outcomes of the implementation have produced mixed results in different countries, thus the benefits of the implementation still remain inconclusive.

Since the accrual accounting has been adopted in Thai government departments for more than a decade, its promising outcomes towards the enhancement of transparency and accountability should be achieved. Thus, there is still a need to assess the current status of implementation outcomes and explore which transition barriers have deterred some aspects of transparency and accountability.

The conceptual framework of this study are then developed as illustrated in Figure 2.4 Through the practitioners' points of view, this conceptual model is used to identify which and examine how transition barriers affect the implementation of accrual accounting and the improvement of financial transparency and accountability of Thai government departments. Hence, the results of this study provides new empirical evidence on the implementation outcomes and recommend ways forward for governmental financial reporting.

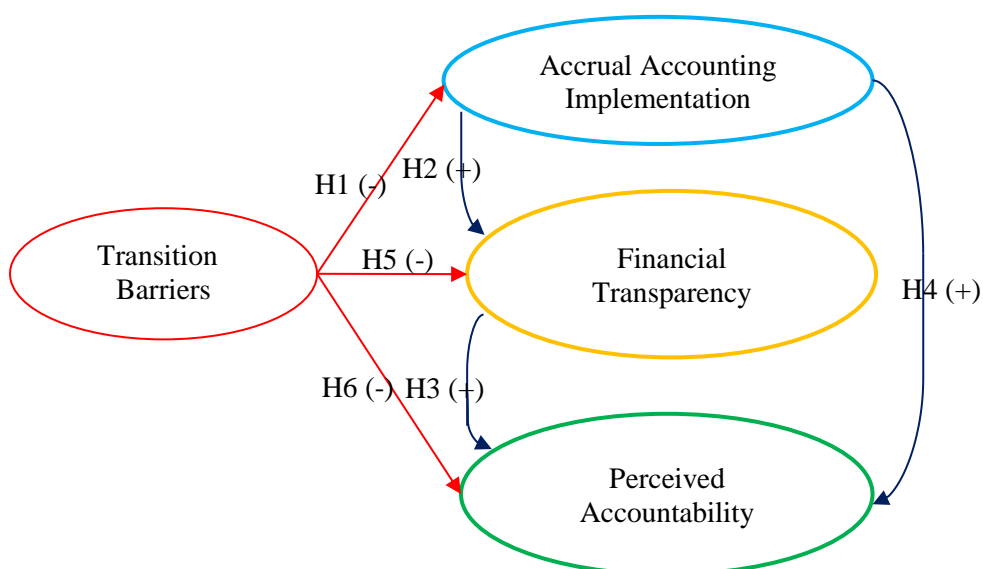


Figure 2.4 Representation of Conceptual Framework

2.9 The Measurement of Constructs

1) The Implementation of Accrual Accounting

There are many different ways of reporting accrual financial information in financial statements of the entities (Torres, 2004). At present, the accrual accounting practices of Thai central government departments can vary across the departments depending on their financial activities. If there is no TPSASs having been issued for certain financial activities such as agriculture, employee benefits, and impairment of assets, the departments need to comply with IPSASs or Thai Financial Reporting Standards (TFRSs). TFRSs are issued by the Federation of Accounting Profession in compliance with International Financial Reporting Standards (IFRSs). How financial information is presented can determine the extent of the implementation of accrual accounting.

This study develops the implementation of accrual accounting index similar to accrual accounting index of Hung (2001) that measured the use of accrual accounting, but modified with current Thai government accrual accounting standards and practices which can vary across central government departments. The implementation of accrual accounting index comprises 19 elements relating to the recognized and recording of the following assets, liabilities, provisions of liabilities; and the disclosure of contingent assets and liabilities as shown in Table in Section 3.5.2: 1) trade or services receivables, 2) inventories, 3) investments, 4) investment property, 5) interest capitalization of borrowing costs, 6) agriculture, 7) purchased intangible assets, 8) research and development, 9) property plant and equipment, 10) impairment of cash-generating assets, 11) disclosure of contingent assets, 12) trade payables, 13) accrued expenses, 14) finance leases, 15) unearned revenues, 16) employee benefits, 17) retirement benefits and pension liabilities, 18) provisions of liabilities, 19) disclosure of contingent liabilities.

2) The Transition Barriers to Accrual Accounting

Most transition barriers in this study are taken from the transition barriers presented in previous studies as summarized in Table 2.6 except for one transition barrier (i.e., lack of accrual accounting manuals). This additional transition barrier was derived from the answers gathered during the structure interviews with the practitioners of the Thai government departments.

3) The Financial Transparency

Transparency is an expression of the achievement of full qualitative characteristics of financial reporting (IPSASB, 2013). The quality of financial reporting can be measured by the qualitative characteristic of the conceptual framework for financial reporting of the IPSASB (van Beest, Braam, & Boelens, 2009). Moreover, as stated in the Report on Fiscal Transparency, Accountability, and Risk of the IMF that fiscal transparency consisted of the clarity, reliability, frequency, timeliness, and relevance of public fiscal reporting and the openness to the public (IMF, 2012).

In this study, financial transparency is characterized by the alignment of six concepts of transparency stated in the IMF's fiscal transparency code (coverage, integrity, quality, timeliness, understandability, and openness) and qualitative characteristics in the Conceptual Framework for General Purpose Financial Reporting by Public Sector Entities of the IPSASB. Finally, there are thirteen characteristics of financial transparency as shown in Table 2.7.

4) The Perceived Accountability

After reviewing the previous studies, there are six concepts of accountability that relate to accrual accounting information and reporting. Then, this study employs these six concepts and classifies accountability into ten elements of accountability as shown in a conceptual framework for general purpose financial reporting by public sector (IPSASB, 2013). IPSASs accountability framework is applied in this study because the financial reports of Thai central government departments are prepared with the objectives for discharging the accountability as mentioned in a conceptual framework for general purpose financial reporting by public sector. The measures of accountability in this study is similar to the measures of accountability by Mucciarone and Neilson (2012).

In this study, perceived accountability captures the perceptions of public financial managers or accountants on government departments' obligations to provide information sufficient enough for assessing the accomplishment of entities' objectives, sources of funds, management of the resources for delivering public services, their compliance with budget, legislation, regulation, or other authority that governs, the efficiency and effectiveness of the entities' operation, and the ability to meet their service delivery and financial commitments in future.

Figure 2.5 shows the constructs and the relationships among the constructs of the conceptual framework of this study. With the objectives to examine accrual accounting implementation in central government departments of Thailand and to answer the research questions whether transition barriers affect the implementation of accrual accounting, financial transparency, and perceived accountability of central government agencies; and whether the implementation of accrual accounting improve the financial transparency and perceived accountability of central government agencies. There are four constructs in this study; 1) accrual accounting implementation, 2) transition barriers to accrual accounting, 3) financial transparency, and 4) perceived accountability.

The first construct, accrual accounting implementation, captures the extent to which the government departments are implementing accrual accounting practices that can vary across the departments. This study develops the implementation of accrual accounting index or Accrual Index (AI) that consists of 19 elements relating to the recognized and recording of the following assets, liabilities, provisions of liabilities; and the disclosure of contingent assets and liabilities.

The second construct, transition barriers, refers to transition barriers of government departments which influences the implementation of accrual accounting. It consists of 14 observable variables: 1) lack of management support, 2) lack of qualified human resource, 3) lack of sufficient training and development, 4) cost of new accounting system, 5) lack of fiscal law and regulations, 6) shortage of budget in accounting function, 7) accounting and budget classification inconsistency, 8) lack of incentive, 9) management culture, 10) lack of accounting manuals, 11) lack of information communication ability, 12) lack of information technology capacity, and 13) lack of accrual accounting standards, and 14) lack of support from external experts.

The third construct, financial transparency, refers to an important expression of the qualitative characteristics of financial reporting. Financial transparency is characterized by the alignment of six concepts of transparency stated in the IMF's fiscal transparency code: 1) coverage, 2) integrity, 3) quality, 4) timeliness, 5) understandability, and 6) openness) and qualitative characteristics in the Conceptual Framework for General Purpose Financial Reporting by Public Sector Entities of the

IPSASB. Finally, there are thirteen characteristics of financial transparency as shown in Table 2.7.

The fourth construct, perceived accountability, captures the perceptions of public financial managers or accountants on government departments' obligations to provide information sufficient enough for the citizens or public in assessing the accountability of the departments by using the accountability concepts stated in a conceptual framework for general purpose financial reporting by public sector (IPSASB, 2013). In this study, there are six concepts: 1) objectives, 2) resource management, 3) compliance, 4) efficiency, 5) effectiveness, and 6) trends. These concepts then are classified into ten elements of accountability as shown in Table 2.8. After reviewing the summary of literature in Figure 2.1, it can be concluded that the transition barriers have a negative relationship with the implementation of accrual accounting. Thus, the relationship between transition barriers of accrual accounting and the implementation of accrual accounting is hypothesized to be negative (H1 (-)).

The reviews of literature summarized in Figure 2.2 and Figure 2.3 allow three conclusions to be drawn. First, accrual accounting is a core component of financial reporting in public sector because it provides a better quality of governmental financial reporting for enhancing accountability of the entities. Thus, the relationship between the accrual accounting implementation and financial transparency is hypothesized to be positive (H2 (+)). Also, the relationship between the implementation of accrual accounting and accountability is hypothesized to be positive (H4 (+)).

Second, transparency is an important prerequisite for achieving accountability. Thus, the third hypothesis of this study is hypothesized to be positive: H3 (+), Financial Transparency has a positive influence on the accountability.

Third, the transition barriers have mostly founded to deter the benefits of accrual accounting in enhancing the financial transparency and accountability of the government. Thus, the relationship between transition barriers of accrual accounting and financial transparency is hypothesized to be negative (H5 (-)). Also, the relationship between transition barriers of accrual accounting and accountability is hypothesized to be negative (H6 (-)).

Table 2.6 Transition Barriers to the Implementation of Accrual Accounting

Transition Barriers	Literature	Description
1) Lack of Management Support	Khan and Mayes (2009)	Roles and responsibilities of Head of department in supporting finance and accounting functions Political commitment
2) Lack of Qualified Human Resource	Lüder (1992), Christensen (2002), Ouda (2008), Caba-Perez et al. (2009), Khan and Mayes (2009), IFAC (2011), Ball and Pflugrath (2012), Bergmann (2012)	Education level and system Salary differential from the private sector Lack of qualified government accounting personnel
3) Lack of Sufficient Training and Development	Saleh and Pendlebury (2006), Harun et al. (2013), Wan (2017)	Continuing accounting training and development system Specific accounting training
4) Cost of New Accounting System	Guthrie (1998), Ouda (2008)	Lack of financial resource and technical skill in terms of software and hardware development
5) Lack of Fiscal Law and Regulations	Lüder (1992), Jaruga and Nowak (1996), Ball and Pflugrath (2012), Bergmann (2012)	Lack of enactment of new rules or regulations required for accrual accounting information Inflexibility of fiscal and financial rules and regulations
6) Shortage of Budget in Accounting Function	Ouda (2008), Khan and Mayes (2009), IFAC (2011)	Financial circumstance of each department
7) Accounting and Budget Classification Inconsistency	Hepworth (2002)	Inconsistency of accounting and budgeting definition and classification Integration between budget and accounting
8) Lack of Incentive	Caba-Perez et al. (2009), Ball and Pflugrath (2012), Bergmann (2012), Ouda (2015)	Lack of the right incentive system Provide incentive for using of accrual information

Table 2.6 (Continued)

Transition Barriers	Literature	Description
9) Management Culture	Jaruga and Nowak (1996), Ouda (2008), Khan and Mayes (2009)	Prevalence of Bureaucratic management culture and prevalence of input-base system Lack of a demand for improved information in decision making
10) Lack of Accounting Manuals		Lack of accrual accounting technical manuals for practical uses. Practical guideline tacking with specific government accounting issues
11) Lack of Information Communication Ability	Pollanen and Loisel- Lapointe (2012), Newberry (2014)	Lack of easily, comfortably, and understandability of accrual accounting information for users in decision making utilization Accounting and finance literacy of bureaucratic management
12) Lack of Information Technology Capacity	Hepworth (2002), Khan and Mayes (2009), IFAC (2011)	Degree of information technology capacity in computerized of accounting system Information technology training
13) Lack of Accrual Accounting Standards	Hepworth (2002)	Lack of certain accrual accounting standards related to some financial activities of the department
14) Lack of Support from External Experts	Hepworth (2002), Christensen (2005)	Role of Ministry of Finance as accounting regulator and external consultant as external experts of the department Professional support or academic support

Table 2.7 Financial Transparency

Six Concepts of Transparency the IMF's Fiscal Transparency Code	Financial Transparency	Literature	Description
1) Coverage: The coverage and comprehensive view of the fiscal activities should be provided in reports	1) Coverage- Entities	Heald (2003), Ball (2009), IPSASB (2014), IMF (2014)	The disclosure of a way that organizations conduct their activities. The information of all entities engaging in department is covered and reported.
	2) Coverage- Financial Statement		The information in financial statement is presented completely.
	3) Coverage- Cash Flow		The information including financial statement such as a cash flow statement is presented completely.
	4) Coverage- Note to Financial Statement		The information regarding to accounting policies and other relevance financial and non-financial information is presented completely in note to financial statement.
	5) Coverage- Budget Information		The budget information including budget allocation and budget spending is disclosed completely accompanying with financial statement.
2) Integrity: The extent to which fiscal reports are reliable with faithful representation, verifiability (subject to external audit) to facilitate accountability.	6) Verification	The Auditor General of Canada (2002), IPSASB (2014)	Annual financial statements are subject to be audited by Office of the Auditor General or Independent Auditor verifiability of their reliability.

Table 2.7 (Continued)

Six Concepts of Transparency the IMF's Fiscal Transparency Code	Financial Transparency	Literature	Description
	7) Faithful representation	van Beest, Braam, & Boelens, (2009), IMF (2012), IPSASB (2014), IMF (2014)	Financial Information is faithful presented if it is complete, neutral, and free from material errors.
3) Quality: The extent to which these reports provide users with the relevance, internal and internationally comparability, historically consistence, and consistency to users.	8) Relevance	Heald (2003), van Beest, Braam, & Boelens, (2009), Cottarelli (2012), IPSASB (2014), IMF (2014)	The financial report of your department has been used for budgeting and financial performance evaluation.
	9) Comparability	van Beest, Braam, & Boelens, (2009), IPSASB (2014)	Financial statement and budget spending report are classified and presented in ways that facilitate comparison between periods and entities. Major revisions to financial information is disclosed and explained.
	10) Consistency	IPSASB (2014)	Financial Information and financial statement are internally consistent classified. The fiscal forecast report, budget report, and accounting report is presented on a comparable basis with any deviations explained.

Table 2.7 (Continued)

Six Concepts of Transparency the IMF's Fiscal Transparency Code	Financial Transparency	Literature	Description
4) Timeliness: The timeliness of information published and time lag involved in the dissemination of these reports.	11) Timeliness	van Beest, Braam, & Boelens, (2009), IMF (2012), IPSASB (2014), IMF (2014)	Audited or final annual financial statements are published in a timely manner.
5) Understandability: The understandability of information or the ease with which the public can understand, influence, and hold governments to account for their fiscal policy decisions.	12) Understand- ability	Barth and Schipper (2008), van Beest, Braam, & Boelens, (2009), IMF (2012), IPSASB (2014)	Financial Information that classified, characterized, presented clearly and concisely is enhanced for understandability of users.
6) Openness: The openness of information or the public accessibility to the financial information.	13) Openness	Hood (2001), Khan and Mayes (2009), Ball (2009), IMF (2012)	The elimination of secrecy to citizens. Information is opened for public accessibility.

Table 2.8 Perceived Accountability

Six concepts of Accountability	Accountability	Literature	Description
1) Objectives: The accountability for the achievements of its service delivery, operations,	1. Objectives	Day and Klein (1987), Patton (1992), IPSASB (2014)	Accountability for achieving the objectives of operations and financial goals.
2) Resource Management: The accountability of the stewardship of uses of public funds resources and funds.	2. Source of funds 3. Resource allocation	Aucoin and Heintzman (2000), IPSASB (2014)	Accountability for managing resources. Accountability for allocating resources.

Table 2.8 (Continued)

Six concepts of Accountability	Accountability	Literature	Description
	4. Liquidity of fund		Accountability for liquidity management.
3) Compliance: The accountability for the compliance with relevant rules, regulations and approved budget.	5. Compliance with budget	Patton (1992), Aucoin and Heintzman (2000),	Accountability for compliance with the approved budget.
	6. Compliance with law	Laughlin (2008), IPSASB (2014)	Accountability for compliance with law.
4) Efficiency: The accountability for performance both in quantitative measures of outputs of the entity's service delivery activities and the efficiency uses of resources.	7. Efficiency	Patton (1992), Laughlin (2008), IPSASB (2014)	Accountability for efficiency uses of resources.
5) Effectiveness: The accountability for the outcome; the qualitative measures of effectiveness of services delivery activities as the achievements of service delivery activities outcomes and the satisfactory of services recipients.	8. Effectiveness	Laughlin (2008), IPSASB (2014)	Accountability for effectiveness of resources used for the accomplishment of entity's service delivery activities.
6) Trends: The accountability for financial results in long-term and anticipated future financial positions and sustainability of service delivery.	9. Changes in financial position	Patton (1992), IPSASB (2014)	Accountability for the financial result in long term context.
	10. Future services expectation		Accountability for achieving service delivery expectations in future.

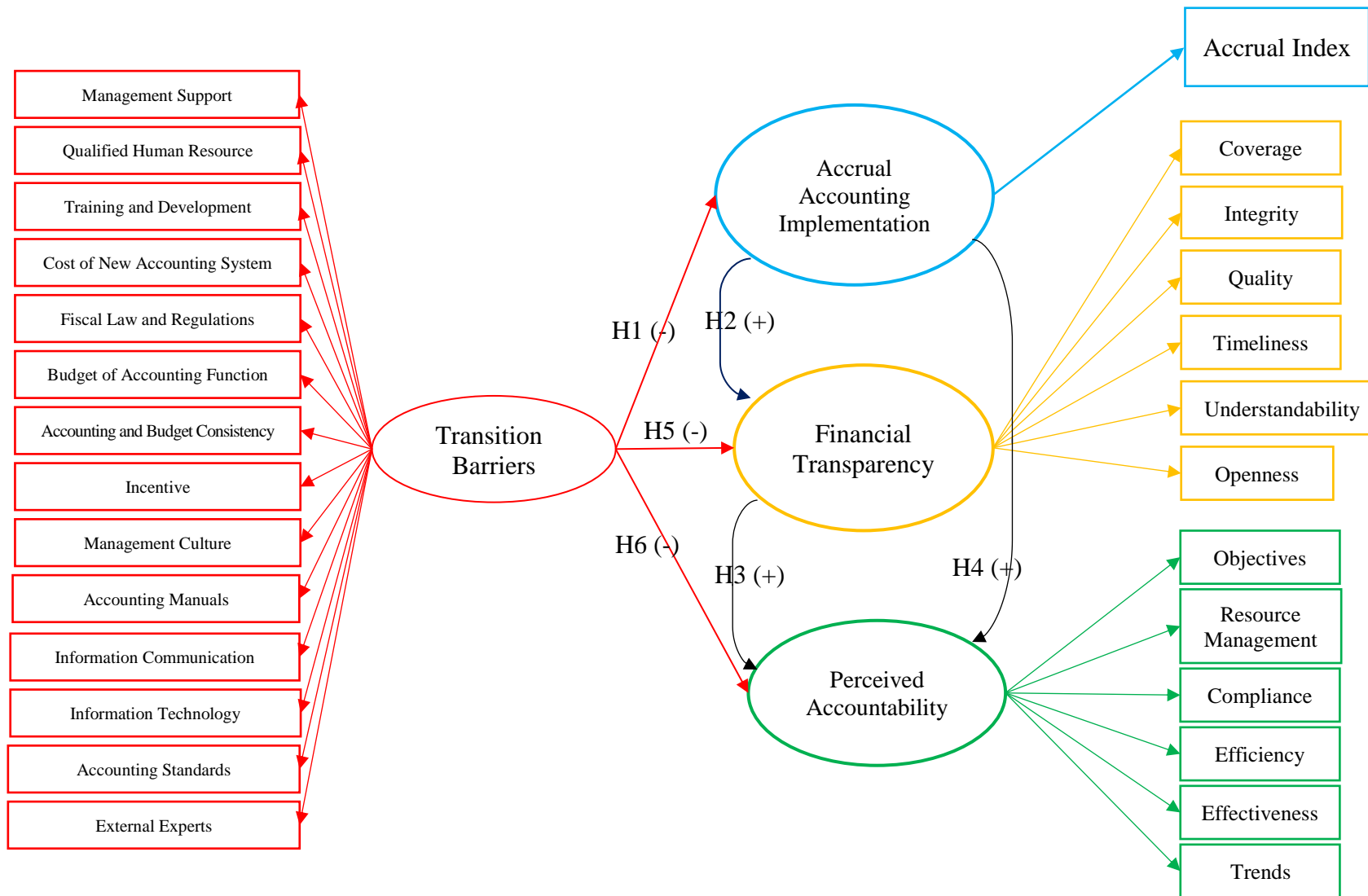


Figure 2.5 The Conceptual Framework

CHAPTER 3

RESEARCH DESIGN

The main objective of this study is to explore the transition barriers of the implementation of accrual accounting in central government departments of Thailand and their effects on the financial information transparency and perceived accountability of the departments.

As mentioned in Chapter 1, the research questions are as follows.

Research Question 1: Do the transitional barriers to accrual accounting affect the implementation of accrual accounting of Thai central government departments?

Research Question 2: Does the implementation of accrual accounting affect the financial transparency of Thai central government departments?

Research Question 3: Does the financial transparency affect the perceived accountability of Thai central government departments?

Research Question 4: Does the implementation of accrual accounting affect the perceived accountability of Thai central government departments?

Research Question 5: Do the transitional barriers to accrual accounting affect the financial transparency of Thai central government departments?

Research Question 6: Do the transitional barriers to accrual accounting affect the perceived accountability of Thai central government departments?

To answer these research questions, this chapter explains the research method or this study including data setting, unit of analysis, target population and sampling, and research methodology.

3.1 Data Setting: Thailand Case

Although Thailand has adopted and implemented the accrual accounting since 2003, there is no a research conducted to examine the effect of accrual accounting

implementation in Thailand. With the expectation of a strong accountability that it should reduce the inappropriate uses of public funds and resources. The adoption and implementation of accrual accounting is expected to enhance the transparency of the accounting information and the accountability of government departments. By employing Thailand as sample, as a pioneer adopter of accrual accounting in public entities in Southeast Asia, the findings reported in this study provide empirical evidences of the implementation of accrual accounting in Thailand during the period of study. In testing the hypothesis, a quantitative research method was employed, using the structural equation modelling method, SEM.

3.2 Unit of Analysis

With the emphasis on the transition barriers to accrual accounting implementation affecting the information transparency and perceived accountability, the unit of analysis in this study is an individual central government department. Each questionnaire was answered by a chief financial officer or an accountant responsible for financial reporting and accounting of the department, thus representing the score of that department. The chief financial officer or a governmental accountant was a unit of observation.

3.3 Target Population and Sampling

The quantitative research method was employed to gather research data from Thai central government departments. In Thai public administration, there are 218 central government departments (population of the study). There are 20 ministries which are headed by the ministers and under each ministry. There are 10 departments that are not under ministries. Moreover, there are other autonomous central government agencies which are independent organizations, parliament agencies, and court as shown in Table 3.1.

Table 3.1 Population of the Study

Types of Public Agencies	No. of Agencies
Governmental agencies and public organizations under ministry (20 ministries)	193
Governmental agencies not under ministry	10
Autonomous (independent organization, parliament agencies, and court)	15
Total	218

The population in this study includes governmental agencies, public organizations, independent organizations, parliament agencies, and courts. Public universities and universities established under their specific acts were not included in this study because they have adopted the accrual accounting principles or the Thai Financial Reporting Standards (TFRSs) of the Federation of Accounting Profession that are in compliance with the International Financial Reporting Standards (IFRSs).

The sample size of a large population (n_o) can be found using Equation (1) (Welch, & Comer, 1988):

$$n_o = \frac{Z^2 p(1-p)}{e^2} \quad (1)$$

where Z is the Z score for a confidence level, p is the sample proportion, e is the margin of error or the confidence interval. For a confidence level of 95%; $p = 0.5$; and $e = \pm 5\%$, $n_o = \frac{(1.96)^2(0.5)(1-0.5)}{(0.05)^2} = 385$.

However, if the population size (N) is finite, the sample size (n) can be adjusted using Equation (2) (Welch, & Comer, 1988):

$$n = \frac{n_o}{1 + \frac{(n_o - 1)}{N}} \quad (2)$$

For a confidence level of 95%; $p = 0.5$; $e = \pm 5\%$; and $N = 218$,

$$n = \frac{385}{1 + \frac{(385 - 1)}{218}} = 139 \quad (3)$$

3.4 Research Methodology

3.4.1 Instrument Development

Firstly, the results of the literature reviews was used to develop the first draft of the survey questionnaire.

Secondly, the interviews guided by the previous literature were conducted during August 2016 (5 directors or head of accounting and finance divisions). A structure interview based on open questions and close question was conducted during August 2016. The results of structure interview were used to gain evidence or more insight into issues regarding the transition barriers to the implementation of accrual accounting in Thai public sector (Thai central departments) and the effect of the implementation of accrual accounting on financial transparency and perceived accountability.

The interview consisted of four main parts: 1) the transition barriers to the accrual accounting implementation in government department, 2) the current status of the implementation of accrual accounting in government department, 3) Accrual accounting information and the use of information for enhancing financial transparency and the perceived accountability of governmental department, and 4) financial transparency and its effect on the perceived accountability of government department.

The questions were the following:

Question 1: What are the barriers to the accrual accounting implementation in your department?

Question 2: What is the current status of the accrual accounting implementation in your department?

Question 3: How can the produced accrual financial information promote financial transparency and enhance the accountability of your department?

Question 4: How can the financial transparency enhance the accountability of your department?

The results of a structure interview were used to modify and revise the questions on the survey questionnaire. Then the revised questionnaire was tested and revised after receiving comments and feedback from 5 directors or head of accounting and finance divisions.

After the questionnaire was constructed, a pretest was conducted with central governmental departments. The involved people were governmental accountants responsible for preparing financial statements of governmental agencies. The results was used to improve the questionnaire. A general rule in questionnaire construction was followed that the first draft should never been used as a final questionnaire because there may be some ambiguities. The main objective to pretest the questionnaire was to test the questions if they were clear and easily understandable. In other words, the main objective was to test the wordings of the questionnaire. The ambiguity of the questions was revised in terms of accounting economic, and public administration language for clearing of language.

Then, the next step included people who were fairly specialized in government accounting and having reasonable knowledge about the transition of accrual accounting adoption in public sector and the current status of the adoption and its outcome in terms of financial transparency and accountability. The main objective was to test the contents of the questions from a point of view of specialists.

The determination of the scales that could be used to measure people's opinions because it was necessary that the scales represented a clear idea of the level of the measurement that could be nominal, ordinal, interval and ratio (Sommer & Sommer, 1991). In this study, an interval scale was considered to be the most suitable for this study. Thus, most questions in this study were indicated by 6 point Likert scale (ranging from 1 to 6: disagree, moderately disagree, slightly disagree, slightly agree, moderately agree, and strongly agree). In order to answer the questionnaire, the 6 point Likert scale requires the participant to choose either direction: agree or disagree by omitting "undecided" from the answer.

Using a survey method design; self-administered questionnaire (closed questions) was employed. The population of the study consists of central governmental entities. The revised 218 questionnaires were distributed to accounting and finance directors during December 2016. The sample of the study involved public accountants and accounting managers of central governmental entities who possess adequate knowledge of both cash basis and accrual basis of accounting. The questionnaires were received and used to conduct an analysis. Each replied questionnaire was used to obtain opinions on the transition barriers to accrual accounting adoption of accrual accounting and the transparency effect of accrual accounting information, the perceived accountability of the department. The questionnaire results were then analyzed.

Thirdly, the confirmatory analysis was conducted for the measurement model of the four constructs or latent variables in this study: 1) accrual accounting implementation, 2) transition barriers, 3) financial transparency, and 4) perceived accountability.

3.4.2 Confirmatory Factor Analysis

In the confirmatory factor analysis (CFA) of the measurement model, the relations between the observed variables and the latent variables are specified. All latent variables or factors are allowed to be correlated. The specification of correlated errors may be justified to reflect additional indicator covariance.

The first 38-items CFA model was tested as the theoretical model. Accrual accounting implementation was operationalized by “the implementation of accrual accounting index” that is a combined index of accrual accounting practices of the department. Transition barriers was operationalized by 14 observed variables of transition barriers to accrual accounting of the department. Financial transparency was operationalized by 13 observed variables of financial transparency of the department. Perceived accountability was operationalized by 10 observed variables of the perceptions of public financial managers or accountants on the accountability of the departments.

3.5 Operational Definitions, Variables, and Measurement

The four constructs or latent variables were operationalized on the background of previous literature.

3.5.1 Transition Barriers Measures

Transition barriers to accrual accounting refers to transition barriers of government departments which influences the implementation of accrual accounting in Thai central government departments.

The transition barriers developed in this study were from the literature reviews of previous studies and from the barriers that were mentioned by the directors or head of accounting and finance divisions of central government departments during the structural interview.

Overall, there are 14 observed variables of transition barriers to accrual accounting in this study, as shown in Table 3.2.

1) Lack of Management Support

Supports from heads of government departments are essential because they can provide additional funds and staff; and enforce collaborations for tackling complex problems.

2) Lack of Qualified Human Resource

In practice, this is shortage of accounting graduates. Government accountants usually obtain accounting education at the bookkeeping level while specific accrual accounting skills may not be achieved.

3) Insufficient Training and Development

The ongoing need for training and development is a priority to fulfil a gap between the existing capacity and the capacity required for applying proper judgments to carry out accrual accounting duties.

4) Cost of New Accounting System

In most agencies, accrual accounting requires investment in new accounting software. As a result, software license and administration fees become significant.

Table 3.2 Measures of Transition Barriers to Accrual Accounting

Observed Variables	Variables	Description	Question no.
1) Lack of Management Support	LMS	Roles and responsibilities of head of department in supporting finance and accounting functions	V1
2) Lack of Qualified Human Resource	LQHR	Shortage of accounting graduates in department	V2
3) Lack of Sufficient Training and Development	LTD	Lack of accounting training and development to carry out accrual accounting duties	V3
4) Cost of New Accounting System	LCNS	Lack of financial resources in terms of accounting software and hardware development	V4
5) Lack of Fiscal Law or Regulations	LFLR	Lack of enactment of rules or regulations required for using of accrual financial information	V5
6) Shortage of Budget in Accounting Function	LBA	Insufficient financial resources in finance division due to financial circumstance of each department	V6
7) Accounting and Budgeting Classification Inconsistency	LCON	Inconsistency of accounting and budgeting classification	V7
8) Lack of Incentive	LINC	Lack of right incentive for accounting tasks and used of accrual based information in financial management	V8
9) Management Culture	LMCUL	Prevalence of bureaucratic management culture and input-based system	V9
10) Lack of Accounting Manuals	LACCM	Lack of accrual accounting manuals and practical guidelines	V10
11) Information Communication Ability	LIC	Lack of understandability of accrual accounting information for users in the department	V11
12) Lack of Information Technology Capacity	LITC	Lack of information technology capacity in computerized accounting system	V12
13) Lack of Accrual Accounting Standards	LACCSTD	Lack of TPSASs for some specific financial activities of the department	V13
14) Lack of Support from External Experts	LEXPRT	Lack of external accounting consultants for the department	V14

5) Outdated Fiscal Rules and Regulations

The absence of legal pressure for using or reporting accrual financial information can be regarded as an obstacle in departments that still have used cash budgetary control.

6) Shortage of Financial Resources

Sufficiency of financial resources in finance divisions can mitigate the effects of other barriers such as lack of qualified personnel and training.

7) Accounting and Budgeting Consistency

The budget classification and accounting classification should have been closely comparable and in alignment. Then, budget report and financial statement of the department could be used for financial performance.

8) Lack of Incentive

Department heads and public financial managers and personnel should be awarded the right incentive for accrual accounting tasks and uses of accrual-based information for more efficiency and effectiveness of finance management.

9) Management Culture

The change from bureaucratic management culture to new public management is considered to be the most difficult because the change of bureaucratic attitude and belief is a time-consuming and complex process. Short hierarchy, less control, and risk management approach are required for accrual information utilization.

10) Lack of Accounting Manuals

To put accrual standards into practices would require development of proper accounting manuals for specific accrual accounting issues such as recognition of exchange and non-exchange revenues, provision estimations, measurements of pension liability and social policy obligations

11) Accrual Information Communication Ability

The difficulty of accrual information impedes usefulness of information because politicians and public finance managers could misunderstand and make inappropriate policy, judgment and decision making.

12) Lack of Information Technology Capacity

Advanced information technology and proper network system for efficient gathering and integrating financial operation and information of the

department are required to generate more timely and comprehensive accrual information.

13) Lack of Accrual Accounting Standards

Lack of accrual principles and practices relevant for some specific departments' finance activities would cause a variety of accounting methods and practices in measurement, recognition, and disclosure.

14) Lack of Support from External Experts

There are external accounting experts to help or facilitate, propose or comment on accrual accounting practices or provide assistance to departmental accrual accounting tasks.

3.5.2 The Implementation of Accrual Accounting Measures

The implementation of accrual accounting refers to the implementation of an accounting methodology under which transactions are recognized as the underlying economic events occur, regardless of the timing of the related cash receipts and payments.

This study employs the combined accrual accounting index, similar to (Hung, 2001) but modified with current Thai governmental accrual accounting standards and practices. The modified index called “the implementation of accrual accounting index” consisting of 19 elements of accrual accounting practices as shown in Table 3.3.

Table 3.3 Calculation for the Implementation of Accrual Accounting Index

Factors	Accounting Practices	Rating
1) Trade or Services Receivable	Is it recorded?	1-Fully recorded
		0.5- Partially recorded
		0-Not recorded
2) Inventory	Is it recorded?	1-Fully recorded
		0.5- Partially recorded
		0-Not recorded

Table 3.3 (Continued)

Factors	Accounting Practices	Rating
3) Investment	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
4) Investment Property	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
5) Borrowing Cost	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
6) Agriculture	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
7) Purchased Intangible Asset	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
8) R&D expenditure	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
9) Property Plant and Equipment	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
10) Finance Lease	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
11) Accrued Expenses	Are they recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded

Table 3.3 (Continued)

Factors	Accounting Practices	Rating
12) Impairment of Cash- Generating Assets	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
13) Unearned Revenue	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
14) Trade Payable	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
15) Retirement Benefits/ Pension Liabilities	Are future pension costs recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
16) Employee Benefits	Are they recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
17) Provision of Liability	Is it recorded?	1-Fully recorded 0.5- Partially recorded 0-Not recorded
18) Contingent Liability	Is it disclosed?	1- Fully disclosed 0.5- Partially disclosed 0-Not disclosed
19) Contingent Asset	Is it disclosed?	1- Fully disclosed 0.5- Partially disclosed 0-Not disclosed

The Implementation of Accrual Accounting index represents the accrual accounting practices of the government department. A higher index value indicates that the department implements more accrual accounting practices for the recognition and measurement of assets and liabilities or the department discloses the contingent assets and liabilities of the department.

3.5.3 Financial Transparency Measures

Financial transparency refers to an important achievement of all qualitative characteristics of financial reporting: a comprehensive of fiscal activities, timeliness, quality and integrity, understandability of the public financial reporting and the openness to the public of the government's financial position and performance.

In this study, financial transparency is characterized by the alignment of six concepts of transparency stated in the code of good practices on fiscal transparency of the IMF (coverage, integrity, quality, timeliness, understandability, and openness) and qualitative characteristics in the Conceptual Framework for General Purpose Financial Reporting by Public Sector Entities of the IPSASB.

As transparency is an expression of the achievement of full qualitative characteristics of financial reporting (IPSASB, 2013). These qualitative characteristics are in alignment with the concepts of fiscal transparency. Moreover, these characteristics were mentioned as the qualitative characteristics of the financial information and financial statements of the departments during the structure interview.

Finally, there are 13 observed variables of financial transparency as shown in Table 3.4.

Table 3.4 The Measures of Financial Transparency

Observed Variables	Variables	Description	Question no.
1) Coverage-Entities	CEN	The information of all entities engaging in department is covered and reported.	T1

Table 3.4 (Continued)

Observed Variables	Variables	Description	Question no.
2) Coverage-Financial Statement	CFS	The information in financial statement including a balance sheet of assets, liabilities, and net equity, and a statement of financial performance which revenue and expenses is presented completely.	T2
3) Coverage-Cash Flow	CCFB	The information including financial statement such as a cash flow statement is presented completely.	T3
4) Coverage-Note to Financial Statement	CNF	The information regarding to accounting policies and other relevance financial and non-financial information is presented completely in note to financial statement.	T4
5) Coverage-Budget Information	CBI	The budget information including budget allocation and budget spending is disclosed completely accompanying with financial statement.	T5
6) Verification	VER	Annual financial statements are subject to be audited by Office of the Auditor General or Independent Auditor verifiability of their reliability.	T6
7) Faithful Representation	FAITH	Financial Information is faithful presented if it is complete, neutral, and free from material errors.	T7

Table 3.4 (Continued)

Observed Variables	Variables	Description	Question no.
8) Relevance	REL	The financial report of your department is relevant for decision making and has been used for budgeting.	T8
9) Comparability	COMP	Financial statement and budget spending report are classified and presented in ways that facilitate comparison between periods and entities. Major revisions to financial information is disclosed and explained.	T9
10) Consistency	CONS	Financial Information and financial statement are internally consistent classified. The fiscal forecast report, budget report, and accounting report is presented on a comparable basis with any deviations explained.	T10
11) Timeliness	TIME	Audited or final annual financial statements are published in a timely manner.	T11
12) Understandability	UND	Financial Information that classified, characterized, presented clearly and concisely is enhanced for understandability of users.	T12
13) Openness	OPEN	Information is opened for public accessibility.	T13

3.5.4 Perceived Accountabilities Measures

Perceived accountability captures the perceptions of public financial managers or accountants on government departments' obligations to provide information sufficient enough for assessing the accomplishment of entities' objectives, sources of funds, management of the resources for delivering public services, their compliance with budget, legislation, regulation, or other authority that governs, the efficiency and effectiveness of the entities' operation, and the ability to meet their service delivery and financial commitments in future.

Perceived accountability in this study is defined as the perception of an obligation to provide information relating to the department's objectives; management of the resource used for delivering public services; its compliance with legislation, regulation, or other authority that governs; the efficiency and effectiveness of the department's operation; and the ability to meet its service delivery and financial commitments in future as stated in a conceptual framework for general purpose financial reporting by public sector (IPSASB, 2013).

IPSASs accountability framework is applied in this study because the financial reports of Thai central government departments are prepared with the objectives for discharging the accountability as mentioned in a conceptual framework for general purpose financial reporting by public sector.

Therefore, 10 observed variables are used to measure the perceived accountability as shown in Table 3.5.

Table 3.5 Measures of Financial Transparency

Observed Variables	Variables	Description	Question no.
1) Objectives	OBJ	Perceived accountability for achieving the objectives of operations by providing sufficient information relating to the department's service delivery, operating and financial goals.	A1
2) Source of Fund	SOF	Perceived accountability for managing resources by providing sufficient information regarding sources of revenue including budget, extra budgetary fund, loan, and donations.	A2

Table 3.5 (Continued)

Observed Variables	Variables	Description	Question no.
3) Resource Allocation	RA	Perceived accountability for allocating resources by providing sufficient information regarding resources allocated to support the achievement.	A3
4) Liquidity of Fund	FL	Perceived accountability for liquidity management by providing sufficient information in evaluating the ability to finance activities and to meet liabilities and commitments.	A4
5) Compliance with Budget	CB	Perceived accountability for compliance with approved budget by providing sufficient information for evaluation if resources were obtained and used with the approved budget.	A5
6) Compliance with Law	CL	Perceived accountability for compliance with law by providing sufficient information for evaluation if resources were obtained and used in accordance with legal and contractual requirements.	A6
7) Efficiency	EFI	Perceived accountability for efficiency uses of resources by providing sufficient information regarding the service cost, outputs, and outcomes. Cost per unit information is being used in activity planning and budgeting.	A7
8) Effectiveness	EFFE	Perceived accountability for effectiveness of resources used by providing sufficient information regarding the accomplishment of the entity's service delivery activities. Cost per unit information is being used in follow-up and evaluation of department activities.	A8
9) Changes in Financial Position	TFP	Perceived accountability for financial results in the context of the long term by providing sufficient information regarding financial conditions and changes.	A9
10) Future Services Expectation	TSE	Perceived accountability for achieving service delivery expectations in future by providing sufficient information for predicting of the level of resources required for continued operations.	A10

3.6 Reliability Analysis

The appropriate statistics for testing the reliability and validity of the questionnaire such as Cronbach's Alpha was used (Cronbach, 1951).

3.6.1 Convergent Reliability

The important quality of a model is the convergent validity, which is also known as reliability. The convergent validity confirms that items or observed variables of a construct should converge or share a high proportion of variance in common (Hair, Anderson, Babin, & Black, 2010). This study reports the reliability test of a model, which are construct reliability and average variance extracted.

Construct reliability (CR) is a measure of a composite reliability which reports the degree to which a set of measures indicate the common latent construct (Holmes, Cunningham, & Coote, 2006). Assessing construct reliability has been perceived to be a more superior method comparing to Cronbach's alpha as it uses estimates of model parameters (loading obtained within a model). A value of 0.7 is commonly perceived as the threshold of good reliability. However, the value between 0.6 and 0.7 is acceptable in indicating of a good reliability (Hair et al., 2010). The measure of construct reliability (ρ_c) can be computed using Equation (4).

$$\rho_c = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum(\theta_i)} \quad (4)$$

where λ_i is the standardized loading for each observed variable; and θ_i is the error variance associated with each variable.

Another measure of reliability is the average variance extracted (AVE) which represents the overall amount of variance in the indicator accounted for by the construct. The variance extracted estimate (ρ_v) can be computed using Equation (5).

$$\rho_v = \frac{\sum(\lambda_i^2)}{\sum(\lambda_i^2) + \sum(\theta_i)} \quad (5)$$

A higher value of AVE suggests that the indicator are representative of the construct (latent variable). An AVE of 0.5 or higher is perceived to be the threshold, as AVE of 0.5 indicates that on average, more errors remained in the items than the variance explained by the construct factor structure imposed on the measure (Hair et al., 2010).

3.6.2 Discriminant Validity

Discriminant Validity refers to the extent that a construct is unique and truly distinct from other constructs used in a study (Hair, Black, Babin, Anderson, & Tatham, 2006). To conclude that the discriminant validity is upheld, the average variance extracted (AVE) for two constructs should exceed the square correlation between both constructs.

3.7 Data Processing and Analysis

Structural equation modeling (SEM) is a statistical technique that combines a confirmatory analysis with the multiple regression of a structural model. This structural model represents causal processes that display the interrelations among latent variables and observed variables. Moreover, SEM allows the measurement errors to be included into a model.

The study was conducted by using structural equation modelling (SEM) in order to test a conceptual framework or model that derives from the theoretical background. Using LISREL for data analysis, it allows the evaluation of the reliability and validity of indicators used in representing complex constructs such as accrual accounting, transition barriers, accountability, and transparency. It allows an examination of various casual relationships among measured variables and latent constructs as well as between several constructs simultaneously, as proposed in the study. This study employs maximum likelihood (ML) parameter estimation.

The Structural model: The structural model allows researchers to examine the relationships between constructs (structural paths) by evaluating the p-value. The 1%, 5%, and 10% level of significant are commonly used to accept the hypothesis.

Measure of Model Fit: There are many fit statistics which can be used as the goodness-of-fit to evaluate whether the proposed model fits the sample data (Holmes-Smith, 2006). Goodness-of-fit indices are summarized in Table 3.6.

Table 3.6 Summary of the Goodness-of-Fit Indices

Name	Abbreviation	Acceptable Level
Chi-square	χ^2 (df)	The model is perceived to fit the data if the Chi-square p-value is greater than 0.05 at significant level of 0.05
Goodness-of-fit and adjusted goodness-of-fit	GFI and AGFI	GFI and AGFI > 0.95 (Values between 0.90 and 0.95 may also indicate satisfactory fit)
Comparative fit index	CFI	CFI > 0.95 (Values between 0.90 and 0.95 may also indicate satisfactory fit)
Root mean square of approximation	RMSE	RMSE < 0.05 (Values between 0.05 and 0.08 may also indicate satisfactory fit)
Standardized root mean residual	SRMR	SRMR < 0.05 (Values between 0.05 and 0.08 may also indicate satisfactory fit)

CHAPTER 4

DATA ANALYSIS AND RESEARCH RESULTS

This chapter presents the data analysis and empirical results of this study. The contents in this chapter include sample characteristics; descriptive statistics of all variables; and the results of confirmatory factor analysis, structural model, and hypotheses testing.

4.1 Sample Characteristics

While the Ministry of Finance has most involved with the accrual accounting adoption and implementation for public sector, the intention of this study is to encompass central government departments in order to gain a more comprehensive picture regarding the transition barriers that the departments have been experiencing and their effects to the implementation of accrual accounting and the financial transparency and perceived accountability of the departments.

As presented in Table 4.1, the study of the implementation of accrual accounting in the central government departments of Thailand consists 218 questionnaires of target population (All central departmental agencies and public organizations). Consequently the returned questionnaires or the samples of this study consist of 139 central departmental agencies and public organizations.

Different researchers have recommended the number of the sample size in relation to the number of variables in the study. The larger the sample size (compared to the population size), the less error there is in generalizing responses to the whole population. There is a rule of thumb that if the population is less than 100, the study should include all population and should try to get an 80% response rate. If in case that the population is more than 100, the researcher should select a probability sampling. The second rule of thumb is that a common standard is 95% confidence with a sampling error of 5%. However, in this study, there is an absolute number of population: the total number of central department departments and public organizations is 218.

When the population is known, the sample size is calculated by using the following formula (for 95% confidence, 5% error): $n = 385 / (1 + (385/N))$ (Welch & Comer, 1988). In this study, the population is known to have 218 departments, the sample size of 139 would be necessary to ensure 95% confidence with no more than 5% error: $n = 385 / (1 + (385/218)) = 139$ samples.

Table 4.1 Distribution of Sample by Type of Organization

	No.	Percentage to Target Population	Number of Replies	Percentage to Replies
Target population	218	100%		
Total number of questionnaires returned (replies)			139	100%
• Office of the Prime Minister	23	10.55%	17	12.23%
• Ministry of Defense	7	3.21%	5	3.60%
• Ministry of Finance	11	5.05%	7	5.04%
• Ministry of Foreign Affairs	1	0.46%	1	0.72%
• Ministry of Tourism and Sports	4	1.83%	2	1.44%
• Ministry of Social Development and Human Security	7	3.21%	5	3.60%
• Ministry of Agriculture and Cooperatives	18	8.26%	11	7.91%
• Ministry of Transport	7	3.21%	3	2.16%
• Ministry of Natural Resources and Environment	12	5.50%	10	3.13%
• Ministry of Digital Economy and Society	6	2.75%	4	2.88%
• Ministry of Energy	7	3.21%	6	4.32%
• Ministry of Commerce	10	4.59%	5	3.60%
• Ministry of Interior	7	3.21%	3	2.16%
• Ministry of Justice	13	5.96%	9	6.47%
• Ministry of Labor	5	2.29%	4	2.88%
• Ministry of Culture	9	4.13%	6	4.32%
• Ministry of Science and Technology	14	6.42%	5	3.60%
• Ministry of Education	10	4.59%	6	4.32%
• Ministry of Public Health	15	6.88%	10	3.13%
• Ministry of Industry	7	3.21%	6	4.32%
• Other governmental agency - Not under Ministry	10	4.59%	6	4.32%
• Parliament Agencies	3	1.38%	1	0.72%
• Court	3	1.38%	2	1.44%
• Independent Organizations	9	4.13%	5	3.60%

4.2 Descriptive Statistics

First, the reliability of the scale of all 38 observed variables was verified using a Cronbach's alpha test. The test result shows that the Cronbach's alpha value is equal to 0.737, indicating satisfactory and acceptable.

4.2.1 Transition Barriers

Table 4.2 reports the distribution of 14 measures of transition barriers. The sample central governmental agencies had an average lack of incentive barrier of 3.60 that is the highest of all mean of all barriers. The average of lack of management support is 2.15 that is the lowest average.

Table 4.2 Data Distribution of the Transition Barriers

Observed Variables	Description	N	Mean	Median	Standard deviation	Min	Max
LMS	Lack of management support	139	2.15	2	1.076	1	6
LQHR	Lack of qualified human resource	139	3.42	3	1.424	1	6
LTD	Lack of sufficient training and development	139	2.72	3	0.981	1	5
LCNS	Cost of new accounting system	139	2.87	3	1.172	1	6
LFLR	Lack of fiscal law or regulations	139	2.27	2	0.848	1	5
LBA	Shortage of budget in accounting function	139	2.83	3	1.116	1	6
LCON	Accounting and budgeting classification inconsistency	139	2.49	2	1.010	1	6
LINC	Lack of incentive	139	3.60	4	1.371	1	6
LMCUL	Management culture	139	2.88	3	1.136	1	6
LACCM	Lack of accounting manuals	139	2.38	2	0.863	1	5
LIC	Information communication ability	139	2.35	2	0.849	1	5
LITC	Lack of information technology capacity	139	2.45	2	0.926	1	6
LACCSTD	Lack of accrual accounting standards	139	2.47	2	0.837	1	4
LXPERT	Lack of support from external experts	139	3.24	3	1.574	1	6

4.2.2 The Implementation of Accrual Accounting

Table 4.3 reports the distribution of the implementation of accrual accounting index (TotalAI) measure which is the composite index of 19 accrual accounting practices or elements in central government departments. Each element is assigned a score of 1 if fully recorded, 0.5 if partially recorded, or 0 if not recorded. For each department, the TotalAI is then calculated from the sum of all assigned scores divided by the total number of applicable elements. Note that not all the 19 elements are applicable to every department. The element related to Biological assets, for example, is applicable to a zoological agency

The sample central government departments had an average value of TotalAI of 0.7001. The highest value, the lowest value, and the standard deviation of TotalAI are 1.000, 0.1875, and 0.1597, respectively.

Table 4.3 Data Distribution of the Implementation of Accrual Accounting Index

Variable	N	Mean	Median	Standard deviation	Min	Max
The Implementation of Accrual Accounting Index	139	0.7001	0.7000	0.1597	0.1875	1.000

As can be seen in Table 4.4, the Ministry of Social Development and Human Security has the highest average value of 0.8659 with the standard deviation of 0.1224; the Ministry of Energy has the second highest average value of 0.8050 with the standard deviation of 0.1595; the lowest average value of 0.4962 with the standard deviation of 0.1232.

Table 4.4 Data Distribution of the Implementation of Accrual Accounting

Category of Government Department	No. of Dept.	Mean	Median	Stdev	Min	Max
Office of the Prime Minister	17	0.7408	0.7000	0.1346	0.5000	1.0000
Ministry of Defense	5	0.6904	0.7083	0.1349	0.5417	0.8889
Ministry of Finance	7	0.7750	0.8000	0.1294	0.5000	0.8750

Table 4.4 (Continued)

Category of Government Department	No. of Dept.	Mean	Median	Stdev	Min	Max
Ministry of Foreign Affairs	1	0.6500	0.6500	0.0000	0.6500	0.6500
Ministry of Tourism and Sports	2	0.4962	0.4962	0.1232	0.4091	0.5833
Ministry of Social Development and Human Security	5	0.8659	0.9286	0.1224	0.7222	1.0000
Ministry of Agriculture and Cooperatives	11	0.7382	0.7073	0.1145	0.6000	0.9375
Ministry of Transport	3	0.6080	0.6875	0.2593	0.3182	0.8182
Ministry of Natural Resources and Environment	10	0.6592	0.7000	0.1449	0.4000	0.8333
Ministry of Digital Economy and Society	4	0.6590	0.6750	0.1199	0.5000	0.7857
Ministry of Energy	6	0.8050	0.8712	0.1595	0.5714	0.9444
Ministry of Commerce	5	0.7078	0.6667	0.2029	0.4444	1.0000
Ministry of Interior	3	0.6708	0.7000	0.1583	0.5000	0.8125
Ministry of Justice	9	0.6323	0.6111	0.1336	0.5000	0.8889
Ministry of Labor	4	0.5481	0.5584	0.1380	0.4091	0.6667
Ministry of Culture	6	0.7332	0.7500	0.0732	0.6111	0.7917
Ministry of Science and Technology	5	0.7321	0.7083	0.0848	0.6500	0.8750
Ministry of Education	6	0.6061	0.6516	0.1919	0.2500	0.7778
Ministry of Public Health	10	0.7323	0.7159	0.1818	0.3182	0.9375
Ministry of Industry	6	0.6247	0.6465	0.1897	0.2857	0.8125
Other governmental agency - Not under Ministry	6	0.7326	0.7750	0.1680	0.4375	0.9286
Parliament Agencies	1	0.6000	0.6000	0.0000	0.6000	0.6000
Court	2	0.7500	0.7500	0.0707	0.7000	0.8000
Independent Organizations	5	0.6364	0.6667	0.3009	0.1875	1.0000
Total	139					

4.2.3 Financial Transparency

Among the financial transparency measures as shown in Table 4.5, the completeness of financial statement (CFS) has the highest average value of 5.29 with the standard deviation of 0.836; the complete note to financial statement (CNF) has the second highest average value of 5.12 with the standard deviation of 0.905; the complete cash flow statement and budget report (CCFB) has the lowest average value of 4.60 with the standard deviation of 1.266; the openness of financial information to public (OPEN) has the second lowest average value of 4.84 with the standard deviation of 1.044.

Table 4.5 Data Distribution of the Financial Transparency

Observed Variables	Description	N	Mean	Median	Stdev	Min	Max
CEN	Coverage-Entities	139	5.21	5	0.829	3	6
CFS	Coverage-Financial Statement	139	5.29	5	0.836	1	6
CCFB	Coverage-Cash Flow Statement	139	4.60	5	1.266	1	6
CNF	Coverage-Note to Financial Statement	139	5.12	5	0.905	1	6
CBI	Coverage-Budget Information	139	5.01	5	0.932	2	6
VER	Verification	139	5.09	5	0.936	1	6
FAITH	Faithful representation	139	4.92	5	1.008	2	6
REL	Relevance	139	4.86	5	0.921	3	6
COMP	Comparability	139	4.88	5	0.910	3	6
CONS	Consistency	139	4.96	5	0.855	2	6
TIME	Timeliness	139	4.92	5	0.978	1	6
UND	Understandability	139	4.90	5	0.895	3	6
OPEN	Openness	139	4.84	5	1.044	1	6

4.2.4 Perceived Accountability

Among the perceived accountability measures as shown in Table 4.6, the sufficient managing of source of funds (SOF) has the highest average value of 5.17 with the standard deviation of 0.780; the sufficient resource allocation (RA) has the second highest average value of 5 with the standard deviation of 0.901; the managing to meet service delivery expectation (TSE) has the lowest average value of 4.64 with the lowest average value of 0.901; the efficiency of resource used (EFI) has the second lowest average value of 4.71 with the standard deviation of 0.919.

Table 4.6 Data Distribution of the Perceived Accountability

Observed Variables	Description	N	Mean	Median	SD	Min	Max
OBJ	Objectives	139	4.87	5	0.841	2	6
SOF	Source of fund	139	5.17	5	0.780	3	6
RA	Resource allocation	139	5	5	0.901	2	6
FL	Liquidity of fund	139	4.85	5	0.868	1	6
CB	Compliance with budget	139	4.85	5	0.867	1	6
CL	Compliance with law	139	4.82	5	0.887	2	6
EFI	Efficiency	139	4.71	5	0.919	2	6
EFFE	Effectiveness	139	4.76	5	0.867	2	6
TEP	Changes in financial position	139	4.87	5	0.850	3	6
TSE	Future services expectation	139	4.64	5	0.901	3	6

4.3 Normality of Data

To examine the normality of the data histograms, all variables have been inspected. The sample histogram of the TotalAI variable is shown in Figure 4.1.

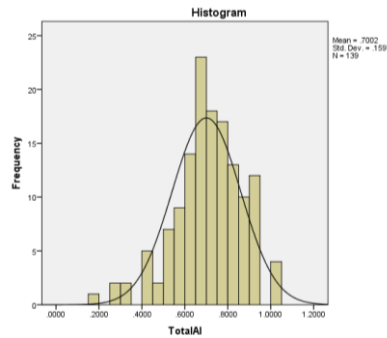


Figure 4.1 Histogram Describing the Distribution of the TotalAI Variable

In Table 4.7, the means and standard deviations along with skewness and kurtosis are reported for all variables ordered in groups representing the constructs.

Table 4.7 Univariate Test of Normality

Construct	Observed Variables	Mean	Standard deviation	Skewness	Kurtosis
	LMS	2.15	1.076	1.109	1.421
	LQHR	3.42	1.424	0.117	-0.808
	LTD	2.72	0.981	0.355	-0.388
	LCNS	2.87	1.172	0.474	-0.427
	LFLR	2.27	0.848	0.546	0.541
	LBA	2.83	1.116	0.538	-0.024
Transition	LCON	2.49	1.010	0.694	0.702
Barriers	LINC	3.60	1.371	0.010	-0.640
	LMCUL	2.88	1.136	0.410	-0.290
	LACCM	2.38	0.863	0.408	0.207
	LIC	2.35	0.849	0.424	0.348
	LITC	2.45	0.926	0.638	0.776
	LACCSTD	2.47	0.837	0.292	-0.501
	LEXPRT	3.24	1.574	0.459	-0.962

Table 4.7 (Continued)

Construct	Observed Variables	Mean	Standard deviation	Skewness	Kurtosis
TotalAI	Accrual Accounting Adoption Index	0.7001	0.1597	-0.558	0.556
	CEN	5.21	0.829	-0.795	-0.070
	CFS	5.29	0.836	-1.642	4.635
	CCFB	4.60	1.266	-0.738	-0.177
	CNF	5.12	0.905	-1.199	2.313
	CBI	5.01	0.932	-0.900	0.594
Financial Transparency	VER	5.09	0.936	-1.195	2.200
	FAITH	4.92	1.008	-0.788	-0.035
	REL	4.86	0.921	-0.386	-0.694
	COMP	4.88	0.910	-0.473	-0.538
	CONS	4.96	0.855	-0.637	0.286
	TIME	4.92	0.978	-1.299	2.214
	UND	4.90	0.895	-0.537	-0.378
	OPEN	4.84	1.044	-1.149	1.785
	OBJ	4.87	0.841	-0.565	0.295
	SOF	5.17	0.780	-0.778	0.367
	RA	5	0.901	-0.784	0.289
	FL	4.85	0.868	-0.838	1.419
Perceived Accountability	CB	4.85	0.867	-1.053	2.552
	CL	4.82	0.887	-0.713	0.841
	EFI	4.71	0.919	-0.418	-0.322
	EFFE	4.76	0.867	-0.383	-0.102
	TEP	4.87	0.850	-0.467	-0.284
	TSE	4.64	0.901	-0.188	-0.701

The normality test was then run for assessing deviations of the data from the normality assumption using the acceptable thresholds suggested by Curran, West, and Finch (1996) that skewness and kurtosis should be within the range of ± 2.0 and ± 7 , respectively. As can be from the descriptive statistical results in Table 4.7, the maximum (absolute) values of skewness and kurtosis are 1.642 and 4.635, thus indicating the assumption of normality is unlikely to be violated.

Correlation Matrix

Structural Equation Modeling (SEM) assumes linear relationship between latent variables. Multicollinearity would occur when there are very high correlation between two or more variables which can lead to problems when conducting multivariate analyses. When there is a multicollinearity, the estimates coefficient and standard errors of parameter estimates can be affected.

Correlation matrix has been used because it is stated that there should be a correlation among variables, however, there should not be perfect correlation among variables. The correlation between variable should not exceed 0.85. A correlation of more than 0.85 between variables represents high multicollinearity (Garson, 2008). After inspecting the correlation matrix, there is no correlation between all variables greater than 0.85, implying no multicollinearity problem.

4.4 Confirmatory Factor Analysis

CFA was conducted for testing the measurement model, the relations between the observed variables and the latent variables were specified. Initially, a CFA model with four constructs (BARRIERS, ACCRU, FTRANS, and ACCTA) was tested with all 38 items as illustrated in Figure 4.2. But, the 38-item CFA model yielded unsatisfying fit indices, namely Chi-Square p -value (0.0000) < 0.05 ; and Root Mean Square Error of Approximation (RMSEA = 0.089) > 0.05 . Thus, the overall fit of the CFA model was needed to be improved by reducing the number of indicators per factor. The estimate (b), standardized (B), standard error (SE), t -value, and R^2 of the factor loadings of the 38-item CFA model are listed in Table 4.8.

4.4.1 The 38-Item CFA Model

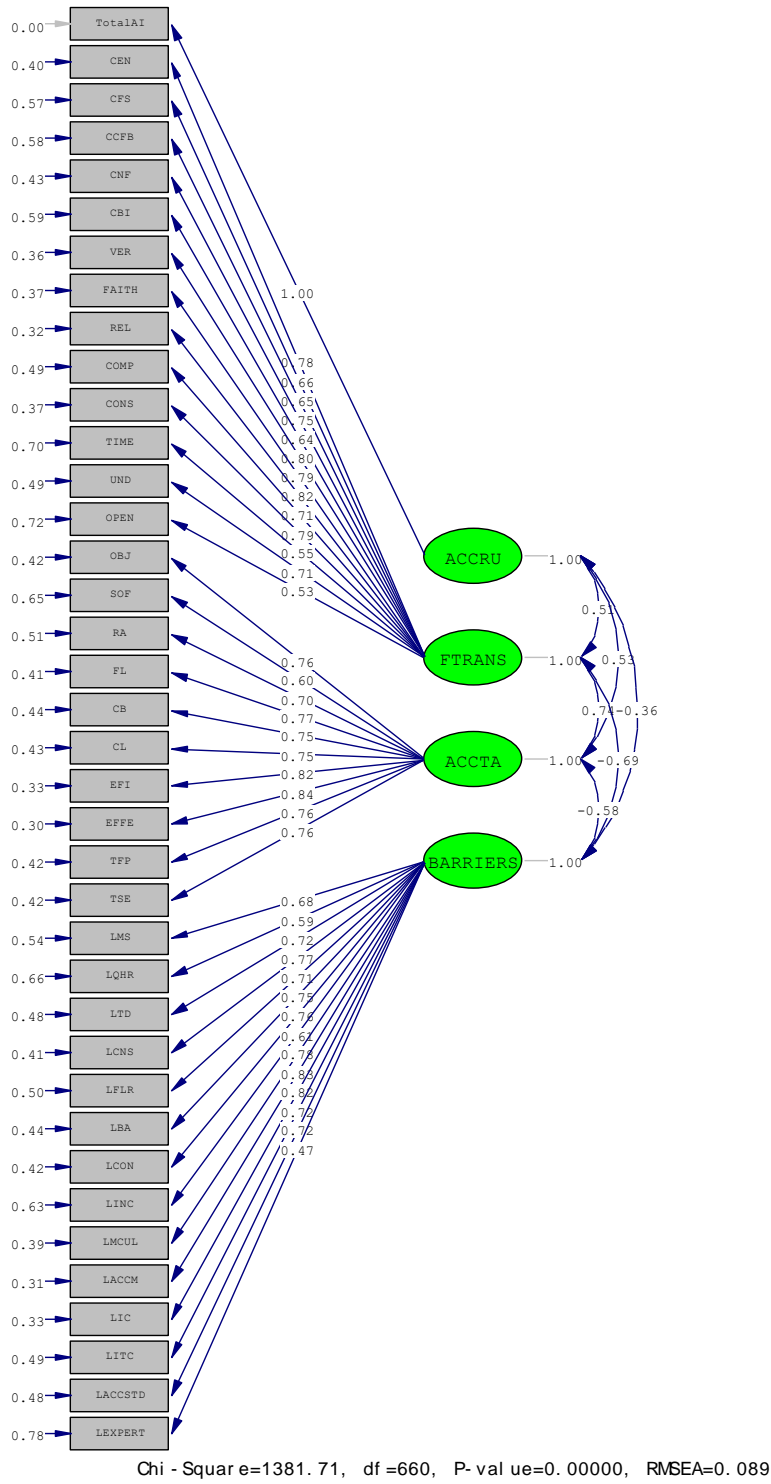


Figure 4.2 The 38-Item CFA Model

Table 4.8 Factor Loadings of the 38-Item CFA Model

Factors/ Observable Variables	Factor Loading				R ²
	b	B	SE	t	
Transition Barriers (BARRIERS)					
LMS	0.729	0.677	0.082	8.900	0.459
LQHR	0.836	0.587	0.113	7.435	0.345
LTD	0.705	0.719	0.073	9.636	0.516
LCNS	0.899	0.767	0.085	10.546	0.589
LFLR	0.601	0.709	0.064	9.456	0.502
LBA	0.834	0.747	0.082	10.170	0.558
LCON	0.768	0.761	0.074	10.438	0.579
LINC	0.836	0.610	0.107	7.793	0.372
LMCUL	0.885	0.779	0.082	10.793	0.606
LACCM	0.719	0.833	0.060	11.942	0.693
LIC	0.696	0.820	0.060	11.669	0.673
LITC	0.664	0.717	0.069	9.608	0.514
LACCSTD	0.602	0.719	0.062	9.644	0.517
LEXPRT	0.742	0.472	0.129	5.751	0.222
ACCRU					
TotalAI	0.160	1	0.010	16.673	1.000
FTRANS					
CEN	0.643	0.775	0.060	10.720	0.601
CFS	0.549	0.657	0.064	8.555	0.432
CCFB	0.820	0.648	0.098	8.403	0.420
CNF	0.680	0.752	0.066	10.268	0.566
CBI	0.601	0.644	0.072	8.338	0.415
VER	0.752	0.803	0.067	11.292	0.645
FAITH	0.800	0.794	0.072	11.099	0.630
REL	0.759	0.824	0.065	11.758	0.680
COMP	0.647	0.711	0.068	9.499	0.506
CONS	0.677	0.792	0.061	11.060	0.627
TIME	0.539	0.551	0.078	6.887	0.304
UND	0.636	0.711	0.067	9.494	0.505
OPEN	0.552	0.528	0.084	6.551	0.279
ACCTA					
OBJ	0.641	0.762	0.061	10.440	0.581
SOF	0.464	0.595	0.062	7.537	0.354
RA	0.627	0.696	0.068	9.213	0.485
FL	0.718	0.771	0.068	10.605	0.594
CB	0.649	0.748	0.064	10.165	0.560
CL	0.668	0.753	0.065	10.263	0.567
EFI	0.754	0.821	0.065	11.653	0.674
EFFE	0.724	0.836	0.060	11.978	0.698
TFP	0.645	0.759	0.062	10.383	0.577
TSE	0.688	0.763	0.066	10.457	0.582

4.4.2 The 15-Item CFA Model

With the aim of improving the overall fit of the CFA model, the items with lowest loadings were sequentially removed until the maximum number of 5 highest-loading indicators per factor remained. Finally, 23 items were eliminated and the 15-item version of the CFA model was developed, as depicted in Figure 4.3.

The final 15 items include 4 indicators (LINC, LMCUL, LACCM, LIC) of the transition barriers; 5 indicators (CEN, CFS, VER, FAITH, REL) of the financial transparency; 5 indicators (OBJ, FL, CL, EFFE, TFP) of the perceived accountability; and a single indicator (TotalAI) of the implementation of accrual accounting. The error variance of the TotalAI is set to zero indicating that the indicator is a perfect measure of the latent variable (Hayduk, 1987). Despite not having loadings greater than 0.7, LINC and CFS are also included because their error variances are correlated with other highest-loading indicators (i.e., VER and LMCUL, respectively).

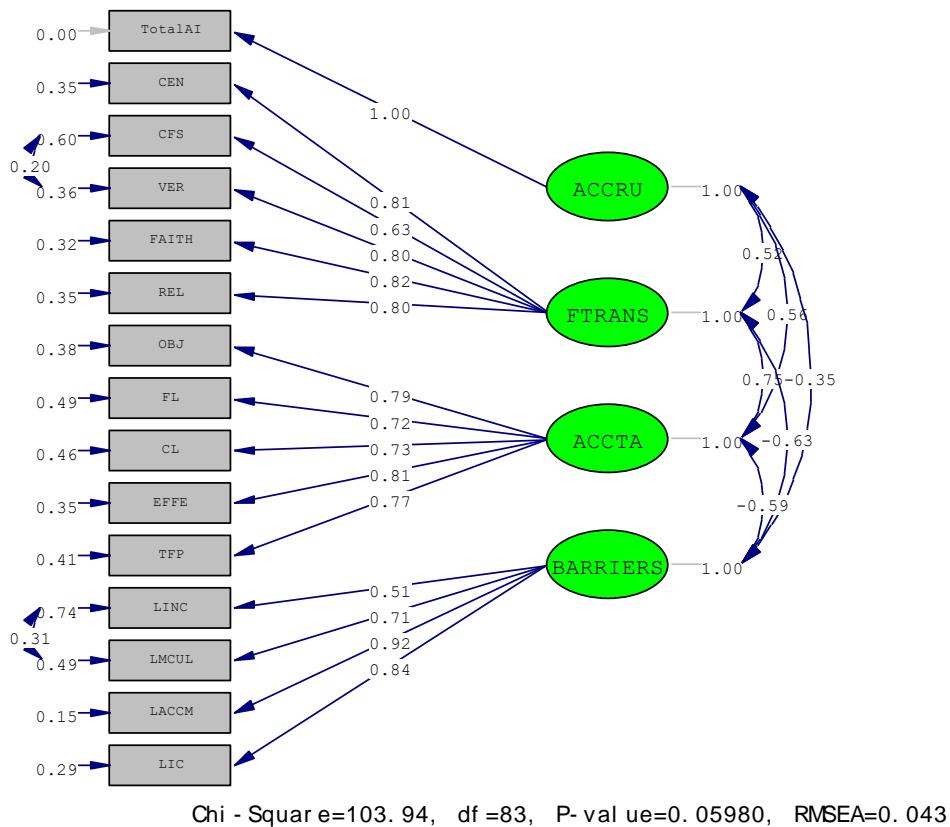


Figure 4.3 The 15-Item CFA Model

The 15-item CFA model was tested, and yielded the p-value of Chi-Square (χ^2) is 0.0598 as shown Figure 4.3, indicating goodness-of-fit as p-value of χ^2 is greater than 0.5. The estimate (b), standardized (B), standard error (SE), t-value, and R^2 of the factor loadings are reported in Table 4.9.

Table 4.9 Factor Loadings of the 15-item CFA Model

Factors/ Observable variables	Factor loading				R^2
	b	B	SE	t	
Transition barriers to Accrual Accounting (BARRIERS)					
Lack of incentive (LINC)	0.702	0.512	0.114	6.165	0.262
Lack of supporting management culture (LMCUL)	0.811	0.714	0.087	9.330	0.509
Lack of sufficient accounting manuals (LACCM)	0.797	0.923	0.059	13.409	0.852
Lack of easily of accrual information communicated to users (LIC)	0.713	0.841	0.061	11.675	0.707
Implementation of accrual accounting (ACCRU)					
Practical implementation of accrual accounting recognition and measurement (TotalAI)	0.160	1.000	0.010	16.673	1.000
Financial Transparency (FTRANS)					
Complete information of all entities engaging in department (CEN)	0.671	0.809	0.060	11.176	0.655
Financial Statements are presented completely (CFS)	0.528	0.632	0.067	7.903	0.399
Financial statements are audited by independent auditor or Office of Auditor General of their reliability (VER)	0.749	0.800	0.068	10.978	0.640
Financial information is faithful presentation of economic phenomena and free from material errors (FAITH)	0.830	0.824	0.072	11.476	0.678
Financial information is relevant for making effective decisions (REL)	0.741	0.804	0.067	11.069	0.646
Perceived Accountability (ACCTA)					
Accountable for achievement of objectives (OBJ)	0.662	0.787	0.062	10.691	0.619
Accountable for the financial management to meet liabilities and commitments (FL)	0.668	0.717	0.071	9.369	0.514
Accountable for the compliance with law by using resources according with legal and contractual requirements (CL)	0.652	0.735	0.067	9.701	0.540
Accountable for the effectiveness of resources used to accomplish service delivery activities (EFFE)	0.700	0.807	0.063	11.108	0.652
Accountable for the financial results in the context of long term (TFP)	0.654	0.769	0.063	10.351	0.592

Table 4.10 presents the factor inter-correlations found in the confirmatory factor analysis. All loadings and factor inter-correlations are significant ($p < 0.05$). The analysis of the 15-item CFA model confirms that the model fits with the data well as indicated by the fit indices in Table 4.11.

Table 4.10 Correlation between Constructs

	ACCRU	FTRANS	ACCTA	BARRIERS
ACCRU	1			
FTRANS	0.524	1		
ACCTA	0.557	0.754	1	
BARRIERS	-0.350	-0.626	-0.589	1

Table 4.11 Fit Indices of CFA Model

Fit Indices	Value
Chi-Square (χ^2)	103.94
Degree of freedom (df)	83
χ^2/df	1.2523
Chi-Square p-value	0.05980
Goodness-of-fit (GFI)	0.908
Comparative Fit Index (CFI)	0.983
Root mean square error of approximation (RMSEA)	0.0426
Standardized root mean square residual (SRMR)	0.050

4.4.3 Reliability Testing of CFA Model

With the factor loading of 15-item CFA Model (completely standardized solution, B values in Table 4.9) of a latent variables, construct reliability (p_c) and average variance extracted (p_v) can be computed using Equations (4) and (5) in Section 3.6.1.

The CR for each of the four factors are p_c (BARRIERS) = 0.8426; p_c (ACCRU) = 1; p_c (FTRANS) = 0.8831; and p_c (ACCTA) = 0.8750; where as the AVE for each of the four factors are p_v (BARRIERS) = 0.5826; p_v (ACCRU) = 1; p_v (FTRANS) = 0.6037; p_v (ACCTA) = 0.5836.

Hence, the CR of all constructs are greater than 0.7 and the AVE of all constructs are greater than 0.5, indicating that the observable variables are representative of the construct or latent variable. It can be seen that all four constructs have very good reliability of observable variables in measuring the constructs.

4.4.4 Discriminant Validity Testing of CFA Model

To conclude that the discriminant validity is upheld, the average variance extracted (AVE) for two constructs should exceed the square correlation between both constructs.

The AVE of ACCRU and FTRANS of the model respectively are 1 and 0.6037 of which the average AVE of both constructs is 0.8018. From Table 4.10, it can be seen that the correlation of the pair (ACCRU and FTRANS) is 0.524, of which the square of correlation between both constructs is 0.2746.

The AVE of ACCRU and ACCTA of the model respectively are 1 and 0.8750 of which the average AVE of both constructs is 0.9375. The correlation of the pair (ACCRU and ACCTA) is 0.557, of which the square of correlation between both constructs is 0.3102.

The AVE of ACCRU and BARRIERS of the model respectively are 1 and 0.5836 of which the average AVE of both constructs is 0.7918. The correlation of the pair (ACCRU and BARRIERS) is -0.350, of which the square of correlation between both constructs is 0.1225.

The AVE of FTRANS and ACCTA of the model respectively are 0.6037 and 0.8750 of which the average AVE of both constructs is 0.7393. The correlation of the pair (FTRANS and ACCTA) is 0.754, of which the square of correlation between both constructs is 0.5685.

The AVE of FTRANS and BARRIERS of the model respectively are 0.6037 and 0.5836 of which the average AVE of both constructs is 0.5936. The correlation of the pair (FTRANS and BARRIERS) is -0.626, of which the square of correlation between both constructs is 0.3918.

The AVE of BARRIERS and ACCTA of the model respectively are 0.5836 and 0.8750 of which the average AVE of both constructs is 0.7239. The correlation of the pair (BARRIERS and ACCTA) is -0.589, of which the square of correlation between both constructs is 0.3469.

Hence, the average AVE exceeds the square correlation, indicating that all constructs are unique and truly distinct from other constructs, discriminant validity is upheld.

All constructs are unique and truly distinctive from other constructs, discriminant validity is upheld.

4.4.5 Summary Results of the 15-Item CFA Model

From Table 4.12, the summary results of the 15-item CFA model can conclude that for latent variables of the transition barriers (BARRIERS) consists of four observable variables. Lack of sufficient accounting manuals (LACCM) has the highest standized factor loading of 0.923, R^2 of 0.852. The second highest, lack of easily of accrual information communicated to users (LIC) has the standized factor loading of 0.841, R^2 of 0.737.

The financial transparency (FTRANS) consists of five observable variables. Financial information is faithful presentation (FAITH) has the highest standized factor loading of 0.824, R^2 of 0.678. The second highest, financial information is relevant for making effective decisions (REL) has the highest standized factor loading of 0.804, R^2 of 0.646.

The perceived accountability (ACCTA) consists of five observable variables. Accountable for the effectiveness of resources used to accomplish service delivery activities (EFFE) has the highest standized factor loading of 0.807, R^2 of 0.652. The second highest, accountable for achievement of objectives (OBJ) has the standized factor loading of 0.787, R^2 of 0.619.

Table 4.12 Summary Result and Reliability Test of the 15-Item CFA Model

Factors/ Observable variables	Factor loading B	t	R²	CR	AVE
Transition Barriers to Accrual Accounting (BARRIERS)				0.8426	0.5826
Lack of incentive (LINC)	0.512	6.165	0.262		
Lack of supporting management culture (LMCUL)	0.714	9.330	0.509		
Lack of sufficient accounting manuals (LACCM)	0.923	13.409	0.852		
Lack of easily of accrual information communicated to users (LIC)	0.841	11.675	0.707		
Implementation of Accrual Accounting (ACCRU)				1	1
Practical implementation of accrual accounting recognition and measurement (TotalAI)	1.0	16.673	1		
Financial Transparency (FTRANS)				0.8831	0.6037
Complete information of all entities engaging in department (CEN)	0.809	11.176	0.655		
Financial Statements are presented completely (CFS)	0.632	7.903	0.399		
Financial statements are audited by independent auditor or Office of Auditor General of their reliability (VER)	0.800	10.978	0.64		
Financial information is faithful presentation of economic phenomena and free from material errors (FAITH)	0.824	11.476	0.678		
Financial information is relevant for making effective decisions (REL)	0.804	11.069	0.646		
Perceived Accountability (ACCTA)				0.8749	0.5836
Accountable for achievement of objectives (OBJ)	0.787	10.691	0.619		
Accountable for the financial management to meet liabilities and commitments (FL)	0.717	9.369	0.514		
Accountable for the compliance with law by using resources according with legal and contractual requirements (CL)	0.735	9.701	0.54		
Accountable for the effectiveness of resources used to accomplish service delivery activities (EFFE)	0.807	11.108	0.652		
Accountable for the financial results in the context of long term (TFP)	0.769	10.351	0.592		

4.5 The Structural Model

After testing the measurement model, the next step of structural equation modeling (SEM) is to assess the structural model for examining the relationship between constructs or latent variables. The objective is to verify that the model fits the data.

Assessing the goodness-of-fit, some of fit indices can be used such as χ^2 with p-value of greater than 0.05, GFI value of greater than 0.90, RMSEA value of less than 0.05, and other criteria.

In evaluating the relationship between constructs, the t-value is evaluated. The significance level of 1%, 5%, 10%, and 15% are commonly used. However, the significance level at 15% indicates that real phenomenon might exist however, it might just be a random effect. Thus the relationship which is only significant at 15% indicates weak evidence of the relationship. Hence, the significant level in assessing the path is 1%, 5% and 10% which are commonly used to accept the hypothesis.

Results of Structural Model

Figure 4.4 depicts the 15-item structural model and the standardized estimates. The Lisrel outputs indicates that the model fits the data well as indicated by Chi-Square p -value which is greater than 0.5 (0.05980). As the model fits the data, the results of the paths show that five hypotheses (H-1, H-2, H-3, H-4 and H-5) are accepted at 1% significance level. One hypothesis (H-6) is accepted at 5% significance level.

From Table , the model fits the data, the Chi-square of the model is greater than 0.5 that shows insignificant value, $\chi^2 (83) = 103.94$; p -value = 0.05980. The value of χ^2/df is less than 2, ($103.94/83 = 1.252$). The goodness-of-fit (GFI) is 0.908, which is between 0.90 and 0.95, the root mean-square error of approximation (RMSEA) is 0.043 which is less than 0.05, and the standard root mean square residual (SRMR) is 0.050 which is less than 0.05. These goodness of fit statistics also indicate that the model fit the data.

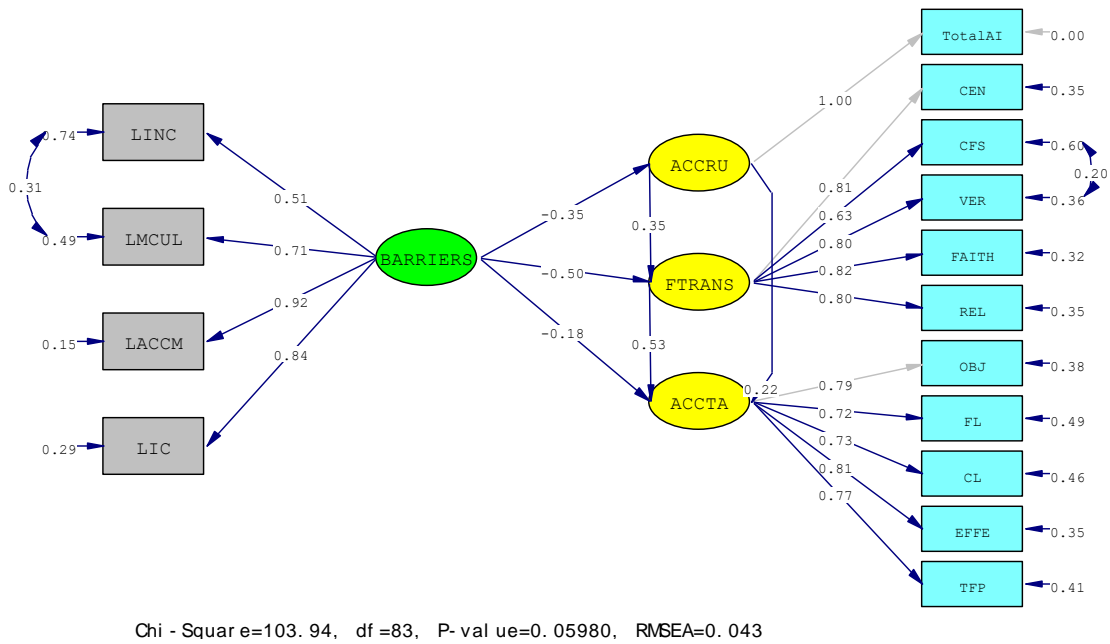


Figure 4.4 The 15-Item Structural Model

The square multiple correlation of observed variables (R^2) are between 0.262 – 0.852 that shows measurement validity or shows the interrelations among latent variables and observable variables. The observable variable of BARRIERS latent variable has the highest R^2 is LACCM; $R^2 = 0.852$. The observable variable of BARRIERS latent variable has the lowest R^2 is LINC; $R^2 = 0.262$.

The correlation of latent variables (R^2) are between 0.350 – 0.754. The latent variable (FTRANS) and (ACCTA) has the highest R^2 ; 0.754.

The direct effect and indirect effect of factors that can affect the perceived accountability (ACCTA) of government agency are shown in Table 4.13.

The implementation of accrual accounting (ACCRU) is directly affected and related negatively by the transition barriers (BARRIERS) (standardized coefficient = -0.350). The financial transparency (FTRANS) is directly affected and related negatively by the transition barriers (BARRIERS) and related positively with the implementation of accrual accounting (ACCRU) (standardized coefficient = -0.505 and 0.347 respectively). Moreover, the financial transparency (FTRANS) is indirectly affected by the transition barriers mediated by the implementation of accrual accounting (ACCRU) (standardized coefficient = -0.122).

Table 4.13 Regression Weights for 15-Item Structural Model

	BARRIERS			ACCRU			FTRANS		
	Total Effect	Indirect Effects	Direct Effects	Total Effect	Indirect Effects	Direct Effects	Total Effect	Indirect Effects	Direct Effects
ACCRU									
Estimate	-0.350**	-	-0.350**	-	-	-	-	-	-
S.E.	0.086	-	0.086	-	-	-	-	-	-
t-value	-4.055	-	-4.055	-	-	-	-	-	-
FTRANS									
Estimate	-0.626**	-0.122**	-0.505**	0.347**	-	0.347**	-	-	-
S.E.	0.093	0.039	0.088	0.077	-	0.077	-	-	-
t-value	-6.722	-3.114	-5.755	4.511	-	4.511	-	-	-
ACCTA									
Estimate	-0.589**	-0.405**	-0.184*	0.400**	0.182**	0.217**	0.525**	-	0.525**
S.E.	0.095	0.084	0.092	0.079	0.054	0.077	0.113	-	0.113
t-value	-6.201	-4.842	-1.993	5.043	3.348	2.814	4.662	-	4.662

Statistical results

Chi-Square = 103.94 df = 83 P-value = 0.05980 GFI = 0.908 RMSEA = 0.043 SRMR = 0.0505

Square multiple correlation of observable variables

ACCRU	TotalAI				
R ²	1.000				
BARRIERS	LINC	LMCUL	LACCM	LIC	
R ²	0.262	0.509	0.852	0.707	
FTRANS	CEN	CFS	VER	FAITH	REL
R ²	0.655	0.399	0.640	0.678	0.646
ACCTA	OBJ	FL	CL	EFFE	TFP
R ²	0.619	0.514	0.540	0.652	0.592

Correlation among latent variables

	ACCRU	FTRANS	ACCTA	BARRIERS
ACCRU	1.000			
FTRANS	0.524	1.000		
ACCTA	0.557	0.754	1.000	
BARRIERS	-0.350	-0.626	-0.589	1.000

Note: * p-value < .05

** p-value < .01

The perceived accountability (ACCTA) of government agency is directly affected and related negatively by the transition barriers (BARRIERS) and related positively with the adoption of accrual accounting (ACCRU) and related positively with the financial transparency (FTRANS) (standardized coefficient = -0.184, 0.217 and 0.525 respectively). Moreover, the perceived accountability (ACCTA) of government agency is indirectly affected and related negatively by the transition barriers (BARRIERS) mediated by the financial transparency (FTRANS) (standardized coefficient = -0.405). The perceived accountability (ACCTA) of government agency is indirectly affected and related positively with the adoption of accrual accounting (ACCRU) (standardized coefficient = 0.182).

As presented in Table , the result of the paths of the 15-item structural model, five hypotheses (H-1, H-2, H-3, H-4 and H-5) are accepted at 1% significance level. One hypothesis (H-6) is accepted at 5% significance level.

Table 4.14 Hypotheses Testing of Regression Weights for 15-Item Structural Model

Direct Effects	Estimate	S.E.	t-value	p-value	Results
H1: The transition barriers cause a lower level of the progress of accrual accounting in central government departments.	-0.350**	0.086	-4.055	0.000083	Support
H2: The implementation of accrual accounting causes a higher level of financial transparency of central government departments.	0.347**	0.077	4.511	0.000014	Support
H3: Financial Transparency has a positive influence on the perceived accountability of central government departments.	0.525**	0.113	4.662	0.000007	Support
H4: The implementation of accrual accounting causes a higher level of perceived accountability of central government departments.	0.217**	0.077	2.814	0.005608	Support
H5: The transition barriers cause a lower level of the financial transparency of central government departments.	-0.505**	0.088	-5.755	0.000000	Support
H6: The transition barriers cause a lower level of the perceived accountability of central government departments.	-0.184*	0.092	-1.993	0.048234	Support

Note: * p-value < .05

** p-value <.01

4.6 Hypothesis Test

After analyzing the measurement model by using confirmatory factor analysis (CFA) and structural equation modeling (SEM), it is possible to evaluate the hypotheses.

Hypothesis H1 predicted a negative relationship transition barriers and the level of the implementation of accrual accounting in central government departments. The results suggest that the lack of support management culture, incentive, insufficient of accrual accounting manuals, and the difficult of accrual accounting information are negatively related to the level of accrual accounting implementation in departments. The path coefficient between transition barriers (BARRIERS), and the implementation of accrual accounting (ACCRU) is -0.350, which is statistically significant at the 1% level, with t-value of -4.055, as shown in Table 4.14. The results support hypothesis H1.

Regarding the hypothesis H2, it predicted a positive relationship between the implementation of accrual accounting and financial transparency in central government departments. The accrual accounting implementation generates complete information of the departments. Financial statements are verified and audited by the Office of Auditor- General. Financial information is faithfully presented. Financial reports are used in budgeting and financial performance evaluation of the departments. The path coefficient between the implementation of accrual accounting (ACCRU) and the financial transparency (FTRANS) is 0.347, which is statistically significant at 1% level, with t-value of 4.511, as shown in Table 4.14. As a result, this study provides evidence to support H2.

Hypothesis H3 predicted that financial transparency has a positive influence on the perceived accountability in central government departments indicating by a positive sign on the relationship between financial transparency and perceived accountability of governmental departments. The path coefficient between the financial transparency (FTRANS) and the perceived accountability (ACCTA) is 0.525, which is statistically significant at 1% level with t-value of 4.662, as shown in Table 4.14. As a result, this study provides strong evidence to support H3, the better quality of accrual accounting information could enhance the perceived accountability of the government departments. This study provides strong evidence to support H3.

Hypothesis H4 predicted a positive relationship between that the implementation of accrual accounting and perceived accountability of central government departments. The path coefficient between ACCRU and ACCTA is 0.217 with t-values of 2.814, which is statistically significant at 1% level, as shown in Table 4.14. Hence, this study provides strong evidence that the implementation of accrual accounting has positive relationship with the perceived accountability of the governments for achievement of objectives, the financial management to meet liabilities and commitments, the compliance with law, the effectiveness of resources used to accomplish service delivery activities, and for the financial results in the context of the long term. Hypothesis 4 is supported.

Regarding the hypothesis H5 predicted a negative relationship between transition barriers and financial transparency. The estimated regression weight shows a negative value of 0.505, indicating that a government department that facing more transition barriers tends to have less financial transparency. The path between the transition barriers (BARRIERS) and the financial transparency (FTRANS) is statistically significant at 1% level with t-values equal to -5.755, as shown in Table 4.14. This study provides strong evidence to support H5.

Regarding the hypothesis H6, it predicted a negative relationship between transition barriers and perceived accountability of central government departments. The estimated regression weight shows a negative sign, indicating that a governmental agency that facing more transition barriers to accrual accounting implementation tends to have less perceived accountability. The path coefficient between the transition barriers (BARRIERS) and the perceived accountability is -0.184 which is statistically significant at 5% level with t-values equal to -1.993, as shown in Table 4.14. Thus, H6 is supported.

The findings provide evidence for all hypotheses.

CHAPTER 5

DISCUSSION AND CONCLUSION

This study aims to examine the outcome of the implementation of accrual accounting in central government departments of Thailand; and to investigate transition barriers affecting the implementation of accrual accounting, the financial transparency, and the perceived accountability of the departments. This chapter provides the discussion and conclusion from the empirical evidence presented in chapter 4.

The results of a structure interview show that the barriers to the accrual accounting implementation in the central government departments is a lack of accrual accounting manuals to explain the accrual accounting standards issuing by the Comptroller-General's Department (CGD). Thus, it is difficult for public accountants to apply those accrual accounting standards for the accounting of their financial activities. The lack of supporting management culture and incentive are also mostly mentioned during the interviews because cash information is easier to understand and the incentive of each department is tied with the budget spending target. If these barriers to accrual accounting are accomplished then accrual accounting implementation is likely to be more effectiveness and efficiency.

The produced accrual financial information can promote more financial transparency of the departments because the departments are able to produce financial statements of the department which include all financial activities of the entities of the departments. These financial statements are audited by the Office of the Auditor General and published in an annual report of the departments.

The higher quality of accrual accounting information can discharge the departments' financial management accountability, for the compliance with fiscal laws and regulations, and for the effectiveness of resources used by the departments. However, the prior cash basis information relating to budget spending should be provided in accompany with accrual accounting financial statements since the budget execution is a fundamental financial accountability in public sector.

5.1 The Transition Barriers Affecting a Lower Level of Accrual Accounting Implementation Progress

By investigating the transition barriers of the implementation of accrual accounting, this study finds that there are four significant transition barriers. These transition barriers are lack of incentive, lack of supportive management culture, lack of sufficient accounting manuals, and lack of understanding of accrual information or the accrual information is not easily communicated to users.

The literature has recognized that the proper incentive for accrual accounting task and the supportive management culture of utilization of accrual information is one mechanism for the progress of the implementation. Correlated errors between accrual accounting transition barriers, lack of incentive and lack of supportive management culture is applied. The existence of correlated errors is theoretically justified. The findings in previous literature stated that accrual accounting information is either not used or had limited use because there is little understanding of accrual accounting information among public managers. Moreover, the complexity of certain specific accounting issues which is not well explained or clearly communicated by accrual accounting manuals could cause a drawback in the implementation process. Also, misunderstanding of accrual information among preparers and users could alleviate the progress of the accrual implementation.

By examining the impact of transition barriers to accrual accounting on the implementation of accrual accounting in Thai central government departments, this study finds that the transition barriers causes a lower level of the implementation of accrual accounting. It is found that a governmental department that is more likely to have more accrual accounting implementation if it has less transition barriers.

Based on the negative significant relationship between transition barriers and accrual accounting implementation in the central government of Thailand. The plausible explanations could be as the following.

Firstly, the implementation of accrual accounting cannot be seen as a technical accounting tasks because it requires the implementing of a cultural change in public management. The government should create a practical management approach to encourage more efficient ways of using resources and delivering public services.

Thus, the accrual accounting information that focus on the complete pictures of financial position by recording assets and liabilities of the government could be used for day-to-day management. Bureaucratic management culture do have a fundamental negative effect on the transition to accrual accounting implementation in Thailand.

Secondly, another significant issue of accrual accounting is lack of incentive for accrual accounting tasks and using of accrual accounting information. Public manager's incentive has not tied with accrual financial information but tied with the budget spending of the departments. The financial key performance indicator is determined by the percentage of capital budget and recurring expenses spending compared with the approved budget.

Thirdly, the long history of cash basis accounting practice in public sector inflicts huge specific accounting information problems such as lack of information for estimating provisions for uncollected loans, lack of assets registers, and lack of valuation of the assets. Moreover, the lack of sufficient accrual accounting manuals for some specific financial activities of the department could cause the less progress of the accrual accounting implementation in the department.

Lastly, accrual accounting information is either not used or had limited use because there is little understanding of accrual accounting information among Thai public managers. The more easily and understandable of accrual accounting information to users and managers of the department could promote the progress of accrual accounting implementation and the usefulness of accrual financial information.

5.2 The Implementation of Accrual Accounting Affecting a Higher Level of Financial Transparency

By exploring the financial transparency of the central government departments of Thailand. The result shows that there are five significant measures of the financial transparency. These characteristics are the completeness of reporting of financial information of all entities engaging in the department; the financial statements of the department are presented completely; the financial statements are audited by Office of

Auditor General or independent auditor; the financial information is faithful presented; and the financial information provides users with relevance information for effective decision making or in a budget planning.

With regards to the financial transparency, the financial statements of the department are presented completely of all stocks and flows of financial activities in financial statements. The reliability of the financial statement including appropriate recognition, measurement, or representation without material errors, is the credibility of fiscal information in which the government's economic and fiscal performance are subject to external evaluation (Adams & Evans, 2004). Thus, the result shows that there is a correlation of errors between the completeness and the verification of the financial statement as theoretically justified.

There are strong evidences that the implementation of accrual accounting causes a higher level of financial transparency in central government departments. It is found that more advance accrual accounting implementation departments tend to have more financial transparency.

Accrual accounting can enhance transparency because it provides a greater range of financial information on the operations of government: a full statement of assets and liabilities and revenues and expenses which are integrally linked with each other and off-balance-sheet liabilities or contingent liabilities. Since the implementation of accrual accounting, the government departments has prepared general purpose financial statements for providing financial information of the departments to public. The more progress of the implementation, the more complete and better quality of financial information included in the financial statements that causes the higher level of the departments' transparency. Based on the positive and statistically significant relationship between the implementation of accrual accounting and financial transparency, the plausible explanation could be a better quality of financial information generated from accrual accounting implementation enhances the financial transparency of Thai central governmental agencies. Consisting with the finding that implementing accrual accounting by complying with IPSASs could enhance the quality of financial information for grater comparability, understandability and timeliness of the financial statements.

However, there are certain issues such as the comparability of accounting, budget, and financial statistic numbers at the departmental agencies, the late publishing of audited financial statements, and the availability of financial statement of central governmental agencies to the public. In Thailand, the audited financial statement of a governmental agencies are citified almost one-year after the year ended due to the shortage of staff of the Office of Auditor General and the long period of checking and adjusting errors of the financial transaction of the governmental agencies. Moreover, the central governmental departments had not completely reported cash flow statement, budget information and note to financial statement. Since, the Comptroller-General's department of Thailand had not required the central governmental agencies to prepare a cash flow statement and had not implemented IPSAS#24—Presentation of Budget Information in Financial Statements. The financial statements that could not be compared with the fiscal forecast or statistical report, or budget report had limited the usefulness of accrual accounting information. Since the unreconciled between budget report, financial statement, and government fiscal forecast and statistical report could easily misunderstood by users.

Also, the accrual accounting implementation also had some drawback effects such as the complexity of information that required the length of the time for preparing and auditing together with the lack of understanding and use by potential users could undermine its stated benefits. Moreover, for external users of accrual financial statement, they have limit accessibility to the financial information. Moreover, the audited financial statements have not been published in timely.

5.3 The Financial Transparency Having a Positive Influence on the Perceived Accountability

This study found that financial transparency has a positive influence on the perceived accountability. Financial transparency is effective in improving accountability of Thai central governmental agencies by providing sufficient financial information to public for discharging of their accountabilities.

The finding also shows that financial transparency in Thai central governmental agencies is effective in enhancing accountability of the governmental

agencies. Several factors might have contributed in this effectiveness. First, as Thailand much of the pressure for increased accountability, particularly transparency has been from external and the government itself. The financial crisis in 1997 in Asia called TOM YAM KUNG, which was perceived to be caused by the lack of transparency and accountability, Thai government decided to adopt accrual accounting in 2003 with the endorsement by IMF and World Bank. Second, Thailand strengthened the accounting system relating to the reliability of financial reporting by adopting the IPSASs standards as a benchmark. Third, Thailand had been adopted the codes of good practices on fiscal transparency of the government. Focusing on the fiscal reporting, fiscal reports should provide a comprehensive, relevant, timely and reliable of the government financial position and performance. The finding can also be interpreted as the success of the implementation of accrual accounting in Thai government which has been practiced in Thailand after the Asian financial crisis. Hence, with high quality of financial reporting of government or transparency of the government can be trust or held accountable.

5.4 The Implementation of Accrual Accounting Affecting a Higher Level of the Perceived Accountability

By exploring the accountability of the central government departments of Thailand. The result shows that there are five significant measures of accountability; the accountability for the achievement of the department's objectives; for the financial management to meet liabilities and commitment; for the compliance with law by using resources according with legal and contractual requirements; for the effectiveness of resources used to accomplish service delivery activities; and the financial results in the context of long term.

The study provides strong evidences that the implementation of accrual accounting causes a higher level of accountability of Thai central governmental agencies. It is found that the more advance of accrual accounting implementation by the agencies, the higher level of accountability of the departments tend to have.

In Thailand, an increasing level of the implementation of accrual accounting is positively correlated with the more accountability of the central governmental

agencies. This might be contributed by the following explanations. First, providing financial information to citizens would ensure that public resources are properly managed and the objectives of the operations are being achieved. Second, the accrual accounting information and financial statements would enable legislatures to hold the governmental agency more responsible for its stewardship of assets, carefully manage its ability to meet short term and long term obligations. Third, the implementation of accrual accounting has been positively enhancing the effectiveness of government spending by providing better cost and the output information for services delivery to citizens.

However, in Thailand, the difference between cash budget basis and accrual accounting basis; and the fact that there is no requirement for the comparison between these figures. The financial statements of the departments are lack of disclosure of information regarding to the allocation of resources within the departments to accomplish their objectives. In addition, there is no financial forecast accompanying with financial statements in most departments to predict resources required for continuing operations. The results show that the departments have not been perceived as accountable for efficiency in the use of their resources. These public managers may not have incentives to use the resources efficiently because their savings would go back to the central government treasury account.

5.5 The Transition Barriers Affecting a Lower Level of the Financial Transparency

This study found that transition barriers have negative effects on the financial transparency of Thai central governmental agencies. It is found that agencies which are facing more transition barriers to accrual accounting tend to have less financial transparency.

The whole management culture needs to change to ensure that accrual accounting information can be used in case of Thailand. The financial incentives and penalties to encourage a practical management approach must be applied for the more efficient ways of resources used for delivery of public services. The lack of supportive management culture and lack of right incentives would deter the proposed benefits of accrual accounting in improving the financial transparency of the departments.

Public managers must have a willingness to promote more flexibility and less control of agencies. The control of public assets has been under the authority of the Treasury Department such as government land, and buildings. Lack of real control over public assets by the agency and lack of asset management incentives compared with the private sector practices, may be important obstacles of the efficiency uses of public assets. Moreover, any saving or unused fund that the agency generates from the operations must go back into the central pot or central government account (The CGD treasury reserve account at the Bank of Thailand). Thus there is no great motivation for department executives to properly manage their departments and to disclose financial performance information to public as in the private sector. Moreover, accrual information is too complicated for public managers, in reality there is little understanding by users, and they may have inadequate knowledge of financial reports generated by accrual accounting system in Thailand. The inability to understand accrual information still prevents government officials from using accrual accounting information.

5.6 The Transition Barriers Affecting a Lower Level of the Perceived Accountability

This study found that transition barriers have a negative influence on the perceived accountability of Thai central governmental agencies. It is found that agencies which are facing more transition barriers to accrual accounting tend to have less perceived accountability.

The difficulty of accrual financial statement and the unreconciled among cash budget, accrual accounting, and government fiscal statistical report have made accrual accounting reports easily misunderstood by users. Moreover, when applying private accounting techniques into the public sector, there must be the modification of practices to the specific public finance issues. The disconnect between accrual accounting and the management would reduce the intended aim of accrual accounting in enhancing accountability of the Thai government departments. Easily understood accrual accounting reports are needed for effective utilization. Since the vast users of the government financial statement without business or financial literacy background would not understand published financial reports.

In Thailand, transition barriers of central governmental to adopt accrual accounting are negatively correlated with the perceived accountability of the central governmental agencies.

5.7 Research Implications

5.7.1 Theoretical Implication

This study has significant contributions with regards to the understanding of accrual accounting implementation barriers in the country that had a long history of cash basis or rules-based accounting practices. There is no study that investigates the transition barriers of the adoption of accrual accounting in Thailand. This study provides early empirical evidence on the transition barriers. It is found that the significant transition barriers are bureaucratic management culture, lack of incentive system, lack of understanding of accrual accounting by managers, unavailability of sufficient accounting manuals and lack of training and development program. These barriers could be reasons why agencies tend to have relatively lower level of the implementation, lower level of financial transparency and perceived accountability.

The findings have three important implications:

- 1) With regards to the financial transparency, public managers and users may have difficulty to understand the accrual accounting information because accrual accounting is more complicated and might not be reported clearly and concisely. The financial statement that could not be compared with the fiscal forecast or statistical report and budget report might limit the usefulness of accrual accounting information. Since the unreconciled balances between these reports could easily misunderstand the users of information.

- 2) The bureaucratic management culture, that does not associate the public managers incentive with accrual accounting information, could be the reason why accrual information might not been used for resources allocation of the departments.

- 3) The timeliness of and openness of audited financial statement could not been achieved in Thailand. Since, the current fiscal law had not established the

time period for the governmental agencies to publish their financial statements and had not compel to disclosure their audited financial statements for public accessibility.

4) The early evidence can assist academic researchers to investigate the adoption and implementation of accrual accounting outcomes. By using the model developed in this study, the future research can investigate the outcomes of the accrual accounting in enhancing financial transparency and accountability in other developed and developing countries in the future.

5.7.2 Practical Implication

The finding of this study provide significant practical implications not only for central governmental public accountants and managers, but also for regulators, specifically for those who conduct the accounting reform in Thailand. Several practical implications include:

1) For public accountants, as accrual accounting is found to be effective in enhancing the financial transparency, public accountants should implement more accrual principles since accrual accounting basis would improve the quality of financial statements and information. Moreover, the regulators should strengthen the financial transparency by adopting more IPSASs accrual standards.

2) For the regulators of government accounting, the results of the study shows that there might be insufficient communication relating to accrual accounting information for users or public managers since they could not be able to understand the accrual financial information that generated within their departments.

3) For those who responsible for public administration reform in Thailand, financial reform should not be separated from other components such as the incentive system reform and public management reform. Hence, the proper incentive system that ties with accrual information, and the decentralized of asset and liability management to line departments would enhance using of accrual financial statements and information.

4) This study indicates that the adoption of IPSASs accrual accounting basis has improved the financial transparency and perceived accountability of central government departments.

5.8 Conclusion

This study used structural equation modelling technique to investigate the impact of accrual accounting barriers on the implementation of accrual accounting and to evaluate the outcomes of financial transparency and accountability improvement of the central government departments.

The survey was carried out by sending questionnaires to public finance managers or accountants in the target population. There were 139 respondents out of the total population of 218 central government departments.

This study indicates that the implementation of accrual accounting has improved the financial transparency and perceived accountability of the Thai central government agencies. The investigation of the relationships between the transition barriers and the implementation of accrual accounting has revealed that the lack of incentive, the lack of supportive management culture, the lack of accrual accounting manuals, and the difficulty of accrual information have affected the implementation of the accrual accounting in the Thai central government departments.

The investigation of the relationships between the implementation of accrual accounting outcomes in the Thai central government departments has provided substantial evidence for the improvement of financial transparency (complete reporting entities; complete financial information; verifiability; faithful representation; and relevance for decision making and budget planning) and perceived accountability (achievement of objectives; ability to finance their activities, liabilities and commitments; compliance with law; the effectiveness of resources used; and the changes in their financial conditions). However, the timeliness and openness of audited financial statements could not be achieved in Thailand because the current fiscal law had not established any time period for the governmental agencies to publish their financial statements and had not compelled to disclose their audited financial statements for public accessibility.

5.9 Limitations of the Study

Because the accounting practice of local government has been on a cash basis and the accounting practice of the state-enterprises of Thailand has complied with the

TFRSs of the Federation of Accounting Professions under the Royal Patronage of his Majesty the King. Thus, this study emphasizes on central government departments by excluding local government, and state-enterprises of Thailand. As a result, the research findings of this study should not be generalized for those entities.

5.10 Recommendations for Future Research

The future research might explore the factors that could escalate the success of the adoption or the implementation of accrual accounting in public sector. The future government accounting research might investigate the managerial accounting practices of the government as well as the integration of financial accounting and managerial accounting in public sector. Moreover, the investigation of an integrated report of the government for the communication of the organization's strategy, risk and opportunity, performance, and its 'value to public might be focused in future research studies.

BIBLIOGRAPHY

- Adams, C. A., & Evans, R. (2004). Accountability, completeness, credibility and the audit expectations gap. *Journal of Corporate Citizenship*, (14), 97-115. doi:10.9774/GLEAF.4700.2004.su.00010
- Allini, A., Ferri, L., Maffei, M., & Zampella, A. (2017). From accountability to readability in the public sector: Evidence from Italian Universities. *International Journal of Business and Management*, 12(3), 27. doi:10.5539/ijbm.v12n3p27
- Arnaboldi, M., & Lapsley, I. (2009). On the implementation of accrual accounting: A study of conflict and ambiguity. *European Accounting Review*, 18(4), 809-836. doi:10.1080/09638180903136225
- Aucoin, P., & Heintzman, R. (2000). The dialectics of accountability for performance in public management reform. *International Review of Administrative Sciences*, 66(1), 45-55. doi:10.1177/0020852300661005
- The Auditor General of Canada. (2002). *Chapter 9: Modernizing accountability in the public sector*. Retrieved from <http://www.oag-bvg.gc.ca/internet/docs/20021209ce.pdf>
- Ball, C. (2009). What is transparency? *Public Integrity*, 11(4), 293-308. doi:10.2753/PIN1099-9922110400
- Ball, I. (2012). New development: Transparency in the public sector. *Public Money & Management*, 32(1), 35-40. doi:10.1080/09540962.2012.643054
- Ball, I., & Pflugrath, G. (2012). Government accounting. *World Economics*, 13(1), 9-26.
- Barberis, P. (1998). The new public management and a new accountability. *Public Administration*, 76(3), 451-470. doi:10.1111/1467-9299.00111
- Barrett, P. (2003). *Better practice public sector governance*. Canberra: ANAO.
- Barrett, P. (2004). *Financial management in the public sector—How accrual accounting and budgeting enhances governance and accountability*. Paper presented at the CPA Forum: Challenge of change: Driving governance and accountability, Singapore. Retrieved from https://www.anao.gov.au/sites/g/files/net4181/f/Barrett_financial_management_in_the_public_sector_2004.pdf

- Barth, M. E., & Schipper, K. (2008). Financial reporting transparency. *Journal of Accounting, Auditing & Finance*, 23(2), 173-190.
- Barton, A. (2005a). The conceptual arguments concerning accounting for public heritage assets: A note. *Accounting, Auditing & Accountability Journal*, 18(3), 434-440. doi:10.1108/09513570510600774
- Barton, A. (2005b). Professional accounting standards and the public sector—A mismatch. *Abacus*, 41(2), 138-158. doi:10.1111/j.1467-6281.2005.00173.x
- Bastani, P., Abolhalaj, M., Molania Jelodar, H., & Ramezani, M. (2012). Role of accrual accounting in report transparency and accountability promotion in Iranian Public Health Sector. *Middle-East Journal of Scientific Research*, 12(8), 1097-1101.
- Behn, R. D. (2001). *Rethinking democratic accountability*. Washington, DC.: Brookings Institution Press.
- Bergmann, A. (2012). The influence of the nature of government accounting and reporting in decision-making: Evidence from Switzerland. *Public Money & Management*, 32(1), 15-20. doi:10.1080/09540962.2012.643050
- Bergmann, A. (2014). *Accountability. Now. We must enhance government accountability and transparency*. Retrieved from <https://www.ifac.org/global-knowledge-gateway/viewpoints/accountability-now-we-must-enhance-government-accountability-and>
- Bovens, M. (2005). Public accountability. In E. Ferlie, L. E. Lynn, Jr., & C. Pollitt (Eds.), *The oxford handbook of public management* (pp. 182 - 208). London: Oxford University Press.
- Bushman, R. M., Piotroski, J. D., & Smith, A. J. (2004). What determines corporate transparency? *Journal of Accounting Research*, 42(2), 207-252. doi:10.1111/j.1475-679X.2004.00136.x
- Caba-Perez, C., López-Hernández, A. M., & Ortiz-Rodríguez, D. (2009). Governmental financial information reforms and changes in the political system: The Argentina, Chile and Paraguay experience. *Public Administration and Development*, 29(5), 429-440. doi:10.1002/pad.551

- Cameron, W. (2004). Public accountability: Effectiveness, equity, ethics. *Australian Journal of Public Administration*, 63(4), 59-67. doi:10.1111/j.1467-8500.2004.00402.x
- Caperchione, E. (1995). Governmental accounting changes and Italian public administration renewal in the Nineties. In V. Montesinos, & J. M. Vela (Eds.), *International research in public sector accounting, reporting and auditing*, instituto valenciano de investigaciones económicas, S.A, (pp.61-80).
- Carlin, T. M., & Guthrie, J. (2003). Accrual output based budgeting systems in Australia the rhetoric-reality gap. *Public Management Review*, 5(2), 145-162. doi:10.1080/1461667032000066372
- Carnegie, G. D., & West, B. P. (2003). How well does accrual accounting fit the public sector? *Australian Journal of Public Administration*, 62(2), 83-86. doi:10.1111/1467-8497.00327
- Chan, J. L. (1994). *Accounting and financial management reform in the United States government: An application of professor Lüder's contingency model*. Retrieved from <http://jameslchan.com/papers/Chan1994FMUSGovt.pdf>
- Chan, J. L. (2003). Government accounting: An assessment of theory, purposes and standards. *Public Money and Management*, 23(1), 13-20. doi:10.1111/1467-9302.00336
- Chan, J. L. (2006). *IPSAS and government accounting reform in developing countries*. Retrieved from <http://blog-pfm.imf.org/files/chan2006ipsasgafdc.pdf>
- Christensen, M. (2002). Accrual accounting in the public sector: The case of the New South Wales government. *Accounting History*, 7(2), 93-124. doi:10.1177/103237320200700205
- Christensen, M. (2005). The 'third hand': Private sector consultants in public sector accounting change. *European Accounting Review*, 14(3), 447-474. doi:10.1080/0963818042000306217
- Christiaens, J., & Rommel, J. (2008). Accrual accounting reforms: Only for businesslike (parts of) governments. *Financial Accountability & Management*, 24(1), 59-75. doi:10.1111/j.1468-0408.2008.00443.x

- Connolly, C., & Hyndman, N. (2006). The actual implementation of accruals accounting: Caveats from a case within the UK public sector. *Accounting, Auditing & Accountability Journal*, 19(2), 272-290.
doi:10.1108/09513570610656123
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.
- Curran, P. J., West, S. G., & Finch, J. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods*, 1(1), 16-29. doi:10.1037/1082-989x.1.1.16
- Day, P., & Klein, R. (1987). *Accountabilities: Five public services*. London: Tavistock.
- Diamond, J. (2002). *Performance budgeting is accrual accounting required?*
Retrieved from <https://www.imf.org/external/pubs/ft/wp/2002/wp02240.pdf>
- Edwards, J. R., Coombs, H. M., & Greener, H. T. (2002). British central government and “the mercantile system of double entry” bookkeeping: A study of ideological conflict. *Accounting, Organizations and Society*, 27(7), 637-658.
- Falkman, P., & Tagesson, T. (2008). Accrual accounting does not necessarily mean accrual accounting: Factors that counteract compliance with accounting standards in Swedish municipal accounting. *Scandinavian Journal of Management*, 24(3), 271-283. doi:10.1016/j.scaman.2008.02.004
- Garson, G. D. (2008). *Path analysis from Statnotes: Topics in Multivariate Analysis*. Retrieved from <http://docplayer.net/25535564-Aus-statnotes-topics-in-multivariate-analysis-by-g-david-garson-zugriff-am.html>
- GASB. (1987). *Concepts statement no. 1: Objectives of financial reporting*. Retrieved from <http://www.gasb.org/st/concepts/gconsum1.html>
- Guthrie, J. (1998). Application of accrual accounting in the Australian public sector—rhetoric or reality. *Financial Accountability & Management*, 14(1), 1-19.
- Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate data analysis: A global perspective* (7th ed.). London: Pearson.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (Vol. 6). Upper Saddle River, NJ.: Pearson Prentice Hall.

- Harun. (2007). Obstacles to public sector accounting reform in Indonesia. *Bulletin of Indonesian Economic Studies*, 43(3), 365-376.
doi:10.1080/00074910701727613
- Harun, H., An, Y., & Kahar, A. (2013). Implementation and challenges of introducing NPM and accrual accounting in Indonesian local government. *Public Money & Management*, 33(5), 383-388. doi:10.1080/09540962.2013.817131
- Hayduk, L. A. (1987). *Structural equation modeling with LISREL: Essentials and advances*. Baltimore: Johns Hopkins University Press.
- Heald, D. (2003). Fiscal transparency: Concepts, measurement and UK practice. *Public Administration*, 81(4), 723-759. doi:10.1111/j.0033-3298.2003.00369.x
- Heald, D. (2006). Varieties of transparency. In C. Hood, & D. Heald (Eds.), *Transparency: The key to better governance?* (pp. 25–43). Oxford, UK: Oxford University Press.
- Heald, D. (2012). Why is transparency about public expenditure so elusive? *International Review of Administrative Sciences*, 78(1), 30-49.
doi:10.1177/0020852311429931
- Heald, D. (2015). *Surmounting obstacles to fiscal transparency*. Washington, DC.: Global Initiative for Fiscal Transparency.
- Heiling, J., Schührer, S., & Chan, J. L. (2013). New development: Towards a grand convergence? International proposals for aligning government budgets, accounts and finance statistics. *Public Money & Management*, 33(4), 297-303.
doi:10.1080/09540962.2013.799838
- Henry, L. J., & Attavitkamtorn, P. (1999). Governmental accounting and auditing in Thailand: An overview and some suggestions for improvement. *The International Journal of Accounting*, 34(3), 439-454.
- Hepworth, N. (2002). Government budgeting and accounting reform in the United Kingdom. *Models of Public Budgeting and Accounting Reform*, 2, 115.
- Hepworth, N. (2003). Preconditions for successful implementation of accrual accounting in central government. *Public Money & Management*, 23(1), 37-44.
- Holmes-Smith, P., Cunningham, E., and Coote, L. (2006). *Structural equation modeling: From the fundamentals to advanced topics*. Melbourne: Statsline.

- Hood, C. (1991). A public management for all seasons? *Public Administration*, 69(1), 3-19. doi:10.1111/j.1467-9299.1991.tb00779.x
- Hood, C. (1995). The “new public management” in the 1980s: Variations on a theme. *Accounting, Organizations and Society*, 20(2–3), 93-109. doi:10.1016/0361-3682(93)E0001-W
- Hood, C. (2001). Transparency. In P. B. Clarke, & J. Foweraker (Eds.), *Encyclopaedia of democratic thought* (pp. 700-704). London: Routledge.
- Hood, C. (2007). What happens when transparency meets blame-avoidance? *Public Management Review*, 9(2), 191-210. doi:10.1080/14719030701340275
- Hood, C. (2010). Accountability and transparency: Siamese twins, matching parts, awkward couple? *West European Politics*, 33(5), 989-1009. doi:10.1080/01402382.2010.486122
- Hoogervorst, H. (2011). *Financial reporting and auditing - A time for change? The objectives of financial reporting*. Retrieved from http://ec.europa.eu/internal_market/accounting/docs/conference20110209/speech_hoogervorst_en.pdf
- Hung, M. (2001). Accounting standards and value relevance of financial statements: An international analysis. *Journal of Accounting and Economics*, 30(3), 401-420. doi:10.1016/s0165-4101(01)00011-8
- Hyndman, N., & Connolly, C. (2011). Accruals accounting in the public sector: A road not always taken. *Management Accounting Research*, 22(1), 36-45.
- IASB. (2010). *The conceptual framework for financial reporting*. Retrieved from http://www.masb.org.my/pdf.php?pdf=conceptual%20framework%20042015t.pdf&file_path=pdf
- IFAC. (2011). *Transition to the accrual basis of accounting: Guidance for governments and government entities*. New York: IFAC.
- IFAC. (2013). Good governance in the public sector: *Consultation draft for an international framework*. Retrieved from <http://www.ifac.org/system/files/publications/files/Good-Governance-in-the-Public-Sector.pdf>
- IMF. (2012). *Fiscal transparency, accountability, and risk*. Retrieved from <http://www.imf.org/external/np/pp/eng/2012/080712.pdf>
- IMF. (2014). *The fiscal transparency code*. Retrieved from <http://blog-pfm.imf.org/files/ft-code.pdf>

- IPSASB. (2013). *The conceptual framework for general purpose financial reporting by Public Sector Entities*. Retrieved from http://www.cnc.min-financas.pt/pdf/IPSAS_Janeiro_2013.pdf
- Ives, M. (1987). Accountability and governmental financial-reporting. *Journal of Accountancy*, 164(4), 130.
- James, O., & Manning, N. (1996). Public management reform: A global perspective. *Politics*, 16(3), 143-149. doi:10.1111/j.1467-9256.1996.tb00033.x
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Jaruga, A., & Nowak, W. A. (1996). Toward a general model of public sector accounting innovations. *Research in Governmental and Nonprofit Accounting*, 9, 21-31.
- Jorge, S. M., da Costa Carvalho, J. B., & Fernandes, M. J. (2007). Governmental accounting in Portugal: Why accrual basis is a problem. *Journal of Public Budgeting, Accounting & Financial Management*, 19(4), 411-446.
- Khan, A., & Mayes, S. (2009). *Transition to accrual accounting*. Washington, D.C.: IMF.
- Kobayashi, M., Yamamoto, K., & Ishikawa, K. (2016). The usefulness of accrual information in non-mandatory environments: The case of Japanese local government. *Australian Accounting Review*, 26(2), 153-161. doi:10.1111/auar.12093
- Lapsley, I., Mussari, R., & Paulsson, G. (2009). On the adoption of accrual accounting in the public sector: A self-evident and problematic reform. *European Accounting Review*, 18(4), 719-723. doi:10.1080/09638180903334960
- Laughlin, R. (2008). A conceptual framework for accounting for public-benefit entities. *Public Money & Management*, 28(4), 247-254. doi:10.1111/j.1467-9302.2008.00651.x
- Lerner, J. S., & Tetlock, P. E. (1999). Accounting for the effects of accountability. *Psychological Bulletin*, 125(2), 255.

- Lüder, K. (1992). A contingency model of governmental accounting innovations in the political administrative environment. *Research in Governmental and Nonprofit Accounting*, 7, 99-127.
- Mautz, R. K. (1981). Financial reporting: Should government emulate business? The chairman of GASBOC recommends probing the significant differences between these entities. *Journal of Accountancy (Pre-1986)*, 152(2), 53-60.
- McLeod, R. H., & Harun, H. (2014). Public sector accounting reform at local government level in Indonesia. *Financial Accountability & Management*, 30(2), 238-258. doi:10.1111/faam.12035
- Mehr, A. A., Hejazi, R., & Pourmehr, Z. S. (2015). Assessment the usefulness of accrual accounting on reporting transparency and accountability of the Ministry of Science Universities. *Singaporean Journal of Business, Economics and Management Studies*, 3(7), 83-88.
- Monsen, N., & Nasi, S. (1998). The contingency model of governmental accounting innovations: A discussion. *European Accounting Review*, 7(2), 275-288. doi:10.1080/096381898336484
- Moshdei, M., Rojuee, M., & Ghanbari, F. (2015). Investigation of the relationship between accrual accounting and accountability in governmental organizations of Iran. *International Journal of Basic Sciences & Applied Research*, 4(5), 293-298.
- Mucciarone, M. A., & Neilson, J. (2012). Performance reporting in the Malaysian government. *Asian Academy of Management Journal of Accounting and Finance*, 7(2), 35-77.
- Newberry, S. (2014). The use of accrual accounting in New Zealand's central government: Second thoughts. *Accounting, Economics and Law*, 4, 283-297.
- Nolan, L. (1995). *Standards in public life: First report of the committee on standards in public life*. London: HMSO.
- OECD. (2015). G20/OECD Principles of Corporate Governance (9264171266). In G. N. Ofoegbu (2014). *New public management and accrual accounting basis for transparency and accountability in the Nigerian public sector*. Retrieved from <http://iosrjournals.org/iosr-jbm/papers/Vol16-issue7/Version-3/N01673104113.pdf>

- Osborne, D. (2007). *Reinventing government: What a difference a strategy makes*. Paper presented at the 7th Global Forum on Reinventing Government: Building Trust in Government. Retrieved from <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan025253.pdf>
- Ouda, H. (2008). *Transition barriers of accrual accounting in the public sector of developed and developing countries: Statistical analyses with special focus on The Netherlands and Egypt* (pp.111-137). doi:10.14195/978-989-26-0422-0_5. Retrieved from [https://digitalis-dsp.uc.pt/jspui/bitstream/10316.2/32175/1/Implementing%20Reforms%20in%20Public%20Sector%20Accounting%20\(2008\)%20Ouda.pdf?ln=pt-pt](https://digitalis-dsp.uc.pt/jspui/bitstream/10316.2/32175/1/Implementing%20Reforms%20in%20Public%20Sector%20Accounting%20(2008)%20Ouda.pdf?ln=pt-pt)
- Ouda, H. (2015). Making governmental accounting more practice-relevant: Practitioner's perspective. *International Journal on Governmental Financial Management*, 15(1), 9-35.
- Pallot, J. (1992). Elements of a theoretical framework for public sector accounting. *Accounting, Auditing & Accountability Journal*, 5(1), 38-59. doi:10.1108/09513579210008244
- Pallot, J. (2001). A decade in review: New Zealand's experience with resource accounting and budgeting. *Financial Accountability & Management*, 17(4), 383-400. doi:10.1111/1468-0408.00140
- Patton, J. M. (1992). Accountability and governmental financial reporting. *Financial Accountability & Management*, 8(3), 165-180.
- Paulsson, G. (2006). Accrual accounting in the public sector: Experiences from the central government in Sweden. *Financial Accountability & Management*, 22(1), 47-62. doi:10.1111/j.0267-4424.2006.00392.x
- Pollanen, R., & Loiselle-Lapointe, K. (2012). Accounting reform in the government of Canada: Exploratory evidence on accrual accounting adoption and impact. *Financial Accountability & Management*, 28(4), 359-377. doi:10.1111/j.1468-0408.2012.00551.x
- Public Accounts and Estimates Committee. (2005). *Report on the inquiry into corporate governance in the Victorian public sector*. Melbourne, Victoria: Public Accounts and Estimates Committee.

- Robinson, M. (1998). Accrual accounting and the efficiency of the core public sector. *Financial Accountability & Management*, 14(1), 21-37.
- Rodríguez Bolívar, M. P., Navarro Galera, A., & Alcaide Muñoz, L. (2015). Governance, transparency and accountability: An international comparison. *Journal of Policy Modeling*, 37(1), 136-174.
doi:10.1016/j.jpolmod.2015.01.010
- Saleh, Z., & Pendlebury, M. W. (2006). Accruals accounting in government – Developments in Malaysia. *Asia Pacific Business Review*, 12(4), 421-435.
doi:10.1080/13602380600574595
- Saremi, H., & Mohammadi, S. (2015). The relationship between transparency and accountability in public accounting. *Research Journal of Finance and Accounting*, 6(9), 189-191.
- Schumesch, P. (2013). *Towards a new era in government accounting and reporting*. Retrieved from <https://www.pwc.com/gx/en/psrc/publications/assets/pwc-global--ipsas-survey-government-accounting-and-reporting-pdf.pdf>
- Sinclair, A. (1995). The chameleon of accountability: Forms and discourses. *Accounting, Organizations and Society*, 20(2-3), 219-237.
- Sommer, B., & Sommer, R. (1991). *A practical guide to behavioral research: Tools and techniques*. London: Oxford University Press.
- Steccolini, I. (2004). Is the annual report an accountability medium? An empirical investigation into Italian local governments. *Financial Accountability & Management*, 20(3), 327-350. doi:10.1111/j.0267-4424.2004.00389.x
- Torres, L. (2004). Accounting and accountability: Recent developments in government financial information systems. *Public Administration and Development*, 24(5), 447-456. doi:10.1002/pad.332
- van Beest, F., Braam, G., & Boelens, S. (2009). *Quality of financial reporting: measuring qualitative characteristics*. Working Paper, Radboud University Nijmegen.
- Wan, N. Z. N. (2017). The major impacts of change from cash to accrual accounting in the public sectors. *Gading Journal for the Social Sciences*, 9(2), 49-65.
- Welch, S., & Comer, J. (1988). *Quantitative methods for public administration: Techniques and applications*. Chicago, Ill.: Dorsey Press.

Wynne, A. (2003). *Do private sector financial statements provide a suitable model for public sector accounts*. European Group of Public Administration, 1-25.
Retrieved from http://www.academia.edu/2328117/Do_private_sector_financial_statements_provide_a_suitable_model_for_public_sector_accounts

APPENDICES

APPENDIX A

SURVEY QUESTIONNAIRE

A.1 Perceived Accountability

The questions were asked on the perception of respondents about the accountability of their departments. The answers of the questionnaire based on a six-point Likert scale ranging from 1 to 6: 1 = strongly disagree; 2 = moderately disagree; 3 = slightly disagree; 4 = slightly agree; 5 = moderately agree; and 6 = strongly agree.

Questions: In using accrual accounting information (information was disclosed of in your department's annual report or cost report) for discharging the accountability of your department, please evaluate the following statements and utilizing a rating scale indicating your level of agreement and disagreement.

Table A.1 Questions on the Perception of Department's Accountability.

	Rating Scale					
	1	2	3	4	5	6
Objectives						
1) Your department is accountable for the achievement of its objective of operations by sufficiently disclosed information relating to your department's objectives .						A1 OBJ
Resource Management						
2) Your department is accountable for managing its resources by providing sufficient information regarding sources of income such as budget, extra budgetary fund, loan or donations.						A2 SOF
3) Your department is accountable for allocation of resources by providing sufficient information regarding resources allocated to support its achievement.						A3 RA
4) Your department is accountable for its financial management by providing sufficient information that is useful in evaluating the entity's ability to finance its activities and to meet its liabilities and commitments .						A4 FL

A.3 Implementation Barriers

The questions were asked on the views of respondents about transition barriers to the implementation of accrual accounting in their departments. The answers of the questionnaire based on a six-point Likert scale ranging from 1 to 6: 1 = strongly disagree; 2 = moderately disagree; 3 = slightly disagree; 4 = slightly agree; 5 = moderately agree; and 6 = strongly agree.

Questions: In the implementation of accrual accounting and the usage of accrual accounting information and financial statements for promoting financial transparency and accountability of your department, what are your opinions on these implementation factors? Please evaluate the following statements based on a rating scale to indicate your level of agreement and disagreement.

Table A.3 Questions on the Factors Affecting the Implementation and Outcomes.

	Rating Scale						
	1	2	3	4	5	6	
1) There is a support from head of your department for accrual accounting functions.							V1 Management Support
2) There are sufficient qualified government accountants in your department.							V2 Qualified human Resource
3) There are sufficient training and development for your department accounting personnel in accrual accounting recording.							V3 Training and Development
4) There are sufficient budget for designing new accrual accounting system efficiently.							V4 Cost of New System
5) Enactment of regulations and rules related to financial management is complying with accrual accounting.							V5 Fiscal Law and Regulations
6) Your department provides sufficient budget for accounting functions.							V6 Budget of Accounting Functions

Table A.3 (Continued)

	Rating Scale						
	1	2	3	4	5	6	
7) Accrual accounting information is reconcilable to budget spending information.							V7 Accounting and Budget Consistency
8) Your department provides appropriate incentives for accrual accounting tasks.							V8 Incentive
9) The management culture of your department facilitates the use of accrual accounting information for decision making.							V9 Management Culture
10) Accrual accounting manuals are clear for efficient usage in your department.							V10 Accounting Manuals
11) Accrual accounting information is easily understandable for users in your department.							V11 Information Communication
12) There are sufficient capacity of information technology for accounting functions in your department.							V12 IT
13) The accrual accounting standards issued by the regulators have covered all financial activities of your department.							V13 Accounting Standards
14) There are external accounting experts helping your accounting division to enhance accrual accounting tasks.							V14 External Experts

APPENDIX B

RETURNED QUESTIONNAIRES AND CORRELATION MATRIX

Table B.1 Returned Questionnaires

Ministry	Central Government Departments	Returned Questionnaires
Office of the Prime Minister	Office of the Permanent Secretary for Prime Minister Office	Yes
	The Government Public Relations Department	Yes
	Office of the Consumer Protection Board	Yes
	The Secretariat of the Prime Minister	Yes
	The Secretariat of the Cabinet	Yes
	National Intelligence Agency	Yes
	The Bureau of the Budget	Yes
	Office of the National Security Council	Yes
	Office of the Council of State	Yes
	Office of the Civil Service Commission	
	Office of the National Economic and Social Development Board	Yes
	Office for National Education Standards and Quality Assessment (Public Organization)	
	Internal Security Operations Command	Yes
	Office of the Public Sector Development Commission	Yes
	Designated Areas for Sustainable Tourism Administration (Public Organization)	
	Thailand Convention & Exhibition Bureau (Public Organization)	Yes
	Office of Knowledge Management and Development (Public Organization)	Yes
	National Health Commission Office	Yes
	The Land Bank Administration Institute (Public Organization)	
	Thailand Professional Qualification Institute (Public Organization)	
	Pinkanakorn Development Agency (Public Organization)	Yes
	Thailand Board of Investment	Yes
	Fund for Small and Medium Enterprises Promotion	
23 Agencies		17 Agencies

Table B.1 (Continued)

Ministry	Central Government Departments	Returned Questionnaires
Ministry of Defence	Office of the Permanent Secretary for Defence	Yes
	Royal Aide-de-Camp Department	
	Royal Thai Army	Yes
	Royal Thai Navy Headquarters	
	Royal Thai Air Force	Yes
	Royal Thai Armed Forces Headquarters	Yes
	Defence Technology Institute (Public Organization)	Yes
	7 Agencies	5 Agencies
Ministry of Finance	Office Of The Permanent Secretary for Finance	
	The Treasury Department	Yes
	The Comptroller General's Department	
	The Customs Department	Yes
	The Excise Department	
	The Revenue Department	Yes
	State Enterprise Policy Office	Yes
	Public Debt Management Office	Yes
	The Fiscal Policy Office	Yes
	Neighboring Countries Economic Development Cooperation Agency (Public Organization)	Yes
Office Of Insurance Commission		
	11 Agencies	7 Agencies
Ministry of Foreign Affairs	Office of the Permanent Secretary for Foreign Affairs	Yes
	1 Agency	1 Agency
Ministry of Tourism and Sports	Office of the Permanent Secretary for Tourism and Sports	
	Department Of Physical Education	Yes
	Department of Tourism	Yes
	Institute of Physical Education	
	4 Agencies	2 Agencies
Ministry of Social Development and Human Security	Office of the Permanent Secretary for Social Development and Human Security	Yes
	Department of Social Development and Welfare	Yes
	Department of Women Affairs and Family Development	Yes
	Department of Children and Youth	Yes
	Community Organizations Development Institute (Public Organization)	
	Department of Empowerment of Persons with Disabilities	Yes
	Department of Older Persons	
	7 Agencies	5 Agencies

Table B.1 (Continued)

Ministry	Central Government Departments	Returned Questionnaires
Ministry of Agriculture and Cooperatives	Office of the Permanent Secretary for Agriculture and Cooperatives	
	Royal Irrigation Department	Yes
	Cooperative Auditing Department	Yes
	Department of Fisheries	
	Department of Livestock Development	
	Land Development Department	Yes
	Department of Agriculture	
	Department of Agricultural Extension	
	The Cooperative Promotion Department	
	Agricultural Land Reform Office	Yes
	National Bureau of Agricultural Commodity and Food Standards	
	Office of Agricultural Economics	Yes
	Agricultural Research Development Agency (Public Organization)	Yes
	Highland Research and Development Institute (Public Organization)	Yes
	Rice Department	Yes
	The Golden jubilee Museum of Agriculture Office (Public Organization)	Yes
	The Queen Sirikit Department Sericulture	Yes
	Department of Royal Rainmaking and Agricultural Aviation	Yes
	18 Agencies	11 Agencies
Ministry of Transport	Office of the Permanent Secretary for Transport	
	Marine Department	Yes
	Department of Land Transport	Yes
	The Department of Civil Aviation	
	The Department of Highways	
	Department of Rural Roads	Yes
	Office of Transport and Traffic Policy and Planning	
	7 Agencies	3 Agencies

Table B.1 (Continued)

Ministry	Central Government Departments	Returned Questionnaires
Ministry of Natural Resources and Environment	Office of the Permanent Secretary for Natural Resources and Environment	Yes
	Pollution Control Department	Yes
	Department of Marine and Coastal Resources	
	Department of Mineral Resources	Yes
	Department of Water Resources	Yes
	Department of Groundwater Resources	Yes
	Department of Environment Quality Promotion	Yes
	National Park, Wildlife and Plant Conservation Department	Yes
	Office of Natural Resources and Environmental Policy and Planning (ONEP)	
	Royal Forest Department	Yes
	Biodiversity-Based Economy Development Office (Public Organization)	Yes
	Thailand Greenhouse Gas Management Organization (Public Organization)	Yes
	12 Agencies	10 Agencies
Ministry of Digital Economy and Social	Office of the Permanent Secretary for Digital Economy and Social	Yes
	The Meteorological Department	
	National Statistical Office	Yes
	Software Industry Promotion Agency (Public Organization)	
	Electronic Transactions Development Agency (Public Organization)	Yes
	6 Agencies	4 Agencies
Ministry of Energy	Office of the Permanent Secretary for Energy	Yes
	Department of Mineral Fuels	Yes
	Department of Energy Business	Yes
	Department of alternative Energy Development and Efficiency	Yes
	Energy Policy and Planning Office	
	The Energy Fund Administration Institute (Public Organization)	Yes
	Office of the Energy Regulatory Commission	Yes
	7 Agencies	6 Agencies

Table B.1 (Continued)

Ministry	Central Government Departments	Returned Questionnaires
Ministry of Commerce	Office of the Permanent Secretary for Commerce	
	Department of Foreign Trade	Yes
	Department of Internal Trade	Yes
	Department of Trade Negotiations	Yes
	Department of Intellectual Property	
	Department of Business Development	Yes
	Department of International Trade Promotion	Yes
	The Support Arts and Crafts International center of Thailand (Public Organization)	
	The Gem and Jewelry Institute of Thailand (Public Organization)	
	Office of Policy and Strategic Trade	
	10 Agencies	5 Agencies
Ministry of Interior	Office of the Permanent Secretary for Interior	
	Department of Provincial Administration	Yes
	The Community Development Department	
	Department of Lands	
	Department of Disaster Prevention and Mitigation	
	Department of Public Works and Town & Country Planning	Yes
	Department of Local Administration	Yes
	7 Agencies	3 Agencies
Ministry of Justice	Office of the Permanent Secretary for Justice	Yes
	Department of Probation	
	Rights and Liberties Protection Department	Yes
	Legal Execution Department	Yes
	Department of Juvenile Observation and Protection	Yes
	Department of Corrections	Yes
	Department of Special Investigation	Yes
	Office of Justice Affairs	Yes
	Central Institute of Forensic Science	
	Office of the Narcotics Control Board	Yes
	Office of Public Sector Anti-Corruption Commission	
	Thailand Institute of Justice (Public Organization)	Yes
	Thailand Arbitration Center	
	13 Agencies	9 Agencies
Ministry of Labor	Office of the Permanent Secretary for Labor	Yes
	Department of Employment	
	Department of Skill Development	Yes
	Department of Labor Protection and Welfare	Yes
	Social Security Office	Yes
	5 Agencies	4 Agencies

Table B.1 (Continued)

Ministry	Central Government Departments	Returned Questionnaires
Ministry of Culture	Office of the Permanent Secretary for Culture	
	Religious Affairs Department	
	The Fine Arts Department	Yes
	Department of Cultural Promotion	Yes
	Office of Contemporary Art and Culture	Yes
	Princess Maha Chakri Sirindhorn Anthropology Centre	Yes
	Bunditpatanasilpa Institute, Ministry of Culture	
	Film Archive (Public Organization)	Yes
	Moral Promotion Center (Public Organization)	Yes
	9 Agencies	6 Agencies
Ministry of Science and Technology	Office of the Permanent Secretary for Science and Technology	Yes
	Department of Science Service	
	Office of Atoms for Peace	
	National Science and Technology Development Agency	
	Geo-Informatics and Space Technology Development Agency (Public Organization)	
	National Institute of Metrology (Thailand)	Yes
	Thailand Institute of Nuclear Technology (Public Organization)	
	National Science Technology and Innovation Policy Office	
	Synchrotron Light Research Institute (Public Organization)	Yes
	National Astronomical Research Institute of Thailand (Public Organization)	
	Hydro and Agro Informatics Institute (Public Organization)	Yes
	National Innovation Agency (Public Organization)	
	Thailand Center of Excellence for Life Sciences (Public Organization)	
	National Science Museum	Yes
	14 Agencies	5 Agencies
Ministry of Education	Office of the Permanent Secretary for Education	Yes
	Office of the Education Council	Yes
	Office of the Basic Education Commission	
	Office of the Higher Education Commission	Yes
	Office of the Vocational Education Commission	
	International Institute for Trade and Development (Public Organization)	Yes
	The Institute for the Promotion of Teaching Science and Technology (IPST)	
	Secretariat Office of the Teachers Council of Thailand	Yes
	Office of the Welfare Promotion Commission for Teachers and Education	
	National Institute of Educational Testing Service (Public Organization)	Yes
	10 Agencies	6 Agencies

Table B.1 (Continued)

Ministry	Central Government Departments	Returned Questionnaires
Ministry of Public Health	Office of the Permanent Secretary for Public Health	Yes
	Department of Medical Services	
	Department of Disease Control	Yes
	Department for Development of Thai Traditional and alternative Medicine	Yes
	Department of Medical Sciences	Yes
	Department of Health Service Support	Yes
	Department of Mental Health	
	Department of Health	Yes
	Food and Drug Administration	Yes
	Health Systems Research Institute (HSRI)	Yes
	Banphaeo Hospital (Public Organization)	
	National Health Security Office (NHSO)	
	National Institute of Emergency Medicine	Yes
	Healthcare Accreditation Institute (Public Organization)	
	National Vaccine Institute (Public Organization)	Yes
	15 Agencies	10 Agencies
Ministry of Industry	Office of the Permanent Secretary for Industry	
	Department of Industrial Works	Yes
	Department of Industrial Promotion	Yes
	Department of Primary Industries and Mines	Yes
	Office of the Cane and Sugar Board	Yes
	Thai Industrial Standards Institute	Yes
	Office of Industrial Economics	Yes
	7 Agencies	6 Agencies
Other governmental agency - Not under Ministry	Office of His Majesty's Principal Private Secretary	Yes
	Bureau of the Royal Household	
	National Office of Buddhism	Yes
	Office of the Royal Development Projects Board	Yes
	The office of the National Research Council of Thailand (NRCT)	Yes
	The Royal Institute	
	Royal Thai Police	Yes
	Anti-Money Laundering Office	
	Southern Border Provinces Administration Centre	
	Office of Public Sector Anti-Corruption Commission	Yes
	10 Agencies	6 Agencies
Parliament agency	The Secretariat of the Senate acting as the Secretariat of the National Legislative Assembly	
	The Secretariat of the House of Representatives	Yes
	King Prajadhipok's Institute	
	3 Agencies	1 Agency

Table B.1 (Continued)

Ministry	Central Government Departments	Returned Questionnaires
Court	The Constitutional Court of the Kingdom of Thailand	
	Office of the Judiciary	Yes
	The Administrative Courts	Yes
	3 Agencies	2 Agencies
Independent organization	Office of the Election Commission of Thailand	
	Office of the Ombudsman	Yes
	The Office of the National Counter Corruption Commission	Yes
	Office of the Auditor General of Thailand	Yes
	Office of the National Human Rights Commission of Thailand	Yes
	Office of the Attorney General	Yes
	The State Audit Commission	
	Law Reform Commission of Thailand	
	Office of the National Broadcasting and Telecommunications Commission	
	9 Agencies	5 Agencies
Total	218 Agencies	139 Agencies

Table B.2 Correlation Matrix

	TotalAI	OBJ	SOF	RA	FL	CB	CL	EFI	EFFE	TFP	TSE	CEN	CFS	CCFB	CNF	CBI	VER	FAITH	REL
TotalAI		.450**	.366**	.341**	.399**	.395**	.430**	.434**	.439**	.411**	.349**	.427**	.292**	.220**	.386**	.336**	.465**	.378**	.444**
OBJ	.450**		.587**	.516**	.603**	.529**	.551**	.580**	.602**	.595**	.569**	.527**	.342**	.489**	.411**	.520**	.428**	.475**	.584**
SOF	.366**	.587**		.506**	.495**	.489**	.433**	.424**	.438**	.406**	.306**	.527**	.412**	.385**	.422**	.306**	.426**	.377**	.408**
RA	.341**	.516**	.506**		.699**	.603**	.544**	.552**	.492**	.511**	.482**	.417**	.279**	.388**	.329**	.276**	.275**	.271**	.428**
FL	.399**	.603**	.495**	.699**		.698**	.563**	.626**	.573**	.524**	.556**	.491**	.317**	.391**	.366**	.436**	.381**	.327**	.430**
CB	.395**	.529**	.489**	.603**	.698**		.633**	.572**	.596**	.543**	.505**	.417**	.300**	.315**	.384**	.388**	.400**	.318**	.417**
CL	.430**	.551**	.433**	.544**	.563**	.633**		.639**	.621**	.584**	.553**	.455**	.266**	.323**	.335**	.371**	.377**	.373**	.456**
EFI	.434**	.580**	.424**	.552**	.626**	.572**	.639**		.821**	.564**	.636**	.441**	.344**	.418**	.400**	.487**	.391**	.398**	.516**
EFFE	.439**	.602**	.438**	.492**	.573**	.596**	.621**	.821**		.626**	.685**	.485**	.308**	.433**	.464**	.542**	.473**	.475**	.591**
TFP	.411**	.595**	.406**	.511**	.524**	.543**	.584**	.564**	.626**		.734**	.491**	.298**	.376**	.417**	.450**	.406**	.470**	.596**
TSE	.349**	.569**	.306**	.482**	.556**	.505**	.553**	.636**	.685**	.734**		.450**	.283**	.421**	.419**	.498**	.432**	.423**	.566**
CEN	.427**	.527**	.527**	.417**	.491**	.417**	.455**	.441**	.485**	.491**	.450**		.581**	.459**	.613**	.427**	.695**	.679**	.580**
CFS	.292**	.342**	.412**	.279**	.317**	.300**	.266**	.344**	.308**	.298**	.283**	.581**		.430**	.758**	.348**	.709**	.560**	.449**
CCFB	.220**	.489**	.385**	.388**	.391**	.315**	.323**	.418**	.433**	.376**	.421**	.459**	.430**		.485**	.404**	.481**	.464**	.566**
CNF	.386**	.411**	.422**	.329**	.366**	.384**	.335**	.400**	.464**	.417**	.419**	.613**	.758**	.485**		.496**	.800**	.631**	.517**
CBI	.336**	.520**	.306**	.276**	.436**	.388**	.371**	.487**	.542**	.450**	.498**	.427**	.348**	.404**	.496**		.505**	.456**	.568**
VER	.465**	.428**	.426**	.275**	.381**	.400**	.377**	.391**	.473**	.406**	.432**	.695**	.709**	.481**	.800**	.505**		.660**	.611**
FAITH	.378**	.475**	.377**	.271**	.327**	.318**	.373**	.398**	.475**	.470**	.423**	.679**	.560**	.464**	.631**	.456**	.660**		.690**
REL	.444**	.584**	.408**	.428**	.430**	.417**	.456**	.516**	.591**	.596**	.566**	.580**	.449**	.566**	.517**	.568**	.611**	.690**	

Table B.2 (Continued)

	TotalAI	OBJ	SOF	RA	FL	CB	CL	EFI	EFFE	TFP	TSE	CEN	CFS	CCFB	CNF	CBI	VER	FAITH	REL
COMP	.374**	.558**	.427**	.265**	.398**	.455**	.361**	.498**	.552**	.534**	.444**	.474**	.406**	.501**	.449**	.617**	.514**	.472**	.637**
CONS	.388**	.588**	.510**	.348**	.384**	.442**	.393**	.439**	.497**	.492**	.463**	.603**	.410**	.516**	.531**	.492**	.538**	.661**	.720**
TIME	.333**	.340**	.313**	.247**	.297**	.250**	.251**	.224**	.267**	.240**	.222**	.458**	.400**	.407**	.363**	.303**	.458**	.398**	.389**
UND	.370**	.531**	.399**	.359**	.407**	.326**	.379**	.343**	.435**	.392**	.431**	.536**	.349**	.463**	.481**	.427**	.503**	.545**	.615**
OPEN	.245**	.430**	.310**	.262**	.236**	.245**	.274**	.368**	.421**	.360**	.401**	.356**	.252**	.440**	.297**	.367**	.325**	.415**	.503**
LMS	-.197*	-.402**	-.325**	-.157	-.281**	-.325**	-.260**	-.278**	-.426**	-.414**	-.437**	-.320**	-.306**	-.445**	-.399**	-.508**	-.473**	-.437**	-.519**
LQHR	-.161	-.256**	-.125	-.062	-.159	-.141	-.197*	-.172*	-.226**	-.224**	-.304**	-.290**	-.213*	-.360**	-.192*	-.212*	-.354**	-.395**	-.334**
LTD	-.283**	-.392**	-.169*	-.238**	-.241**	-.234**	-.279**	-.236**	-.288**	-.336**	-.311**	-.254**	-.129	-.369**	-.176*	-.360**	-.315**	-.336**	-.403**
LCNS	-.209*	-.421**	-.316**	-.240**	-.310**	-.269**	-.280**	-.284**	-.310**	-.272**	-.285**	-.270**	-.147	-.313**	-.238**	-.263**	-.287**	-.358**	-.393**
LFLR	-.316**	-.409**	-.377**	-.351**	-.316**	-.349**	-.379**	-.469**	-.345**	-.394**	-.367**	-.440**	-.262**	-.273**	-.326**	-.317**	-.376**	-.382**	-.387**
LBA	-.298**	-.387**	-.365**	-.216*	-.318**	-.304**	-.303**	-.254**	-.269**	-.222**	-.221**	-.376**	-.210*	-.279**	-.295**	-.227**	-.353**	-.431**	-.384**
LCON	-.297**	-.522**	-.430**	-.335**	-.445**	-.345**	-.306**	-.386**	-.442**	-.390**	-.474**	-.564**	-.460**	-.426**	-.518**	-.477**	-.528**	-.517**	-.601**
LINC	-.243**	-.359**	-.288**	-.276**	-.268**	-.258**	-.226**	-.235**	-.296**	-.299**	-.251**	-.316**	-.128	-.287**	-.142	-.115	-.227**	-.290**	-.338**
LMCUL	-.273**	-.455**	-.362**	-.212*	-.236**	-.180*	-.201*	-.310**	-.397**	-.353**	-.331**	-.351**	-.209*	-.455**	-.247**	-.293**	-.331**	-.388**	-.487**
LACCM	-.305**	-.500**	-.389**	-.336**	-.315**	-.319**	-.288**	-.400**	-.475**	-.436**	-.428**	-.416**	-.304**	-.431**	-.339**	-.457**	-.445**	-.423**	-.568**
LIC	-.320**	-.454**	-.386**	-.275**	-.328**	-.322**	-.244**	-.346**	-.416**	-.380**	-.329**	-.422**	-.335**	-.357**	-.367**	-.400**	-.457**	-.417**	-.436**
LITC	-.221**	-.343**	-.260**	-.243**	-.273**	-.239**	-.262**	-.229**	-.294**	-.311**	-.237**	-.350**	-.244**	-.297**	-.283**	-.410**	-.355**	-.256**	-.373**
LACCSTD	-.311**	-.397**	-.347**	-.308**	-.346**	-.301**	-.384**	-.380**	-.431**	-.465**	-.390**	-.350**	-.204*	-.296**	-.258**	-.325**	-.348**	-.308**	-.439**
LEXPRT	-.070	-.299**	-.064	-.199*	-.237**	-.100	-.228**	-.312**	-.264**	-.231**	-.382**	-.162	-.054	-.315**	-.087	-.190*	-.118	-.129	-.270**

Table B.2 (Continued)

	COMP	CONS	TIME	UND	OPEN	LMS	LQHR	LTD	LCNS	LFLR	LBA	LCON	LINC	LMCUL	LACCM	LIC	LITC	LACCSTD	LEXPRT
TotalAI	.374"	.388"	.333"	.370"	.245"	-.197"	-.161	-.283"	-.209"	-.316"	-.298"	-.297"	-.243"	-.273"	-.305"	-.320"	-.221"	-.311"	-.070
OBJ	.558"	.588"	.340"	.531"	.430"	-.402"	-.256"	-.392"	-.421"	-.409"	-.387"	-.522"	-.359"	-.455"	-.500"	-.454"	-.343"	-.397"	-.299"
SOF	.427"	.510"	.313"	.399"	.310"	-.325"	-.125	-.169'	-.316"	-.377"	-.365"	-.430"	-.288"	-.362"	-.389"	-.386"	-.260"	-.347"	-.064
RA	.265"	.348"	.247"	.359"	.262"	-.157	-.062	-.238"	-.240"	-.351"	-.216'	-.335"	-.276"	-.212'	-.336"	-.275"	-.243"	-.308"	-.199'
FL	.398"	.384"	.297"	.407"	.236"	-.281"	-.159	-.241"	-.310"	-.316"	-.318"	-.445"	-.268"	-.236"	-.315"	-.328"	-.273"	-.346"	-.237"
CB	.455"	.442"	.250"	.326"	.245"	-.325"	-.141	-.234"	-.269"	-.349"	-.304"	-.345"	-.258"	-.180'	-.319"	-.322"	-.239"	-.301"	-.100
CL	.361"	.393"	.251"	.379"	.274"	-.260"	-.197'	-.279"	-.280"	-.379"	-.303"	-.306"	-.226"	-.201'	-.288"	-.244"	-.262"	-.384"	-.228"
EFI	.498"	.439"	.224"	.343"	.368"	-.278"	-.172'	-.236"	-.284"	-.469"	-.254"	-.386"	-.235"	-.310"	-.400"	-.346"	-.229"	-.380"	-.312"
EFFE	.552"	.497"	.267"	.435"	.421"	-.426"	-.226"	-.288"	-.310"	-.345"	-.269"	-.442"	-.296"	-.397"	-.475"	-.416"	-.294"	-.431"	-.264"
TFP	.534"	.492"	.240"	.392"	.360"	-.414"	-.224"	-.336"	-.272"	-.394"	-.222"	-.390"	-.299"	-.353"	-.436"	-.380"	-.311"	-.465"	-.231"
TSE	.444"	.463"	.222"	.431"	.401"	-.437"	-.304"	-.311"	-.285"	-.367"	-.221"	-.474"	-.251"	-.331"	-.428"	-.329"	-.237"	-.390"	-.382"
CEN	.474"	.603"	.458"	.536"	.356"	-.320"	-.290"	-.254"	-.270"	-.440"	-.376"	-.564"	-.316"	-.351"	-.416"	-.422"	-.350"	-.350"	-.162
CFS	.406"	.410"	.400"	.349"	.252"	-.306"	-.213'	-.129	-.147	-.262"	-.210'	-.460"	-.128	-.209'	-.304"	-.335"	-.244"	-.204'	-.054
CCFB	.501"	.516"	.407"	.463"	.440"	-.445"	-.360"	-.369"	-.313"	-.273"	-.279"	-.426"	-.287"	-.455"	-.431"	-.357"	-.297"	-.296"	-.315"
CNF	.449"	.531"	.363"	.481"	.297"	-.399"	-.192'	-.176'	-.238"	-.326"	-.295"	-.518"	-.142	-.247"	-.339"	-.367"	-.283"	-.258"	-.087
CBI	.617"	.492"	.303"	.427"	.367"	-.508"	-.212'	-.360"	-.263"	-.317"	-.227"	-.477"	-.115	-.293"	-.457"	-.400"	-.410"	-.325"	-.190'
VER	.514"	.538"	.458"	.503"	.325"	-.473"	-.354"	-.315"	-.287"	-.376"	-.353"	-.528"	-.227"	-.331"	-.445"	-.457"	-.355"	-.348"	-.118
FAITH	.472"	.661"	.398"	.545"	.415"	-.437"	-.395"	-.336"	-.358"	-.382"	-.431"	-.517"	-.290"	-.388"	-.423"	-.417"	-.256"	-.308"	-.129
REL	.637"	.720"	.389"	.615"	.503"	-.519"	-.334"	-.403"	-.393"	-.387"	-.384"	-.601"	-.338"	-.487"	-.568"	-.436"	-.373"	-.439"	-.270"

Table B.2 (Continued)

	COMP	CONS	TIME	UND	OPEN	LMS	LQHR	LTD	LCNS	LFLR	LBA	LCON	LINC	LMCUL	LACCM	LIC	LITC	LACCSTD	LEXPRT
COMP		.656**	.421**	.484**	.400**	-.508**	-.253**	-.351**	-.347**	-.364**	-.334**	-.420**	-.234**	-.441**	-.479**	-.455**	-.402**	-.433**	-.203*
CONS	.656**		.378**	.630**	.416**	-.545**	-.303**	-.331**	-.460**	-.417**	-.485**	-.542**	-.352**	-.482**	-.561**	-.502**	-.400**	-.392**	-.177*
TIME	.421**	.378**		.562**	.328**	-.429**	-.303**	-.316**	-.293**	-.341**	-.351**	-.342**	-.213*	-.367**	-.316**	-.333**	-.344**	-.450**	-.110
UND	.484**	.630**	.562**		.463**	-.503**	-.375**	-.352**	-.399**	-.394**	-.416**	-.538**	-.328**	-.460**	-.522**	-.450**	-.390**	-.430**	-.312**
OPEN	.400**	.416**	.328**	.463**		-.346**	-.261**	-.274**	-.230**	-.394**	-.204*	-.386**	-.161	-.370**	-.415**	-.437**	-.270**	-.271**	-.245**
LMS	-.508**	-.545**	-.429**	-.503**	-.346**		.539**	.463**	.498**	.400**	.480**	.498**	.365**	.583**	.624**	.545**	.403**	.436**	.273**
LQHR	-.253**	-.303**	-.303**	-.375**	-.261**	.539**		.520**	.571**	.320**	.557**	.424**	.473**	.541**	.410**	.351**	.298**	.331**	.335**
LTD	-.351**	-.331**	-.316**	-.352**	-.274**	.463**	.520**		.633**	.563**	.528**	.502**	.446**	.552**	.589**	.561**	.457**	.573**	.351**
LCNS	-.347**	-.460**	-.293**	-.399**	-.230**	.498**	.571**	.633**		.589**	.780**	.531**	.477**	.609**	.550**	.555**	.541**	.542**	.375**
LFLR	-.364**	-.417**	-.341**	-.394**	-.394**	.400**	.320**	.563**	.589**		.570**	.516**	.335**	.468**	.603**	.647**	.519**	.528**	.293**
LBA	-.334**	-.485**	-.351**	-.416**	-.204*	.480**	.557**	.528**	.780**	.570**		.551**	.505**	.596**	.528**	.576**	.518**	.483**	.288**
LCON	-.420**	-.542**	-.342**	-.538**	-.386**	.498**	.424**	.502**	.531**	.516**	.551**		.460**	.586**	.641**	.638**	.575**	.533**	.380**
LINC	-.234**	-.352**	-.213*	-.328**	-.161	.365**	.473**	.446**	.477**	.335**	.505**	.460**		.678**	.478**	.399**	.410**	.409**	.428**
LMCUL	-.441**	-.482**	-.367**	-.460**	-.370**	.583**	.541**	.552**	.609**	.468**	.596**	.586**	.678**		.658**	.590**	.477**	.552**	.389**
LACCM	-.479**	-.561**	-.316**	-.522**	-.415**	.624**	.410**	.589**	.550**	.603**	.528**	.641**	.478**	.658**		.778**	.607**	.604**	.395**
LIC	-.455**	-.502**	-.333**	-.450**	-.437**	.545**	.351**	.561**	.555**	.647**	.576**	.638**	.399**	.590**	.778**		.730**	.587**	.359**
LITC	-.402**	-.400**	-.344**	-.390**	-.270**	.403**	.298**	.457**	.541**	.519**	.518**	.575**	.410**	.477**	.607**	.730**		.622**	.301**
LACCSTD	-.433**	-.392**	-.450**	-.430**	-.271**	.436**	.331**	.573**	.542**	.528**	.483**	.533**	.409**	.552**	.604**	.587**	.622**		.402**
LEXPRT	-.203*	-.177*	-.110	-.312**	-.245**	.273**	.335**	.351**	.375**	.293**	.288**	.380**	.428**	.389**	.395**	.359**	.301**	.402**	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

BIOGRAPHY

NAME

Mrs. Oraphan Nakmachalasint

ACADEMIC BACKGROUND

1986 – 1990

Bachelor's Degree in Business Administration (Accounting), BBA, Thammasat University, Bangkok, Thailand.

1990 - 1991

Graduate Diploma in Auditing, Thammasat University, Bangkok, Thailand.

1993 - 1995

Master in Professional Accounting, MPA, University of Texas at Austin, USA

2007 - 2009

Master of Arts Program in Political Science, Public Administration, MPA, Thammasat University, Bangkok, Thailand.

PRESENT POSITION

Government Accounting Expert, The Comptroller-General's Department, Ministry of Finance, Thailand.

WORK EXPERIENCES

1990 - 1993

Senior Auditor, Ernst & Young, Bangkok, Thailand.

2000 - 2003

Senior Accountant, Neurosurgery Department, Brain Institute, University of Florida, Gainesville, USA

PROFESSIONAL EXPERIENCES

Certified Public Accountant, CPA, The Institute of Certified Public Accountants and Auditors of Thailand.

Committee in the Accounting Professions, Auditing, of the Federation of Accounting Professions, Thailand.

ACADEMIC EXPERIENCES

Guest Lecturer, Master of Public Administration Program, Faculty of Political Science, Ramkhamhaeng University, Bangkok, Thailand.

SCHOLARSHIPS

A full scholarship from the Royal Thai Government in 1993 for pursuing the Master in Professional Accounting Degree at the University of Texas at Austin, USA

A full scholarship from the Ministry of Finance in 2012 for enrolling in the Ph.D. program in Business Administration at the NIDA, School of Business Administration, National Institute of Development Administration, Bangkok, Thailand