INSTITUTIONAL QUALITY AND PRIVATE CAPITAL FLOWS

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LABUAN SCHOOL OF INTERNATIONAL BUSINESS AND FINANCE
UNIVERSITI MALAYSIA SABAH
2014

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THESIS SUBMITTED IN FULFILLMENT FOR THE DEGREE OF MASTER OF FINANCE (INTERNATIONAL FINANCE)

LABUAN SCHOOL OF INTERNATIONAL BUSINESS AND FINANCE
UNIVERSITI MALAYSIA SABAH
2014

UNIVERSITI MALAYSIA SABAH

BORANG PENGESAHAN STATUS TESIS

JUDUL: INSTITUTIONAL QUALITY AND PRIVATE CAPITAL FLOWS

IJAZAH: SARJANA KEWANGAN (KEWANGAN ANTARABANGSA)

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DECLARATION

I hereby declare that the material in this thesis is my own except for quotations, excerpts, equations, summaries and references, which have been duly acknowledged.

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ACKNOWLEDGEMENT

In this journey to complete my Master's thesis, the experience that I gained is so invaluable and memorable. This thesis is completed with the help and countless support from few people that I would like to take the opportunity here to thank them.

First and foremost, I would like to express my deepest gratitude and appreciation to my main supervisor, Dr. Lim Kian Ping. In the early time of my master's study, his continuous encouragement and guide is extremely helpful. He insists to meet weekly for discussions in the early pressure me. However, because of him and my co-supervisor, Mr. Ling Tai Hu, I continue to complete my thesis with commitment and dedication. I am able to learn skills such as critical thinking, writing and information gathering is because of both my supervisors.

Next, my co-supervisor, Mr. Ling Tai Hu, deserve a special thank and appreciation from me. His guidance on my writing skills, data collecting and interpretation is very useful. Taking his precious time to guide me in the use of STATA is greatly appreciated. Additionally, I am grateful to both my supervisor for appointing me as a graduate research which enable me to cover the tuition fees and living expenses.

A special thank you to Mr. Ricky Chia and Mr. Bryan Lo, the school's postgraduate coordinator for their assistance on administrative matters related to postgraduate studies. And, of course, to my friends, for all the time we spent laughing and completing our own master's study together.

Cheah Wai Loon
9th September 2013

ABSTRACT

INSTITUTIONAL QUALITY AND PRIVATE CAPITAL FLOWS

Based on dynamic panel GMM analysis on 140 countries for a sample period spanning from 1984 to 2007, this thesis examines whether capital flows and it's disaggregate components (foreign direct investment, portfolio flows and debt flows) are associated with institutional quality. At the aggregate level, institutional quality is found to be significantly and positively related to capital flows. When considering sub-components, institutional quality is more associated with foreign direct investment than portfolio flows and debt flows. The disaggregate analysis also divides institutional quality into twelve components to determine which one is the driving force for capital flows. Ten out of the twelve components are found to be significant determinants of capital flows. The ten sub-components are corruption, democratic accountability, bureaucracy, law and order, investment, external conflict, internal conflict, military in politics, religious tensions, and socioeconomic conditions. The results show that the reason why capital flows less to developing countries is because their level of institutional quality differ from developed countries. The findings reported in this thesis are robust to different measures of capital flows, institutional quality and econometrics methodology.

ABSTRAK

KUALITI INSTITUSI DAN ALIRAN MODAL SWASTA

Panel dinamik analisis GMM ke atas 140 buah Negara dari 1984 hingga 2007 bertujuan untuk memeriksa sama ada aliran modal adan komponennya (pelaburan langsung asing, aliran portfolio dan aliran hutang) boleh dikaitkan dengan kualiti institusi. Secara umum, kualiti institusi berhubung secara positif dengan aliran modal. Apabila mempertimbangkan komponen aliran modal, kualiti institusi lebih dikaitkan dengan pelaburan langsung asing berbanding dengan aliran portfolio dan aliran hutang. Kajian ini juga membahagikan kualiti institusi kepada dua belas sub-komponen yang penting untuk menentukan komponen manakah merupakan daya penggerak aliran modal. Sepuluh dari dua belas sub-komponen merupakan daya penggerak modal. Seupuluh sub-komponen itu ialah rasuah, demokrasi, birokrasi, undang-undang dan ketenteraman, pelaburan, konflik luaran, konflik dalaman, tentera dalam politik, ketegangan keagamaan, keadaan sosioekonomi. Hasil kajian ini juga membuktikan kenapa aliran modal adalah lebh di Negara maju berbanding dengan Negara sedang membangun. Ini adalah kerana kualiti institusi adalah lebih tinggi di Negara maju berbanding dengan Negara sedang membangun.

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LIST OF ABBREVIATIONS

AREAER	Annual Report on Exchange Arrangements and Exchange Restrictions
BIS	Bank for International Settlements
BOP	Balance of Payment
CPIS	Coordinated Portfolio Investment Survey
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
ICRG	International Country Risk Guide
IFS	International Financial Statistics
IMF	International Monetary Fund
OECD	Organization for Economic Cooperation and Development
PRS	Political Risk Services
WDI	World Development Indicator
WGI	World Governance Indicator

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Liberalization of capital account is the most popular policy choice as a financial reform in developing countries. Henry (2007: 887) defined capital account liberalization as "*a decision by a country's government to move from a closed capital account regime, where capital may not move freely in and out of the country, to an open capital account system in which capital can enter and leave at will*". For developing countries, capital account liberalization is perceived as an important step for them to catch up with advanced industries economies, especially in the area of income level (Fischer, 1998; Summers, 2000; Mishkin, 2009). However, not all economists support the above view. Critics such as Rodrik (1998), Krugman (2002), and Stiglitz (2012) argued about the risks with financial liberalization are far greater than the potential benefits, thus a complete cost-benefit analysis might not be in favor of an open capital account system.

Tracing the history, Kose *et al.* (2009b) noted that the movement toward a more open capital account started in the mid-1980s. During those early years, most countries anticipated that the free flows of capital would benefit not only the liberalizing economies but the international financial systems such as improving the allocation of capital and risk-sharing. As capital account liberalization becomes a popular research topic, deeper insights are provided by various studies. Faria and Mauro (2009) noted that external capital structure of countries such as foreign direct investment (FDI), portfolio equity, and external debt are significant benchmark of economic performance. Rogoff (1999) explained that the benefit of risk-sharing brought by financial liberalization enables domestic producers to undertake risky projects which provide higher expected return. Borenzstein *et al.* (1998) perceived foreign direct investment in a positive light since the recipient countries can benefit from technological transfer, that is, acquire advanced technology from developed countries. Honig (2008) highlighted the benefits of financial liberalization in terms of resource allocation, risk diversification and the development of financial markets. At

the aggregate level, Aizenman and Pinto (2005) explained how macroeconomic volatility can be reduced when the country experiences increases in trade and financial flows, which might benefit the poor. The benefits of financial liberalization were as supported by Prasad et al. (2007). The direct benefits are augmentation of domestic savings, lower cost of capital due to better risk allocation, transfer of technology, development of financial sector. The indirect benefits are promotion of specialization, inducement for better policies and enhancement of capital inflows by signaling better policies[1]. These benefits will bring to higher economic growth.

Despite all the aforementioned benefits, the existing empirical studies found adverse effects of financial liberalization, particularly in relation to economic growth (Eichengreen and Leblang, 2003; Durham, 2004; Edison *et al.*, 2004; Mody and Murshid, 2005; Klein and Olivei, 2006).[2] The failure of most empirical studies to find the presumed benefits has prompted some authors to blame capital flows for causing instability in global financial systems (Bhagwati, 1998; Rodrik, 1998; Stiglitz, 2004). On the other hand, Kose *et al.* (2009a) computed the ratio of consumption growth volatility to income growth volatility at the country level for the recent period of liberalization. They found that the ratio increases for emerging market economies, but remains flat for industrial and low-income developing countries. The evidence that consumption growth volatility increases more than income volatility contradicts the stated benefit of financial liberalization in terms of risk sharing and consumption smoothing. Stiglitz e*t al.* (2012) found that financial liberalization increases the risk of a systemic collapse. Previous studies reported that the systematic collapse occurs only if the networks among banks were incompletely connected (see Battiston *et al.*, 2009; Allen *et al.*, 2010; Castiglionesi and Navarro, 2010; Stiglitz, 2010; Wagner, 2010).

Although the costs and benefits concerning financial liberalization have been intensely debated over the years by scholars, yet the amount of capital flowing across countries have been increasing due to the policies of financial liberalization. Most developing countries are convinced that they will reap the associated benefits from the liberalization of capital account. The standard neoclassical theory also favors

[1] Read Prasad *et al.* (2007) for complete explanation the direct and indirect benefits of financial liberalization.
[2] See Kose *et al.* (2009a) for a survey of the literature as they provided a broader coverage on the effect of financial globalization.

developing countries as it predicts that the flow of capital should be from the rich to the poor economies (for details, see Alfaro *et al.*, 2008). Briefly, the theory assumes that countries produce the same set of goods using similar constant returns to scale production. Under this assumption, the differences in capital per capita are reflected in the differences in income per capita. Therefore, in an open capital account system where capital can flow freely, only poorer economies will receive new investments. The flow of capital from the rich to poor countries would continue until all the countries achieve equal return to investments.

Lucas (1990) questioned the validity of the standard neoclassical theory. With his case study in United States and India, all capital should flow from the United States to India if the neoclassical model was true. This is because the marginal product of capital in the United States is about 58 times smaller than that of India. However, the prediction of the standard neoclassical theory does not come true in reality. As a result, subsequent studies pay more attention to the Lucas Paradox, trying to find out why the flow of capital is not consistent with the theory. The explanations given by the extended literature can be broadly categorized into two major groups. In the first strand of studies, researchers focus on the differences in fundamentals which affect the production structure of the economy. Among the factors considered are differences in technology, institutional structure, government policies and missing factors of production (Tornell and Velasco, 1992; Gomme, 1993; King and Rebelo, 1993; Razin and Yuen, 1994). In the second group, imperfections of international capital markets become the focal point. According to this group, the reason why capital does not go to developing countries despite their high return is due to market failures (see Gertler and Rogoff, 1990; Gordon and Bovenberg, 1996). Market failures focused mainly on sovereign risk and asymmetric information. Asymmetric information means that domestic investors have more knowledge of the domestic market compared to foreign investors. Alfaro *et al.* (2007) pointed out that when foreign investors knowledge on a domestic market were handicapped, they tend to underinvest. Alfaro *et al.* (2007) defined sovereign risk as "*any situation where a sovereign defaults on loan contracts with foreigners, seizes foreign assets located within its borders, or prevents domestic residents from fully meeting obligations to foreign contracts.*" Foreign investors may tend to be reluctant in investing their capital because of sovereign risk. Gertler and Rogoff (1990) found that capital may not flow

form rich to poor due to asymmetric information problems. Unfortunately, the huge empirical literature does not provide consensus on the Lucas Paradox. The mixed findings can be attributed to different sample countries, different time periods and different types of capital flows. Hence, it is still unknown to many whether fundamentals or market failures play the most important role in explaining the Lucas Paradox.

Empirically, the early literature focuses on the "push" and "pull" factors of capital flows when exploring its determinants in developing countries (Calvo *et al.,* 1994). Kose *et al.* (2009b) interpreted the "pull" factors as policies and other developments in developing countries. On the other hand, "push" factors refer to changes in global financial markets which include trade policies, capital account policies, the quality of institutions and governance practices. In the studies by Calvo *et al.* (1993) and Lensink and White (1998), pull factors include domestic productivity and the domestic supply of money. Push factors, on the other hand, are related to the economic developments in industrial countries which determine the amount of capital flowing to developing countries. The empirical results in Calvo *et al.* (1992) and Fernandez (1996) showed that push factors are the key factors that drive capital flows. However, Bohn and Tesar (1996) and Hernandez *et al.* (2001) argued that pull factors should be the key drivers of capital flows. There are also studies who found that both push and pull factors are equally important in determining the flow of capital (Taylor and Sarno, 1997; Chuhan *et al.*, 1998; Montiel and Reinhart, 1999).

In recent years, the academic literature on capital flows experiences a shift in research focus. Institutional quality has been found to be one of the key driving forces of capital flows (see Wei and Wu, 2002; Gelos and Wei, 2005; Alfaro *et al.*, 2008; Faria and Mauro, 2009, Buchanan *et al.*, 2012). Despite the significant finding confirming the importance of institutional quality, the literature does not provide a standard measurement. The most popular proxy at present is the political risk rating of the International Country Risk Guide (ICRG) published by the Political Risk Services (PRS). The rating covers 140 countries and in monthly frequency dating back to 1982. In 1997, however, ICRG discontinued the category "expropriation risk" and "repudiation of contracts by government". The current ICRG political risk rating consists of twelve dimensions, namely "government stability", "socioeconomic

conditions", "investment profile", "internal conflict", "external conflict", "corruption", "military politics", "religious tensions", "law and order", "ethnic tensions", "democratic accountability", and "bureaucracy quality". The second common indicator for institutional quality is constructed by Kaufmann *et al.* (2006), and currently maintained by World Bank. Their Worldwide Governance Indicator (WGI) comprises "voice and accountability", "political stability and absence of violence", "government effectiveness", "regulatory quality", "rule of law" and "control of corruption".

1.2 Research Problem

Using cross-sectional approaches for a large sample of countries, several studies found a significant relationship between institutional quality and cross-border capital flows (see, for example, Portes *et al.*, 2001; Wei and Wu, 2002; Gelos and Wei, 2005; Alfaro *et al.*, 2008). However, from the methodological aspect, there are at least three limitations in the above-cited studies. First, the cross-sectional approaches do not take into account time variations in both institutional quality and capital flows for each country. Second, their regressions lump together developed and developing countries, assuming that the two groups have similar characteristics and environments. Third, their regressions suffer from endogeneity problem. Assuming that investors invest in a country because of good institutions in the country, it is also true that capital flows are needed to build good institutions. Thus, capital flows may be affected by institutional quality and vice versa. There is also the possibility of the existence of unobserved heterogeneity. In this regard, the Ordinary Least Squares (OLS) and fixed-effects regression may provide bias result. More specifically, Faria and Mauro (2009) highlighted the possibility of endogeneity problem in the regression involving institutional quality and capital flows. The main research gap is that the existing studies suffer from methodological limitation due to time variation omission. The second research gap is that empirical studies do not address endogeneity problem but rather rest on the strong prediction that good institutions are responsible for capital flows. The third research gap is that the empirical studies rely on distortion assumption that all countries share equal economics characteristics. As such, dynamic panel analysis is an ideal approach to incorporate the neglected time variations and to address the endogeneity concern for the first and second research gaps (see Wintoki *el al.*, 2012). This thesis addresses the third research gap by splitting countries into

both developed and developing countries following World Bank Income Classification for more policy prescription purposes.

Another pertinent issue is related to the data for capital flows. Different researchers use different datasets for capital flows. The common sources come from International Financial Statistics (IFS), Kraay *et al.* (2005) (KLSV) and Lane and Milesi-Ferretti (2007). There are differences in the capital flows data from these three sources because the developers use different criteria and formula for computation. It is worth highlighting that the IFS, an annual publication of International Monetary Fund (IMF), provides the most comprehensive and comparable data on international capital flows. However, there are several problems with the IFS dataset. First, the debt inflows include both private and public issuers and holders of debt securities. In this case, researchers who wish to categorize the data into private/public creditor and debtor would face great difficulty[3] (see Lane and Milesi-Ferretti, 2001). Second, the IFS data do not take into account valuation effects, which can be potentially large (see Obstfeld, 2004)[4]. To adjust for valuation effects, Lane and Milesi-Ferretti (2001) and Kraay *et al.* (2000, 2005) constructed their own indicators. Both of their indicators are rated by Alfaro *et al.* (2008) as having higher quality as these authors carefully clean up the basic IFS data, paying specific attention to the valuation effects. Despite the availability of better datasets that provide capital flows at the aggregate and disaggregate levels, most of the existing empirical studies are pre-occupied with aggregate flows when exploring its relation with institutional quality. The few exceptions are Wei and Wu (2000) who used bilateral FDI and bilateral bank loan, Alfaro *et al.* (2008) who considered FDI and portfolio equity investment, Papaioannou (2009) on cross-border bank flow data and Faria and Mauro (2009, 2011) who imported the whole dataset from Lane and Milesi-Ferretti (2007). The fourth research gap is that the data for capital flows used in existing studies suffer problems such as valuation effects. Thus, this study will use the dataset of capital flows constructed by Lane and Milesi-Ferretti (2007) to eliminate the problems. Lane and Milesi-Ferretti (2007) had cleaned the capital flows data from valuation effects.

[3] Alfaro *et al.* (2007) pointed out that government decisions changed the shaped of debt flows in a great extent. Thus, if a study wanted to capture the market decisions, it is important to use only the private debt flows and extract the public part of debt flows.

[4] Valuation effects refer to the fluctuations of price and exchange rate which have an impact on the value of external assets and liabilities. This is supported by Papaioannou (2009) as simply taking differences from holdings could be very misleading when estimating net flows, since exchange rate movements may mechanically alter asset value.

The analysis of institutional quality also focused on the aggregate level, where researchers construct a composite index to capture the overall quality of institutional quality. As mentioned earlier, the ICRG political risk rating is the most popular proxy for institutional quality. Using the ICRG dataset, the existing empirical studies reported a significant positive relationship between their composite index of institutional quality and capital flows. However, it is unknown whether all the dimensions exhibit similar explanatory power for the behavior of capital flows. Only a few examined specific aspects of institutional quality and reported a significant positive relationship with capital flows, such as Wei and Wu (2000) on corruption and Gelos and Wei (2005) on transparency. Papaioannou (2009) considered six dimensions of institutional quality, namely "corruption in government", "quality of bureaucracy", "ethnic tensions", "rule of law", "risk of repudiation of contracts by government" and "risk of expropriation of private investment". He found that only "rule of law", "risk of expropriation of private investment" and "risk of contract repudiation by government" are important determinants of capital flows. Though the study by Papaioannou (2009) is quite recent, the author is using the older version of ICRG dataset, where the two categories of "risk of repudiation of contracts by government" and "risk of expropriation of private investment" have been discontinued in 1997. In another disaggregate analysis using the newer version of ICRG dataset, Alfaro *et al.* (2008) found "government stability", "internal conflict", "corruption", "law and order", "democratic accountability", "bureaucracy quality" and "investment profile" are associated with capital flows. The fifth research gap is on the use of composite index to capture overall institutional quality by existing studies. The research gap is base that existing empirical studies rely on the assumption that all dimensions of institutional quality share the same explanatory power towards the behavior of capital flows. This thesis addresses the fifth research gap by examining the relationship between capital flows and all the twelve dimensions measuring institutional quality.

1.3 Objectives of the Study

In view of the methodological weaknesses of cross-sectional framework in previous studies, the main objective of this study is to re-examine the relationship between institutional quality and private capital flows using dynamic panel estimation method. In doing so, this study aims to achieve the following specific objectives:

a) To determine whether capital flows and its compositions (FDI, portfolio flows and debt flows) are associated with institutional quality;
b) To examine which of the twelve dimensions of institutional quality are associated with capital flows and its compositions.

1.4 Contributions of the Study

This thesis performs more comprehensive analyses than previous studies on the relationship between institutional quality and capital flows using dynamic panel data estimator. There are at least three contributions to the existing literature. First, at aggregate level, this study creates a new index using principal component analysis to capture the true information of all the twelve dimensions of institutional quality. The twelve dimensions of institutional quality are "government stability", "socioeconomic conditions", "investment profile", "internal conflict", "external conflict", "corruption", "military politics", "religious tensions", "law and order", "ethnic tensions", "democratic accountability", and "bureaucracy quality". When constructing composite institutional quality indicator, previous studies did not consider all dimensions but only selected subjectively a few relevant ones. In terms of methodology, the usual approach involves summing up the selected dimensions, without resorting to principal component analysis like Papaioannou (2009).

Second, this study contributes to the literature by conducting a disaggregate analysis for both capital flows and institutional quality. In the former case, the use of aggregate capital flows does not provide a clear-cut policy prescription. This is because the effect of institutional quality might be different for FDI, portfolio flows and debt flows. As for the independent variable, most existing studies only reveal the importance of institutional quality to capital flows but stop short of uncovering the specific dimensions that are driving the relationship. The few exceptional studies are Wei and Wu (2000) on corruption, Gelos and Wei (2005) on transparency, and Papaioannou (2009) on "corruption in government", "quality of bureaucracy", "ethnic tensions", "rule of law", "risk of repudiation of contracts by government" and "risk of expropriation of private investment". This study provides a more comprehensive analysis by considering all the twelve dimensions of institutional quality, with the capital flows at both the aggregate and disaggregates levels. Furthermore, separate regression is also conducted for developed and developing countries to determine

whether the reported relationship holds regardless of economic development status of the country.

Third, this study extends the literature by using dynamic panel analysis to examine the relationship between institutional quality and capital flows. The analysis employs the generalized method-of-moments (GMMs) panel estimator after considering potential endogeneity problem. The use of dynamic panel analysis is supported by Wintoki *et al.* (2012) as an ideal approach to overcome the various limitations in cross-sectional regressions. This is because other methods such as Ordinary Least Squares (OLS) and fixed effects may produce spurious results as there is a possibility of reverse causality, that is, institutional quality may also be affected by capital flows. One of the reasons for using GMM in this study is the elimination of endogeneity problem. Arellano and Bond (1991) have made a significant improvement to the GMM, an approach popularly known as the difference GMM to eliminate the unobserved cross country-specific effects. Subsequent improvement was contributed by Arellano and Bover (1995), who demonstrated that the system GMM estimator is more superior to the difference GMM in terms of finite sample properties.

1.5 Significance of the Study

The theoretical significance of this study is to shows that institutional quality is the explanation to Lucas Paradox, the reason why the flow of capital is not consistent with the standard neoclassical theory. The standard neoclassical theory predicts that the flow of capital should be from the rich to the poor economies. This study shows that institutional quality is the reason why capital does not flow from rich to poor. This study also shows that institutional quality affects developed countries more than developing countries, as by default, the institutional quality of developed countries is already higher than developing countries. Thus, it is not a surprise if investors prefer to invest in developed countries which had a higher institutional quality than developing countries.

For the practical significance this study provides useful policy guides to policymakers with regards to the importance of institutional quality to attract capital flows to their countries. Many countries are moving toward financial liberalization in anticipation of the benefits that cross-border flows would bring. However, capital

would not flow into the country just because the investment restrictions have been removed. Other indirect factors may influence foreign investors to invest. By knowing the specific aspects of institutional quality that drive specific types of capital flows, policymakers can channel their limited resources directly to the areas that have an immediate impact. If corruption is found to be important driver of FDI, then governments can devise a set of policies to tackle corruption.

1.6 Scope of Study

This study covers across 140 countries spanning from 1984 to 2007. Developed countries comprise of 38 countries and developing countries comprise of 102 countries. Countries classifications are based on the World Bank Income Classification. The list of all the countries is provided in Appendix A. The dependent variables in this study are capital flows, FDI, portfolio flows and debt flows. The independent variables are institutional quality and the twelve dimensions measured to represent the institutional quality. The control variables are capital account openness, gross domestic product, financial development, sovereign credit risk, and trade openness.

1.7 Outline of the Study

In this Chapter 1, the background of the study, the research problems, objectives, contributions and significance of the study are provided in order to establish a strong case for determining the relationship between institutional quality and private capital flows. In Chapter 2, this study conducts an extensive review of literature related to capital account openness, the importance of capital flows and institutional quality. The aim of chapter 2 is to identify the research gaps from previous studies. Chapter 3 then discusses the sample data, measurement of variables, model specification and method of estimation. The empirical results are presented and interpreted in Chapter 4. The last Chapter 5 summarizes the key findings and relates them to the three research objectives.