THE DETERMINANTS OF FINANCIAL DEVELOPMENT AND PRIVATE
SECTOR CREDITS: EVIDENCE FROM PANEL DATA

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

ERZEN SÖĞÜT

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN
THE DEPARTMENT OF ECONOMICS

SEPTEMBER 2008

Approval of the Graduate School of Social Sciences

—————————————

Prof. Dr. Sencer Ayata
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

—————————————

Prof. Dr. Haluk Erlat
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

—————————————

Prof. Dr. Erdal Özmen
Supervisor

Examining Committee Members

Prof. Dr. Erol Taymaz	(METU, ECON)	—————————
Prof. Dr. Erdal Özmen	(METU, ECON)	—————————
Dr. Mehtap Kesriyeli	(CBRT)	—————————

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name: Erzen SÖĞÜT

Signature:

ABSTRACT

THE DETERMINANTS OF FINANCIAL DEVELOPMENT AND PRIVATE SECTOR CREDITS: EVIDENCE FROM PANEL DATA

Söğüt, Erzen

M.S., Department of Economics

Supervisor: Prof. Dr. Erdal Özmen

This study investigates the determinants of financial development and private sector credits for a panel of 85 developing and industrial countries using annual data from 1980 to 2006. The results from the panel cross-sectional fixed effects procedure suggest that an increase in the public sector credits and central government debt leads to a decrease in private sector credits in low income and lower middle income counties. For this group of countries, public sector credits, albeit leading to a financial crowding out, are found to be enhancing financial development. For the upper middle income and high income countries, private sector credits are found to increase with public sector credits and financial development and decrease with central government debt. Financial development is affected adversely from inflation and positively from real GDP and public sector credits in high income countries. In upper middle income countries both real GDP and credits to public sector affect financial development positively. In low income countries, on the other hand, public sector credits and inflation are correlated positively with financial development.

ÖZ

FİNANSAL GELİŞMİŞLİĞİN VE ÖZEL SEKTÖR KREDİLERİNİN BELİRLEYİCİLERİ: PANEL VERİ BULGULARI

Söğüt, Erzen
Yüksek Lisans, İktisat Bölümü
Tez Yöneticisi: Prof. Dr. Erdal Özmen

Eylül 2008, 35 sayfa

Bu çalışma, finansal gelişmişliğin ve özel sektör kredilerinin belirleyicilerini 85 gelişmekte ve sanayileşmiş ülkeden oluşan bir panel için 1980'den ve 2006'ya dek yıllık veri kullanılarak incelemektedir. Sabit etkili yatay-kesit panel yöntemi sonuçları, düşük gelirli ve düşük orta gelirli ülkelerde kamu sektörü kredileri ve merkezi hükümet borçlarının yükselmesinin özel sektör kredilerinde azalmaya sebep olduğunu önermektedir. Bu gruptaki ülkeler için kamu sektörü kredilerinin finansal ötelemeye sebep olmasına rağmen finansal gelişmişliği artırdığı bulunmuştur. Yüksek orta gelirli ve yüksek gelirli ülkeler için, özel sektör kredilerinin kamu sektörü kredileri ve finansal gelişmişlik ile yükseldiği ve merkezi hükümet borçları ile düştüğü bulunmuştur. Finansal gelişmişlik yüksek gelirli ülkelerde, enflasyondan negatif yönde, reel GSYİH ve kamu sektörü kredilerinden pozitif yönde etkilenmektedir. Yüksek orta gelirli ülkelerde; hem reel GSYİH hem de kamu sektörü kredileri finansal gelişmişliği pozitif yönde etkilemektedir. Diğer taraftan, düşük gelirli ülkelerde, kamu sektörü kredileri ve enflasyon finansal gelişmişlikle pozitif şekilde ilişkilidir.

Anahtar Kelimeler: Özel Sektör Kredileri, Finansal Gelişmişlik, Kamu Sektörü Kredileri, Enflasyon

To My Family

ACKNOWLEDGMENTS

TABLE OF CONTENTS

LIST OF TABLES

TABLES

CHAPTER 1

INTRODUCTION

The crucial importance of financial development on economic growth is generally acknowledged in the literature. However, there is yet to a consensus on the determinants of financial development and, in particular, the impact of public sector borrowing from domestic banking system on financial development and private sector credits. This thesis attempts to contribute this literature by investigating the determinants of financial development and private sector credits for a panel of 85 developing and industrial countries using annual data from 1980 to 2006.

Public debt is often seen as a burden both for developing and developed countries. Since the early 1990s there has been a fiscal improvement in both developing and developed countries, however fiscal adjustment in developed countries has been more noticeable (World Economic Outlook, 2001). According to IMF (2004), in recent years public debt of advanced countries has been falling while emerging market countries did not follow the same trend. IMF (2004) also points that generally advanced countries have held their debt in a greater extent domestically compared to emerging market countries. Nevertheless, the study indicates that, especially in the 1990s, the domestically-issued share of total public debt has increased more quickly than internationally-issued share in emerging market countries.

As public debt may cause crowding out, the level of the debt and how debt is being financed are very critical both in developed and developing countries. Especially, public debt may affect private sector credits by domestic banks. Domestic banks, which supply credit both to the public and private sectors, make their decisions based on the macroeconomic conditions. If the level of public debt

is high in the economy and macroeconomic variables indicate that the country's economic situation is vulnerable, domestic banks may be expected to prefer to finance public sector instead of private sector, which is more risky borrower. Thus, private sector credit by domestic banks may decline in such economies.

Private sector credit is very important for the private investment and development in an economy. Domestic banks by financing investments thus play a pivotal role in increasing employment, providing efficiency and productivity and inducing growth in an economy. However, in countries where domestic banks mostly finance public sector, private sector experiences problems in finding credit for its investment. The aforementioned actions for development hardly take place. In this context, the results by Caballero and Krishnamurthy (2004) suggest that crowding out is systematically larger in emerging countries than advanced ones. In the same vein, Cottarelli *et al.* (2003) find that crowding out in some transition economies in Central and Eastern Europe and in the Balkans prevented the rise of the bank credit to the private sector. The literature also suggests that private sector credits are determined by domestic saving flows, financial depth, private sector ownership of the banks, type of the legislation of a country, inflation, interest rate and regulatory reforms of financial markets.

In this study, we investigate the impact of commercial banking system credits to public sector on private sector credits. The effects of central government debt and liquid liabilities -as an indicator of financial development- on private sector credits are also studied. To this end, we postulate that these impacts may not be invariant to the level of economic development. We also investigate the determinants of financial development. Financial development facilitates investment in an economy and is an important indicator for growth similar to the private sector credit. However, the determinants of financial development is relatively a new research area. In this study we focus on the effect of credit to public sector by domestic banks on financial development. Some previous studies

2

suggest that in developing countries if the debt management is stable government debt held by banks facilitates financial intermediation (Kumhof and Tanner, 2005) and government debt has a positive role in developing financial sectors. However, the study by Hauner (2006) suggests that there is an optimal level of public sector credit, that is, while some of it leads to financial development, too much of it is harmful for financial development in middle-income countries. Previous studies indicate that financial development is also affected from income level, inflation, legal and institutional infrastructures, enforcement of legal rules, endowments, open trade policies and financial openness. Different from the previous studies, in this study the effects of domestic banks' credit to public sector, real GDP and inflation on financial development are investigated in four different group of countries such as high income, upper middle income, low income and lower middle income countries between 1980 and 2006.

The organization of this study is as follows: Chapter 2 presents a literature review about the determinants of private sector credits and financial development. Chapter 3 investigates the determinants of private sector credits by domestic banks and financial development empirically. Chapter 4 summarizes the main findings and concludes.

CHAPTER 2

THE DETERMINANTS OF PRIVATE SECTOR CREDITS AND FINANCIAL DEVELOPMENT: A REVIEW OF THE LITERATURE

2.1. The Determinants of Credit to Private Sector

Investment is crucially important for economic growth. Especially investment by the private sector constitutes an important part of total investment in many of the market economies. The supply of credit to the private sector is one of the base elements of an investment, without which it is generally challenging for the firms or other related economic agents to realize it. Thus, it is important to ask what affects private sector credit positively and what affects in the opposite way.

Caballero and Krishnamurthy (2004) investigate why advanced countries can use expansionary fiscal policy and accumulate debts during downturns in the economy while countries like Argentina cannot act in the same way in crisis period. They argue that the level of financial depth is not the same between these countries and the lack of financial depth in emerging countries prevent the Keynesian fiscal policy prescriptions to work in the way as it is expected generally. The results of the analysis show that the crowding out is systematically larger in emerging countries than advanced ones and the difference is extreme during the crisis as coefficient of crowding out exceeds one in emerging market economies. In other words, the coefficient, which shows the effect of fiscal expansion to private credit, is more negative in emerging countries than advanced ones. In addition to this, the difference of response of private credit to fiscal expansion between normal and crises times is higher and more negative in emerging market countries than advanced countries.

Cottarelli *et al.* (2003) examine the increase in the bank credit to the private sector (BCPS) in transition economies in Central and Eastern Europe and in the Balkans

(CEB)[1] after the second half of the 1990s by employing a random effects GLS estimation procedure. Cottarelli *et al.* (2003) point out that since the second half of the 1990s the bank credit to the private sector (BCPS) has increased extensively in CEB. Cottarelli *et al.* (2003) examine the factors affecting the recent trends of BCPS in CEB countries by classifying them as three groups: early birds (Bulgaria, Croatia, Estonia, Hungary, Latvia, Poland, and Slovenia), late risers (Bosnia and Herzegovina, Lithuania, and Serbia and Montenegro) and sleeping beauties (Albania, the Czech Republic, the Former Yugoslav Republic of Macedonia, Romania and the Slovak Republic) with respect to the timing of the rise in BCPS. The factors such as public debt-to-GDP ratio as an indicator of the level of crowding out, per capita GDP as an indicator of overall economic development, inflation, indexes of financial liberalization, bank entry requirements and quality of accounting standards, the legal origin of the country are considered as determinants of BCPS ratio. In the study, it is also recalled that for the rates of inflation below the threshold, small increases have no effect or a small positive effect on the level of financial activity and the threshold level beyond which inflation significantly affects financial deepening is in the 3-6 percent range.

The results by Cottarelli *et al.* (2003) suggest that the initial level of bank intermediation is not a significant factor as early birds' average BCPS ratio was low compared to sleeping beauties before the turning point; however it continued to rise above the level of sleeping beauties instead of catching-up only. It is also noted that the capability of the early birds' banking system in attracting finance from abroad is not a significant factor for the growth of the BCPS. Cottarelli *et al.* also argue that domestic saving flows led to the increase in BCPS in CEB countries. As bank deposit-to-GDP ratio increased in these countries, financial

---

[1] Albania, Bosnia and Herzegovina (BiH), Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, the Former Yugoslav Republic of Macedonia, Poland, Romania, Serbia and Montenegro (SM), the Slovak Republic, and Slovenia.

depth also increased causing a rise in BCPS. However, in the sleeping beauties although deposit-to-GDP ratio increased, the rise in BCPS was not observed as early birds. Cottarelli *et al.* explain that financial deepening alone is not sufficient for growth in BCPS, crowding-out in the sleeping beauties prevented the rise of BCPS as government deficit-to-GDP was two fold compared to early birds. In other words, in most countries, which experience a rise in BCPS ratios, there also exists a falling bank credit to the government ratio. Another factor behind the growth of BCPS is degree of progress on structural reforms. In countries in an early stage of transition, where private sector is not developed, slow growth of BCPS is observed while early birds which have a higher transition index than sleeping beauties experienced the opposite. Related to transition process, degree of private sector ownership of the banks is also an important indicator. Cottarelli *et al.* note that in the early birds banks were privatized earlier while sleeping beauties continue to have high asset share of public banks (over 41 percent) in 1999. It is pointed out that the increase in bank credit in the late risers was observed after the key privatization operations. The study also finds that type of the legislation of a country is one of the determinants behind the growth of BCPS. In sum, Cottarelli *et al.* argue that privatization, public sector retrenchment, overall progress towards market institutions and quality of legislation to protect creditors' rights are critical factors behind the rise of BCPS ratios.

Backé and Zumer (2005) investigate the dynamics behind the high increase in the domestic credit to private sector in the new Member States (MS) of the European Union (EU) in recent years. Backé and Zumer point out that the growth in the private sector credit was higher in Baltic countries and Hungary than in the euro area. It is also noted that Baltic countries experienced high rate of growth in private sector credit in an environment of rather law inflation. Backé and Zumer (2005) state that high growth in lending to private sector is affected positively by a combination of macroeconomic and microeconomic factors, which influence both supply and demand side. These factors include macroeconomic stabilization,

banking sector reforms, financial liberalization and integration, environment of moderate or low inflation with a build-up of confidence in policy frameworks, decline in interest rates following low inflation, privatization and restructuring of the banking sector, regulatory reforms of financial markets developing confidence and fostering domestic private sector credits. According to Backé and Zumer (2005) public sector credit to GDP ratios were stable or slightly increasing and thus not crowded in by private sector credits. It is also argued that the equilibrium level of financial depth itself will increase and promote credit growth as Central and Eastern European economies grow richer.

Hofmann (2001) investigates the relation between credit to private non-bank sector and economic activity, real interest rates and property prices in 16 industrialized countries between 1980 and 1998 by using quarterly data. In the study, it is stated that, during the period, there has been boom and bust cycles in the credit markets in the industrialized countries often coinciding with movements in the economic activity and property markets. Hofmann (2001) points out that economic activity, interest rate and property prices affect the credit via both supply and demand channels. Accordingly, Hofmann shows that the long run development of credit cannot be explained by standard credit demand factors such as real GDP and the real interest rate alone and real property prices should also be included. The results by Hofmann (2001) suggest that there is a long run relationship between real credit and real GDP, real property prices and real interest rate; real property prices affect real credit positively in the long run while real credit is linked negatively to the real interest rate. Hofmann argues that a rise in real GDP affects lending and property prices positively and increases in credit together with property prices promote output growth. It is also shown that there is significant two-way relationship between credit and property prices. In addition to these, the study finds that innovations to the real interest rate have significantly negative effects on real lending, real GDP and real property prices.

Cecchetti and Krause (2001) point out that macroeconomic performance has improved both in developed and emerging countries in the last two decades. It is noted that inflation and real growth are more stable currently compared to 1980s and financial structure also developed as central banks become more independent and the role of government as interventionist in the banking sector has changed dramatically. Accordingly, Cecchetti and Krause examine the connection between the concurrent events by using a sample of 23 countries ranging from large industrial countries to small developing countries. The findings suggest that reductions in the inflation and output volatility can be linked to a combination of reduced state ownership of commercial bank assets and the introduction of explicit deposit insurance. Cecchetti and Krause also examine the relationship between the share of banking system assets owned by the government and the size of bank loans as a percentage of GDP. It is found that countries which have a higher government bank ownership have a lower level of overall credit supplied to the private sector. It is also found that the countries with a less centralized banking system have higher shares of bank loans to private sector. The results by Cecchetti and Krause (2001) further suggest that monetary policy effectiveness increases with private ownership of banks. Calza *et al.* (2001) investigate the determinants of loan to private sector in the euro area and find that real loans are positively related with real GDP and negatively with long-term and short-term interest rates in the long run.

2.2. The Determinants of Financial Development

Financial development is a critical issue since the recent studies indicate that it is one of the main factors behind growth. However, although there are many works focusing on the relation between growth and financial development both in the recent period and in the past, the studies on determinants of financial development have been increasing recently and there are a limited number of studies on this subject.

Hauner (2006) examines the effects of public sector borrowing from the domestic banking system on financial development in 73 middle-income countries. Hauner points out that public sector have leaned to have credit from domestic banks while countries' external debt has been decreasing recently. In this framework, in the study, whether too much public sector borrowing harms financial development or not is being discussed. Hauner (2006) argues that the potential impact of fiscal policy on financial development is a neglected issue and mostly it is associated with a positive role of government debt in developing financial sectors. Hauner (2006) suggests that if there is continuous large public sector borrowing from the domestic banking sector, substantial adverse implications for financial development can occur. Hauner argues that large public sector credit could raise profitability but lower efficiency. As a result both quality of financial development would be reduced and financial deepening would be harmed in the long run as banks would prefer relatively profitable public sector lending and banking market would not develop in the end.

Hauner states that in the previous studies focusing on determinants of financial depth, it is shown that income level has a positive effect on financial depth while inflation has negative. Hauner (2006) uses credit of commercial banking system to the public sector in the study. In addition to these; income, inflation and margin, which indicates the transaction cost of financial intermediation, are included in the model as control variables. Hauner investigates first, if bank credit to the public sector to GDP leads to financial development by providing safe asset and secondly if bank credit to the public sector to total bank credit (PUBLIC) affects financial development negatively its liquidity effect aside. The results show that bank credit to the public sector to GDP affects financial development positively as it is expected; however, public sector credit to total bank credit affects only one financial development indicator negatively while others are affected positively. Hauner explains that this can be due to the Ricardian consumers who save more or consumers assuming that banks that lend mostly to the government tend to be

more profitable and as a result safer. Hauner classified the sample as countries with high and low PUBLIC beside the sample including all countries. It is found that negative impact is larger and economically significant for the countries with very high public sector credit. Besides, Hauner (2006) argues that there is an optimal level of public sector credit indicating that while some of it leads to financial development, too much of it is harmful for it.

In another paper, Hauner (2007) examines the effect of credit to government on deepening, profitability and efficiency in banking sector. The study is done in country-level and cross-section regressions are used for 142 advanced and developing countries. In the study, it is shown that credit to government tends to be higher in countries that are poorer, with slower per capita growth and higher external debt. Hauner (2007) notes that credit to government has a negative effect on growth in developing countries, as there is a close relationship between credit to government and credit to private sector. Returning to banking sector, the analysis shows that share of lending to the government in total bank credit has a negative effect on bank deepening in developing countries but it does not have any effect in advanced countries. Regarding the profitability, the regressions indicate that in developing countries with credit to government profitability increases but no impact is seen in advanced countries. Lastly, it is found that efficiency decreases in developing countries because of credit to government; however, it has a positive effect in advanced countries.

Kumhof and Tanner (2005) argue that in developing countries where legal and institutional infrastructures are not strong enough, banks hold government debt among their assets with a share more than developed countries. It is noted that, in the developing countries government debt is a safe asset compared to credit to private sector; therefore banks prefer to hold government debt in high amounts instead of supplying credit to private sector. In the study, it is indicated that if the debt management is stable then this behavior of banks in developing countries

facilitates financial intermediation. They also indicate the reasons why important segments of the economy cannot take credit; these are inadequate development of laws and institutions and inability to use movable capital as collateral. Kumhof and Tanner (2005) note that there is a negative relationship between the quality of legal and institutional infrastructure and the amount of government debt banks prefer to hold in their balance sheet. Besides, it is pointed out that government bond markets is a first step for most fixed income securities markets. Kumhof and Tanner (2005) believe that in several developing countries existence of a government debt market, with low macroeconomic volatility and sufficient volume of debt, supports a private bond market as it brings a basic financial infrastructure including laws, institutions, products, services, repo and derivatives market and plays a role as an informational benchmark.

La Porta *et al*. (1997) investigate if legal rules and their enforcement matter for the size and extent of a country's capital markets for the cross section of 49 countries around the world. The study shows that size and extent of a country's capital market are affected by both legal rules and their enforcement. The results of the study indicate that common law (applied in UK, USA, etc.) protects the rights of both shareholders and creditors better than civil law, particularly applied in France and capital markets are more developed in common law countries than the ones where civil law applied. It is also noted that valuation and breadth of equity and bond markets are also affected by the quality of law enforcement. In the study, it is argued that a good legal environment protects the potential financiers to be expropriated by the entrepreneurs and leads the financiers to supply funds in exchange of securities; hence capital market develops. On the other hand, GDP growth and log GNP are used as control variables. La Porta *et al*. (1997) note that GDP growth affects both valuations and market breadth. Log GNP is utilized as there is a theory which indicates that setting up capital markets might be increasing returns to scale activity and therefore larger economies might have larger capital markets.

Beck *et al.* (2002) evaluate "law and finance" and "endowment" theories empirically in their study. In law and finance theory, it is argued that the protection of rights of private investors is very critical for financial development as mentioned by La Porta *et al.* (1997). According to law and finance theory, in the countries where the form of laws in which those rights are protected strongly such as British Common Law, financial development is higher than the countries where those rights are not protected as such, for instance countries with French Civil Law.

Endowment theory, which is put forward by Acemoglu *et al.* (2000), emphasizes the importance of institutions on the economic performances of the countries. Acemoglu *et al.* argue that differences in colonial experiences may lead to differences in institutions. It is pointed out that in places where mortality rate was high, Europeans set up extractive states in which private property is not protected strongly and checks and balances against government expropriation are not provided. In contrast, in colonies such as U.S., Australia and New Zealand the settlers develop institutions similar to the ones in Europe with great emphasis on private property and checks against government power. Acemoglu *et al.* (2000) argue that the institutions in the past still persist and affect the economic performance of the countries.

By examining cross-country differences in financial development, Beck *et al.* (2002) search if those differences are due to the differences in the legal system and/or initial endowments. 70 former colonies with British and French legal origins are taken as sample. The study shows that countries with a legal system of British Common Law have higher financial development than the countries owning French Civil Law as a legal system. However, it is also analyzed that legal origin does not explain the differences of financial development between countries completely. There are countries in the sample with British Common

Law but also having low financial development. As a second result it is indicated that in colonies where early settlers came across with very inhospitable environments, well-developed financial systems cannot be found currently. In other words, poor endowments affect financial development negatively. This is consistent with the endowment theory of Acemoglu *et al.* (2000). The analysis shows that both legal systems and initial endowments are important determinants of stock market development and private property rights protection; however, initial endowments are more robustly linked with the financial intermediary development than legal origin.

In addition to these, Beck *et al.* (2002) indicate that as greater ethnic diversity leads the adoption of policies and institutions that are focused on maintaining power and control and does not lead to an open and competitive financial system, there is negative correlation between ethnic fractionalization and financial development. Although Beck *et al.* argue that independence may provide greater opportunities for countries to develop institutions, policies, and regulations independently of their colonial heritage, the results show that there is not a significant relationship between independence and financial development. Religion is also taken as one of the determinants of financial development. It is noted that religion affects property rights, competition, and the role of State via shaping the national views. The data shows that countries with a higher proportion of population which are not Catholic or Muslim or Protestant have higher levels of financial development than countries compared to countries whose population in high proportion is Catholic or Muslim.

Huang (2005) argues that in a country, primary determinants of the level of financial development are its institutional quality, government policies, geographic endowments, income level and cultural characteristics. According to Huang's study, more open trade policies, better institutional quality and higher levels of civil liberties and political rights lead to greater financial development.

Legal origins are also found to be effective on financial development. Huang (2005) examines the differences in financial development across countries by using two modern quantitative methods Bayesian Model Averaging (BMA) and General-to-specific (Gets). In the study, it is indicated that institutions, policy, geography, income level and cultural characteristics are critical for financial development as they form the country's economic environment in which entrepreneurs decide to invest, consumers plan to consume or save and financial intermediaries collect the savings and provide credit. Huang (2005) notes that good institutional quality provides efficient supply of external finance while ill functioning institutions and particular cultural characteristics mainly institute structural impediments to the supply of external finance. On the other hand, considering the demand side, it is argued that sound economic policies, industrialization and economic growth mainly support the demand for more and cheaper credit. It is pointed out that advantageous geographic endowment also facilitates external trade and manufacturing. Huang indicates that mismanagement in the macroeconomic policies could affect demand of external finance negatively.

Rajan and Zingales (2001) argue that structural theories related to financial development such as the effects of institutional inheritance and legal origin on financial development are not adequate to explain the variation of financial development across time and between countries. They believe that a theory with more variable factors is needed and the strength of political forces in favor of financial development should be the major variable. They argue that there can be incumbents who are opposed to financial development as they do not prefer competition, however, when the countries are open to trade and capital flows - which is a political decision- opposition is prevented. Thus, in the study it is tested in the cross-section of countries if financial development is positively correlated with the exogenous component of a country's openness to trade, both in the beginning and towards the end of the Twentieth Century. As a result, it is found

that a country's openness affects financial development positively. However, in the intermediate periods (from the 1930s to the 1970s) when capital flows between countries decreased, the analysis shows that trade openness is not strongly positively correlated with financial development. In other words, trade openness together with openness in financial markets prevents the incumbents to oppose financial development. As a result of the study, it is indicated that trade openness is positively correlated with financial development when capital flows are high but it is correlated less or not at all when the capital flows are low. Besides, although structural theories could not explain the reversal in financial markets between 1929 and 1980, the results of the study show that political forces have also explanatory role on financial development. Rajan and Zingales emphasize that interest group politics is a critical factor for financial development across countries and a country's institutions may slow or speed up interest group activities.

Baltagi, Demetriades and Law (2007) investigate in their study if both trade and financial openness matter for financial development and to what extent simultaneous opening of both trade and capital accounts necessary for financial development. In other words, it is asked if only trade or financial openness is conducive to financial development. In addition to these, it is investigated if economic institutions affect financial development positively above and over the effects of openness. It is stated that the overall results of the econometric study show that trade and financial openness affect banking sector development positively. However, institutional quality is conducive not for the whole financial development indicators but the private credit. Baltagi *et al.* argue that the latter result may indicate the importance of creditor protection for the improvement of bank lending. The study also suggests that while at low levels of financial and trade openness, the opening of trade and capital account affect financial development positively, at high levels of openness this effect may turn to opposite. Baltagi *et al.* (2007) argue that the variation of financial development

across countries and over time since 1980s can be explained to a large extent with openness and economic institutions. Different from Rajan and Zingales (2001) who argue trade and financial openness are complements for improvement of financial development, Baltagi *et al*. found that there is no need of simultaneous opening of trade and capital accounts for financial development. In addition to these, Baltagi *et al*. (2007) suggest that trade openness is more effective for financial development than capital account openness.

Koubi (2008) investigates how government quality affects financial development and stock return stability. The results show that greater uncertainty concerning "property rights" and lower efficiency of the public sector (higher transaction costs) leads to a smaller financial system.

Levine mostly focuses on how financial systems affect growth in his studies. However, in one of these studies, (Levine, 1997) it is also asked if financial systems are affected by economic growth or other variables. According to Levine, economic activity, technological innovations such as in telecommunications and computing, country's legal system and political institutions affect the quality and structure of financial systems. For instance, technological improvements lower transaction costs and affect financial arrangements, monetary and fiscal policies affect taxation on financial instruments and the provision of financial services (Levine, 1997). Levine (1997) notes that some models assume there is a fixed cost of joining intermediaries and economic growth reduces this fixed cost, hence more people involve in the financial system. As a result, economic growth leads to formation of financial intermediaries which at the end induce economic growth by improving the allocation of the capital.

In another study, Levine *et al.* (2000) investigate if cross-country differences in the legal rights of creditor, the efficiency of contract enforcement, and accounting system standards may explain cross-country differences in the level of financial

intermediary development. The results of the analyses show that countries in which there exist laws that give a high priority to secured creditors getting the full present value of their claims against firms, financial development is higher compared to countries with laws providing weaker support to creditors. Financial development is also positively affected in countries where legal systems enforce contracts strictly including government contracts. Finally, it is noted that countries with accounting standards that produce high-quality, comprehensive and comparable corporate financial statements tend to have better developed financial intermediaries.

Boyd *et al.* (2001) concentrate on the links between sustained inflation and financial sector performance in their study. A banking data set which includes maximum 97 countries and covers the period 1960-1995 is used. They assess the theoretical literature arguing that even predictable increases in the rate of inflation hinder the ability of the financial sector to allocate resources effectively. In the study, the evidence indicates that there is a significant, and economically important, negative relationship between inflation and both banking sector development and equity market activity. Moreover, it is stated that the negative relationship is nonlinear and as inflation rises, the marginal impact of inflation on banking lending activity diminishes rapidly. In addition to this, Boyd *et al.* point out that there are thresholds, that is, for economies in which inflation exceeds 15 percent, there is a significant drop in financial sector performance.

Choi *et al.* (1995) explain how inflation adversely affects an economy by arguing that high rates of inflation worsen a number of financial market frictions. They argue that higher rates of inflation tend to reduce the real rates of return received by savers in a variety of markets. As a result less people want to be saver, more people want to be borrower and "lower quality borrowers" also apply for credit. Thus, markets ration credit to prevent lending to "lower quality borrowers". It is pointed out that when credit is rationed, this reduction in return exacerbates

informational frictions that impede the operation of the financial system. Choi *et al.* (1995) note that when inflation exceeds a certain critical rate, higher inflation leads financial system to provide less investment capital, causing reduction in capital formation and long-run levels of real activity. However, they emphasize that these kinds of forces need not operate at low rates of inflation. The empirical results show that in countries such as Korea and Taiwan where there were significant changes in the rate of inflation; in the low inflation period, inflation has no significant effects on the real return on equity, its volatility, or on the growth rate of stock market transactions, while there is a negative relationship between market activity and rate of inflation in the higher inflation period.

CHAPTER 3

THE DETERMINANTS OF PRIVATE SECTOR CREDITS AND FINANCIAL DEVELOPMENT: EMPIRICAL RESULTS

In this section we investigate the empirical determinants of commercial banking system credits to private sector and financial development. The literature surveyed in Chapter 2 suggests that financial depth, bank credit to government, privatization, overall progress towards market institutions, quality of legislation to protect creditors' rights, inflation, real GDP growth, real interest rate, fiscal expansion and property prices are among the determinants of the banking system credits to private sector. In this study, we first investigate the impact of public sector credit, central government debt and liquid liabilities as an indicator of financial development on private sector credits. The inclusion of public sector credit and central government debt will allow us whether public sector credits financially crowds out or crowds in private sector credits. We also postulate that the impact of these variables and the presence (or lack) of a financial crowding out may not be invariant to the level of economic development.

This chapter investigates also the determinants of financial development. As already discussed in Chapter 2, the earlier studies suggest that financial development is affected from the variables such as public sector borrowing from the domestic banking system, income level, inflation, legal and institutional infrastructures, enforcement of legal rules, endowments, ethnic diversity, independence, religion, cultural characteristics, open trade policies, financial openness, interest group politics, government quality, and accounting system standards. In this study, the effects of public sector credit, real GDP and inflation on financial development will be investigated for four different country groups classified according to their income levels. Our empirical results for both the determinants of private sector credits and financial development are based on

unbalanced annual panel data for 85 countries spanning from 1980 to 2006. We employ panel fixed effects estimation procedure in the empirical analysis. Countries in the data are classified as high income, upper middle income, lower middle income and low income according to World Bank list of economies (July 2007)[2,3].

3.1 The Determinants of Private Sector Credits

We start by estimating the following equation postulated to explain private sector credit for the panel of countries in our sample:

$$TCPR_{it} = \beta_0 + \beta_1 TCPU_{it} + \beta_2 CGDEBT_{it} + \beta_3 FINDEV_{it} + u_{it} \qquad (3.1)$$

where TCPR is domestic credit supplied to the private sector by banking institutions over GDP[4], TCPU is domestic credit supplied to the public sector by banking institutions over GDP[5], CGDEBT is central government debt over GDP[6] and FINDEV is the level of financial development proxied by liquid liabilities (M3) as % of GDP[7]. In Equation (3.1) u is the disturbance term and the subscripts i and t stand for country and time. In the equation we expect the coefficient of the financial development variable FINDEV to be positive. A significant negative (positive) coefficient for

---

[2] The list of countries with income categories is presented in Table A1 of Appendix.

[3] World Bank (WB), Classification of Economies web database.

[4] IMF (International Monetary Fund) International Financial Statistics (IFS) web database. IFS lines 22d and 42d (deposit money banks and other banking institutions) in percent of GDP (World Development Indicators (WDI) line "GDP (current in LCU)").

[5] IMF IFS web database. IFS lines 22 a-c and 42 a-c in percent of GDP (WDI line "GDP (current in LCU)").

[6] Panizza and Jaimovich, 2006.

[7] WB, WDI statistical database. WDI line "Liquid liabilities (M3) as % of GDP".

the TCPU or CGDEBT variables may be interpreted as being consistent with the presence of financial crowding-out (crowding-in).

Table 1-A presents the results of the fixed effects panel estimation of Equation (3.1) for the whole sample, for the group of countries with low income and lower middle income and for the group of countries with upper middle income and high income. The results for the whole sample of countries suggest that private sector credits are significantly determined by the level of financial development and central government debt. The public sector credits variable, however, is statistically insignificant. The impact of financial development on private credits is found to be significant and positive as expected. The positive impact of financial development on banking system credits to private sector appears to be invariant to the level of economic development as suggested by the results for the lower and higher income countries in Table 1-A. The negative impact of the central government debt, on the other hand, tends to be more in upper middle income and high income countries than the low and lower middle income countries. Public sector credits have opposite signs in the higher and lower income countries leading to an insignificant coefficient for the whole sample. Public sector credits appear to crowd out private sector credits in the low and lower middle income countries as suggested by the significantly negative TCPU coefficient. This is a comprehensible result as financial development is at a lower level in these countries than high income and upper middle income countries. For the higher income countries, however, public and private sector credits tend to be positively correlated.

It may be argued that financial development is endogenous for the evolution of private sector credits. To tackle with the endogeneity and a simultaneous bias problem we estimated also Equation (3.1) by employing an instrumental variables (IV) method. Table 1-B reports the estimation of Equation (3.1) with fixed effect instrumental variables procedure. The results are virtually the same with those

reported by Table 1-A suggesting that the results from the fixed effect OLS procedure are not significantly affected by a simultaneity bias. The impact of financial development on private sector credits is significant and positive for both higher and lower income groups. The negative impact of central government debt on private sector credits is analyzed both in higher and lower income groups, as shown in Table 1-B. In addition to these, the effect of public sector credits on private sector credits is negative in the low and lower middle income countries while it is positive in high and upper middle income countries.

Following the literature we consider also inflation rates, real interest rates and interest rate spreads as potential determinants of the private sector credits. To this end we augment Equation (3.1) with annual consumer price inflation rate[8], interest rate spread[9] and real interest rate[10]. Inflation is found to be positive and significant for the group of upper middle and high income countries whilst insignificant for the lower income countries. The significantly positive inflation coefficient may be interpreted as being consistent with an argument that inflation reflects increasing demand conditions in the economy which in turn increases the demand for credits.

Interest rate spreads, which is the lending rate minus deposit rate, is significant only for the group of countries with low income and lower middle income. An increase in the spreads leads to an increase in private sector credits possibly reflecting the credit supply conditions. However, for the higher income countries the spread variable is statistically insignificant which may be due to the financial development where spread is found to be not at a critical level that could affect private sector credit. Real interest rate is found to be significant only for the group of countries with high income and upper middle income. Although public sector

---

[8] Source World Bank-WDI.

[9] WDI line "Interest rate spread (lending rate minus deposit rate)".

[10] WDI line "Real interest rate (%)".

credit becomes insignificant in the model, in high income and upper middle income countries it is examined that real interest rate affects private sector credit positively which is in the opposite of expectations.

Table 1-A: Determinants of Private Sector Credits (1)

Sample	All Countries	High and Upper Middle Income Countries	Low and Lower Middle Income Countries
INTERCEPT	0.0585033* (0.0212414)	0.0723722* (0.0320645)	0.0232985 (0.0147564)
TCPU	-0.0056779 (0.0796879)	0.2123299* (0.1035953)	-1.058852* (0.0974374)
CGDEBT	-0.001735* (0.0002526)	-0.0023108* (0.0003794)	-0.0007577* (0.0001866)
FINDEV	0.0089736* (0.0003506)	0.009267* (0.0004813)	0.0093339* (0.0003242)
R-squared	0.3237	0.2647	0.7505
Observations	1380	937	443
N. of countries	66	44	22

Notes: * denotes the significant tests at 5% level. Figures in parentheses below coefficients are standard errors.

Table 1-B: Determinants of Private Sector Credits – Fixed Effects IV Results (1)

Sample	All Countries	High and Upper Middle Income Countries	Low and Lower Middle Income Countries
INTERCEPT	-0.2274753* (0.0443156)	-0.5233497* (0.0893507)	-0.0320268 (0.0225794)
TCPU	0.1137591 (0.0962743)	0.5649161* (0.1404756)	-1.237856* (0.1105575)
CGDEBT	-0.0026524* (0.0003048)	-0.0035023* (0.000489)	-0.0012975* (0.0002182)
FINDEV	0.0143611* (0.0007797)	0.0190188* (0.0014171)	0.0113074* (0.0005555)
R-squared	0.3285	0.2773	0.7676
Observations	1274	859	415
N. of countries	64	43	21

Notes: * denotes the significant tests at 5% level. Figures in parentheses below coefficients are standard errors.

3.2 The Determinants of Financial Development

In this part of the paper, the potential determinants of financial development are examined empirically using the model given below:

$$\text{FINDEV}_{it} = \beta_0 + \beta_1 \text{LRGDP}_{it} + \beta_2 \text{TCPU}_{it} + \beta_3 \text{INF}_{it} + u_{it} \qquad (3.2)$$

where, as an indicator of financial development, liquid liabilities (M3) as % of GDP[11] is used like in the previous studies such as Huang (2005), Hauner (2006) and Baltagi, Demetriades and Law (2007), LRGDP is log of constant GDP in local currency unit[12], TCPU is domestic credit supplied to the public sector by banking institutions over GDP[13], and INF is annual consumer price inflation as percent[14]. In Equation (3.2) u is the disturbance term and the subscripts i and t stand for country and time. Different from the previous Equation (3.1), the potential determinants of financial development is analyzed in high income countries, upper middle income countries, lower middle income countries and low income countries. In the equation, the coefficient of real GDP variable LRGDP and coefficient of TCPU are expected to be positive, while INF is expected to be negative.

The results of the fixed effects panel estimation of Equation (3.2) is presented in Table 3. For the whole sample, the results indicate that financial development is significantly determined by real GDP and public sector credits. However, inflation variable is statistically insignificant. In high income countries, the impact of real GDP and public sector credits on financial development are significant and

---

[11] WDI line "Liquid liabilities (M3) as % of GDP".

[12] WDI line "GDP (constant Local Currency Units)".

[13] IFS lines 22 a-c and 42 a-c in percent of GDP (WDI line "GDP (current in LCU)").

[14] WDI line "Inflation, consumer prices (annual %)".

Table 2: Determinants of Private Sector Credits (2)

Sample	All Countries			High and Upper Middle Income Countries			Low and Lower Middle Income Countries		
INTERCEPT	0.0445125 (0.023186)	0.132487* (0.026743)	0.107735* (0.026681)	0.032663 (0.035966)	0.137911* (0.037389)	0.114213* (0.037744)	0.027135 (0.015310)	0.138065* (0.02409)	0.108097* (0.023093)
TCPU	0.0594503 (0.086391)	0.0438409 (0.090132)	0.009896 (0.09109)	0.30474* (0.11245)	0.213072 (0.113503)	0.198693 (0.114385)	-1.033329* (0.098886)	-1.292633* (0.138258)	-1.206919* (0.127989)
CGDEBT	-0.001911* (0.000267)	-0.002014* (0.000302)	-0.001812* (0.000290)	-0.002340* (0.000389)	-0.002296* (0.00041)	-0.002248* (0.000404)	-0.000936* (0.000204)	-0.001478* (0.000279)	-0.001221* (0.000258)
FINDEV	0.009333* (0.000372)	0.008489* (0.0004)	0.008455* (0.000395)	0.009944* (0.00052)	0.008882* (0.000529)	0.008830* (0.000524)	0.009344* (0.000332)	0.008614* (0.000421)	0.008651* (0.000406)
INF	0.000041 (0.000021)			0.000128* (0.000055)			0.000013 (0.000011)		
SPREAD		0.0000916 (0.000074)			0.000318 (0.000522)			0.000099* (0.000041)	
REALINT			0.002087* (0.000632)			0.003291* (0.000958)			0.000359 (0.000490)
R-squared	0.3270	0.3279	0.3115	0.2741	0.2530	0.2327	0.7540	0.7870	0.7919
Observations	1299	979	1048	879	683	722	420	296	326
N. of countries	64	60	61	43	40	40	21	20	21

Notes: * denotes the significant tests at 5% level. Figures in parentheses below coefficients are standard errors.

positive while the impact of inflation variable is negative, as expected. The inflation variable is also significant for low income countries; nevertheless the impact on financial development is positive. Although real GDP variable is statistically insignificant for low income countries, the results in Table 3 suggest that real GDP affect financial development positively both in upper and lower income countries. The impact of public sector credits on financial development is positive in upper middle income and low income countries, and highest positive impact is found in low income countries.

Table 3: Determinants of Financial Development

Sample	All Countries	High Income Countries	Upper Middle Income Countries	Lower Middle Income Countries	Low Income Countries
INTERCEPT	-515.4035*	-498.0751*	-525.8958*	-599.5419*	38.10059
	(16.72708)	(31.45199)	(34.42249)	(26.05446)	(49.69792)
LRGDP	20.99989*	21.28289*	21.0595*	23.70875*	-0.5929417
	(0.625298)	(1.188149)	(1.291744)	(0.973334)	(1.779408)
TCPU	33.93148*	46.01298*	38.65507*	11.43539	209.5724*
	(3.702565)	(6.473884)	(6.516503)	(7.459753)	(26.46775)
INF	-0.0005756	-0.1454511*	-0.0013336	-0.0001503	0.2469756*
	(0.0008202)	(0.0416466)	(0.0020379)	(0.000742)	(0.0862468)
R-squared	0.0038	0.0000	0.0001	0.0161	0.3263
Observations	2171	809	570	660	132
N. of countries	71	23	22	21	5

Notes: * denotes the significant tests at 5% level. Figures in parentheses below coefficients are standard errors.

CHAPTER 4

CONCLUSION

In this study, we investigate the determinants of financial development and private sector credits for a panel of 85 developing and industrial countries using annual data from 1980 to 2006. Private sector credits by the domestic commercial banks are postulated to be explained by the banking system public sector credits, central government debt and financial development. As determinants of financial development which is proxied by the liquid liabilities (M3) as % of GDP, we analyze public sector credits, real GDP and annual consumer price inflation (as percent)

The results from both the panel fixed effects and instrumental variables procedures suggest that financial development enhances private sector credits both in the lower income and higher income countries. In other words, the positive correlation between financial development and private sector credits is invariant to the income level. This finding indicates that private sector comes across with fewer difficulties in providing their need of credit in developed financial markets where supply of credit is higher compared to countries which are not financially developed. This is also in line with findings of both Cottarelli *et al.* (2003) and Backe and Zumer (2005) who argue that financial depth leads to increase in credit to the private sector. Central government debt appears to crowd out private sector credits, potentially due to leading higher interest rates, both in upper middle income and high income countries and the low and lower middle income countries. The negative impact of the central government debt, however, tends to be more in upper middle income and high income countries than the low and lower middle income countries. Increase in the central government debt indicates public sector's potential demand of the bank credit. Moreover, the increase in the central government debt turns the expectations for the economy to

negative and increases risk premium of the country. From both channels private sector credits is affected negatively and it decreases when central government debt increases.

While the impact of public sector credits on private sector credits is positive in higher income countries, it is the opposite in lower income countries. Public sector credits appear to crowd out private sector credits in the low and lower middle income countries. In other words, the increase in the credit supplied to public sector decreases the supply of credit to private sector by banking institutions and crowding out appears. Banks prefer to give credit to the public sector as it is a safer asset and as a result more risky credit to private sector is affected negatively. These results are consistent with Cottarelli *et al.* (2003), which finds that crowding out prevented the rise of bank credit to the private sector (BCPS) in some transition economies where government deficit-to-GDP was in large amount.

In the high and upper middle income countries different from the low income group, the impact of public sector credits on private sector credits is positive, while central government debt is negatively correlated with the private sector credits. One might argue that it is contradictory to find impact of public sector credits positive while the impact of central government debt on private sector credits is negative. However, it may be plausible to have a negative correlation between central government debt and private sector credits as the increase in the central government debt, turns the expectations for the economy to negative, increases risk premium of the country and the supply of credit to private sector decreases as a result. The positive relation between private sector credits and public sector credits might be due to the financial development with sufficient supply of credit for both sectors in high income countries. As a result crowding out does not take place in the high and upper middle income countries. The opposite effects of public sector credit in lower and higher income country groups

are in line with the findings of Caballero and Krishnamurthy (2004) who argue that the crowding out is systematically larger in emerging countries than advanced ones. As financial depth is higher in high income countries the negative effect of public sector credit is not examined in these countries.

We also considered inflation, spread and real interest rate as the other determinants of the private sector credits. Inflation is found to be significant and positive only for group of upper middle and high income countries. It is also found that interest rate spreads is significant and positive only for group of countries with low income and lower middle income. Real interest rate is found to be significant only for the group of countries with high income and upper middle income and it is examined that real interest rate affects private sector credits positively, opposite to the expectations.

The empirical results on financial development are also consistent with the previous studies. In all income groups except low income countries; the impact of real GDP on financial development is positive. As growth leads to increase in financial tools and demand and supply of credit; financial development improves in a growing economy. According to Hauner (2007) income affects financial development positively. Huang (2005) also argues that income level (in terms of GDP per capita) of a country is significantly associated with the level of financial development. It is indicated that there is a positive correlation between financial development and income level.

In all income groups except lower middle income countries, the impact of public sector credits on financial development is also positive, consistent with the expectations. Hauner (2007) argues that bank credit to the public sector to GDP affects financial development positively. Kumhof and Tanner (2005) also argue that improvement in the government debt market is a positive step for financial development. In their study, it is indicated that if the debt management is stable

then this behavior of banks in developing countries facilitates financial intermediation and a government debt market with low macroeconomic volatility and sufficient volume of debt supports a private bond market as it brings a basic financial infrastructure including laws, institutions, products, services, repo and derivatives market and plays a role as an informational benchmark.

Regarding inflation it is found that it affects financial development negatively only in the high income countries while it has the opposite effect in low income countries. Actually it is expected that inflation affects financial development negatively in all country groups as it brings uncertainty to the financial market and interfere the regular market activity. Boyd *et al.* (2001) argue that there is negative relationship between inflation and both banking sector development and equity market activity. Choi *et al.* (1995) also argue high rates of inflation worsen financial market frictions.

REFERENCES

Acemoglu, D., Johnson, S. and Robinson, J. A. (2000), "The Colonial Origins of Comparative Development: An Emprical Investigation" ", NBER Working Papers, w7771.

Backé, P. and Zumer, T. (2005), "Developments in Credit to the Private Sector in Central and Eastern European EU Member States: Emerging from Financial Repression - A Comparative Overview" Focus 2/05. Vienna: Oesterreichische Nationalbank. 83-109.

Baltagi B., Demitriades, P. and Law, S. H. (2007), "Financial Development, Openness and Institutions: Evidence from Panel Data", Paper presented at the Conference on New Perspectives on Financial Globalization, Research Department. Washington, DC-April 26–27, 2007.

Beck, T., Demirguc-Kunt, A. and Levine, R. (2002), "Law, Endowments, and Finance", NBER Working Papers, w9089.

Beck, T., Demirguc-Kunt, A. and Levine, R. (2004), "Finance, Inequality, and Poverty: Cross-Country Evidence", NBER Working Papers, w10979.

Boyd, J. H., Levine, R. and Smith, B. D. (2001), "The Impact of Inflation on Financial Sector Performance", Journal of Monetary Economics 47 (2001) 221-248.

Caballero, R. and Krishnamurthy, A. (2004), "Fiscal Policy and Financial Depth", NBER Working Papers, w10532.

Calza, A., Gartner, C. and Sousa, J. (2001), "Modelling the Demand for Loans to the Private Sector in the Euro Area", ECB Working Paper No. 55. Frankfurt: European Central Bank.

Cecchetti, S. G. and Krause, S. (2001), "Financial Structure, Macroeconomic Stability and Monetary Policy" NBER Working Papers, w8354.

Choi, S., Smith, B. D., and Boyd, J.H. (1995), "Inflation, Financial Markets, and Capital Formation", Federal Reserve Bank of Minneapolis Working Paper 556, Revised November 1995.

Cottarelli, C., Dell'Ariccia, G., and Vladkova-Hollar, I. (2003), "Early Birds, Late Risers, and Sleeping Beauties: Bank Credit Growth to the Private Sector in Central and Eastern Europe and the Balkans", IMF Working Papers, WP/03/213. Washington D.C.: International Monetary Fund.

Hauner, D. (2006), "Fiscal Policy and Financial Development", IMF Working Papers, WP/06/26. Washington D.C.: International Monetary Fund.

Hauner, D. (2007), Credit to Government and Banking Sector Performance, Journal of Banking& Finance), doi: 10.1016/j.jbankfin.2007.07.012.

Hofmann, B. (2001), "The determinants of private sector credit in industrialized countries: do property prices matter?", BIS Working Papers No 108. Basel: Bank for International Settlements.

Huang, Y. (2005), "What determines financial development?", Discussion Paper No. 05/580. Bristol: University of Bristol, Department of Economics.

IMF, (2001), "Fiscal Improvement In Advanced Economies: How Long Will It Last?", World Economic Outlook 2001, Chapter 3, pp. 85-115.

IMF, Research Department (2004), "Sovereign Debt Structure for Crisis Prevention", Approved by Raghuram Rajan.

Jaimovich, D. and Panizza, U. (2006), "Public Debt around the World: A New Dataset of Central Government Debt", IDB Research Department Working Paper Nr. 561.

Koubi, V. (2008), "On the Determinants of Financial Development and Stock Returns", Journal of Money, Investment and Banking – Issue 1 (2008).

Kumhof, M. and Tanner, E. (2005), "Government Debt: A Key Role in Financial Intermediation", IMF Working Papers, WP/05/57. Washington D.C.: International Monetary Fund.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. W. (1997), "Legal Determinants External Finance", NBER Working Papers, w5879.

Levine, R. (1997), "Financial Development and Economic Growth: Views and Agenda", Journal of Economic Literature Vol. XXXV (June 1997), pp. 688–726.

Levine, R., Loazya, N. and Beck, T. (2000), "Financial Intermediation and Growth: Causality and Causes", Journal of Monetary Economics Vol. 46 (August 2000), pp. 31-77.

Rajan, R. G. and Zingales, L. (2001), "The Great Reversals: The Politics of Financial Development in the 20th Century", NBER Working Papers, w8178.

APPENDICES

A. LIST OF COUNTRIES WITH INCOME CATEGORIES

Table A1: List of Countries Included in the Study with Income Categories

High Income Countries	Upper Middle Income Countries	Lower Middle Income Countries	Low Income Countries
Australia	Argentina	Albania	Bangladesh
Austria	Brazil	Algeria	India
Bahrain	Bulgaria	Azerbaijan	Pakistan
Belgium	Chile	Belarus	Tajikistan
Canada	Croatia	Bolivia	Vietnam
Czech Republic	Hungary	China	Yemen, Rep.
Denmark	Kazakhstan	Colombia	
Estonia	Latvia	Egypt, Arab Rep.	
Finland	Lebanon	Georgia	
France	Libya	Indonesia	
Germany	Lithuania	Iran, Islamic Rep.	
Greece	Malaysia	Jordan	
Hong Kong, China	Mexico	Macedonia, FYR	
Iceland	Oman	Morocco	
Ireland	Poland	Paraguay	
Israel	Romania	Peru	
Italy	Russian Federation	Philippines	
Japan	Slovak Republic	Syrian Arab Republic	
Korea, Rep.	South Africa	Thailand	
Kuwait	Turkey	Tunisia	
Luxembourg	Uruguay	Ukraine	
Malta	Venezuela, RB		
Netherlands			
New Zealand			
Norway			
Portugal			
Qatar			
Saudi Arabia			
Singapore			
Slovenia			
Spain			
Sweden			
Switzerland			
United Arab Emirates			
United Kingdom			
United States			

Source: WB, Classification of Economies web database.
Notes: High income, $11,116 or more; upper middle income, $3,596-11,115;
lower middle income, $906-3,595 and low income $905 or less.