

The Impact of Government Ownership of Banks, Foreign Capital Inflows and Institutions on Financial Development



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Abstract

This thesis consists of three empirical and one theoretical essays on three determinants of financial development (FD) namely government ownership of banks, foreign capital inflows (FCI) and institutional quality.

Some research has concluded that government ownership of banks negatively affects their soundness. Bretton Wood institutions have used these conclusions to advocate for state-owned banks privatization. The first essay shows that this research was weak in the way it controlled for fundamental determinants of soundness of banks, and lacked rigorous econometric analysis. With data covering 2001-2011, we show that if there is any relationship between government ownership of banks and their subsequent soundness, it is positive. These results are robust to various measures of FD, institutional quality and econometric approaches.

The second essay presents a theoretical model predicting a negative relationship between Official Development Assistance (ODA) and FD when political institutions are weak. The third essay empirically investigates the hypothesis that the effects of ODA on FD are influenced by the level of democracy in recipient countries. Using a panel data for 37 developing countries covering 1980-2005, we apply different econometric approaches (pooled OLS, IV2SLS, fixed effects and dynamic GMM) to show that while ODA is harmful to FD in autocracies it could be effective in democracies. These results are robust to various measures of FD and democracy.

The fourth essay is an empirical investigation of the hypothesis that different types of FCIs have different impacts on credit availability in developing countries. Using 5-year average data for 53 developing countries covering 1990-2013 and disaggregating FCIs into their main five types, we apply OLS, fixed effects, and dynamic GMM to show that there is a positive and statistically significant relationship between FDI, debt and equity and private credit while remittances and ODA are not significant determinants of private credit in developing countries.

Dedication

This Thesis is dedicated

To my darling wife, Victoire, for your love and patience

To my sons, Felix, Blaise, Victor and Tresor, for the bonding time sacrificed

To my beautiful daughter, Regina, you are my dream come true

“...Even though I walk through the valley of the shadow of death, I will fear no evil: for thou art with me; thy rod and thy staff they comfort me” (Psalm 22).

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Chapter 1

Introduction

1.1 Background and motivation

The role of local financial markets in enhancing efficient allocation of resources and generating economic growth is well recognised in the literature. Schumpeter (1912), Beck et al. (2000), Claessens and Laeven (2003), Al-Khouri (2007), King and Levine (1993b), Levine and Zervos (1998), Demetriades and Andrianova (2004) among others have all argued that well-functioning financial systems are critical for economic growth especially in developing countries. The advocates of financial development emphasise its crucial role of intermediating society's savings and allocating them to their best uses.

On the other hand, there is a large consensus in the literature about the crucial role played by institutions in promoting financial development. La Porta et al.(1998), Rajan and Zingales (2003), Asongu (2011d) among others argue that institutions that promote the rule of law, the protection of property rights as well as contract enforcement and put effective constraints on rulers lead to higher levels of financial development.

The literature has also found that government ownership of banks is more prevalent in poor countries with poorly protected property rights (La Porta et al., 2002). However, the scarce literature on the relationship between government ownership of banks and financial development has yielded contradictory results. La Porta et al. (2002), Caprio and Peria (2000) concluded that government ownership of banks leads to subsequent unsound financial sector. Barth et al. (2004) find no relationship while Beck and Demirgüç-Kunt (2009) concluded that German government owned banks are more stable than private banks. However, all these studies have arrived at those conclusions

without taking into consideration the above mentioned crucial role played by institutions in promoting financial development.

This thesis contributes to this debate by looking at the impact of government ownership of banks on subsequent soundness of the financial sector taking into consideration the well-recognised enhancing role of institutions and financial reforms and controlling for possible endogeneity.

For the last six decades, developed countries have been transferring large amounts of monies to poor countries in the name of official development assistance (ODA), in order to help them overcome poverty and embrace economic growth. This assistance has been targeted to strengthening institutions among others as a prerequisite for economic growth. However those institutions have continued to be weak and poverty has not been eradicated. Advocates of ODA like any other foreign capital inflow, have emphasised its crucial importance in stimulating economic growth by supplementing domestic sources of finance such as savings, foreign exchange and domestic revenues, thus increasing the amount of investment and capital stock (Ekanayake and Chatrna, 2010; Chenery and Strout, 1966; Bacha, 1990; Taylor, 1990).

However, given that foreign aid is a source of non-tax windfall resources to the recipient countries, recent studies have argued that it may be detrimental to economic growth and governance in a fashion that is similar to the curse of natural resources. Djankov et al. (2008) called this “The curse of aid”. The proponents of this view base the argument on the apparent similarities between aid and natural resource revenues with regard to their potential to damage the economies through three phenomena namely Dutch Disease (Younger, 1992; Rajan and Subramanian, 2005), revenue volatility (Arellano et al., 2009) as well as their potential to cause political instability by increasing corruption and reducing accountability (Bräutigam and Knack, 2004). In fact

Nager (2013) has studied aid and natural resources together under what he termed “The curse of windfall incomes”. The literature has also documented the fact that both the curse of natural resources and the curse of aid are exacerbated by poor political institutions (Kosack, 2003; Isham et al., 1977).

Inspired by the curse of natural resources a few studies have been trying to explore the relationship between natural resource revenues and financial development (e.g. Bhattacharyya and Hodler, 2014). However, so far no study has attempted to link ODA and financial development. This study attempts to introduce a new debate in the ODA-financial development–democracy nexus by investigating both theoretically and empirically the relationship between ODA and financial development and checking how democracy affects that relationship.

Finally, common wisdom and some economic theory predict benefits from capital inflows. In fact international capital inflows are necessary to bridge the investment/savings gap by providing access to finance for credit constrained firms, promoting economic growth, smoothing inter-temporal consumption, facilitating the diffusion of technology and managerial know-how, and enabling international risk sharing (Kose et al., 2010). Nevertheless, capital inflows also have the potential to cause financial vulnerability and research has shown that sometimes they may cause financial crisis (Cabalero, 2014). Furthermore, different types of capital inflows are expected to have different impacts in different countries. Although there is plenty evidence in the literature showing that international capital inflows are useful to capital-constrained countries because they help them fill their savings, foreign exchange and fiscal gaps, so far research linking international capital inflows to credit growth mainly focuses on their volatility resulting in financial crisis. However as Morrissey and Osei (2004, p48) rightly argue, “ the major issue facing poor developing countries is not the problems

associated with volatile private capital inflows , it is the difficulty of attracting such inflows”. This thesis contributes to the literature by looking at how different types of capital inflows affect the availability of credit in developing countries. In what follows, we present a brief introduction to each of the chapters.

1.1.1 Does government ownership negatively affect soundness of banks? New evidence

The role of government in economic development has attracted a lot of attention since the seminal work by Adam Smith in his famous book “An Inquiry into the Nature and Causes of the Wealth of Nations” and continues to be the subject of heated debates among economists and politicians. In particular, the debate around the reasons for governments’ ownership of banks has centred on two main views namely the developmental and political views. The developmental view argues that governments’ ownership of banks is important to help under-developed financial sectors finance socially desirable but economically unattractive long-term projects. It allows governments to intervene in resource allocation by channelling financial resources to specific sectors which help them achieve their long-term development plans. The political view on the other hand argues that by controlling financial flows, governments politicize the allocation of resources thus allowing them to channel the funds to their cronies, which are not necessarily the most efficient users of such resources.

La Porta et al. (2002) supported the political view and argued that government ownership of banks retards financial sector development. Their conclusions were used by the Bretton Wood institutions as evidence to support their recommendations to governments, especially in the developing world, to privatize their banks. However this view was challenged when recently, the financial crisis started and hit harder countries such as the US and the UK where government ownership of banks was almost non-

existent. So questions were again raised as to whether the main culprit is government ownership of banks or other more serious causes such as poor bank regulation and supervision.

The first chapter of this thesis contributes to this debate. With a closer examination of La Porta et al. (2002) results, we discover that they suffer from omitted variable bias. Using their own dataset and controlling for variables that the literature has found to influence financial development i.e. quality of institutions and financial reforms, we find that, contrary to La Porta et al. (2002), government ownership of banks is not linked to poor subsequent financial development and that this relationship may actually be positive. We also find that there is a strongly and positively significant relationship between financial development and institutional quality as measured by corruption control and bureaucratic quality. Furthermore, our results show that countries that have undertaken financial reforms and strengthened their institutions are the ones that have experienced higher financial development. These results were found after accounting for possible endogeneity and they are robust to different econometric approaches as well as various measurements of institutional quality and financial development.

Another very important contribution of this chapter to the literature is the use of a newly constructed dataset covering the 2001-2011 period to verify the robustness of results obtained using La Porta et al. (2002) data. Again accounting for endogeneity, and broadening the definition of financial development, we find that government ownership of banks does not lead to poor financial development. If there is any relationship between government ownership of banks and financial development, it is actually positive.

1.1.2 The impact of Official Development Assistance on financial sector development: A theoretical model.

For the last six decades official development assistance (ODA) or foreign aid, has consistently been the largest source of external financing for the development of least developed countries. Foreign aid has been promoted as one of the main tools for eradicating poverty and promoting economic growth in those countries.

Surprisingly, despite decades of research and debate, there is little conclusive empirical evidence in support of growth enhancing effects from foreign aid. Some studies have found neutral effects (Boone, 1996; and Easterly, 2005), others have argued that aid can only be growth enhancing under certain conditions such as good macroeconomic policies (Burnside and Dollar, 2000) and favourable structural characteristics (Dalgaard et al., 2004; Hansen and Tarp, 2001). However, others have found that foreign aid has growth depressing effects, creates dependence mentality and leads to corruption and other poor governance outcomes in the same way as unearned natural resources (Djankov et al., 2008; Nager, 2013).

The third chapter of this thesis contributes to the literature by introducing a new debate in the ODA-financial development- democracy nexus. We propose a three-player (government, firm and citizens) theoretical model that predicts a negative relationship between foreign aid and financial development. The model intuitively demonstrates how by promoting incentives for rent-seeking, foreign aid weakens contract enforcement institutions, making owners of capital reluctant to lend their funds out to potential investors as their chances of getting reimbursed are minimal. This leads to poor financial development outcomes as the financial markets fail their most important role of intermediating society's savings and allocating them to their best uses. Our

model also predicts that in aid recipient's countries with weak political institutions, foreign aid revenues may reduce the government efforts to collect taxes.

1.1.3 Official Development Assistance and Financial Development: Does democracy matter?

Inspired by the model predictions in chapter 3, the fourth chapter of this thesis empirically investigates the hypothesis whether the effectiveness of aid in promoting financial development depends on the level of democracy in recipient countries. Using annual frequencies of panel data for 37 aid recipient countries covering the 1980-2005 period we use various econometric approaches (Pooled OLS, IV 2SLS, fixed effects, Arellano Bond dynamic GMM and Blundell and Bond system GMM) to show that aid per se is negatively related to financial development, but this effect could be reduced or possibly reversed if democracy was strengthened. We use an interaction term between democracy and ODA to show that aid's effect on financial development is conditioned by the quality of democratic institutions. We show that ODA is harmful to financial development when given to autocracies and becomes more harmful the more autocratic a country becomes. This study's results show that aid is effective in promoting financial development when given to countries with strong democratic institutions. The results are robust to changes in measurements of democracy and financial development. They are also robust to using 4-year averaged data.

1.1.4 The impact of foreign capital inflows on credit availability in developing countries

The fifth chapter of this thesis is an empirical investigation of the hypothesis that different types of foreign capital inflows have different impacts on credit availability in developing countries. The chapter starts by presenting a theoretical framework showing the channels through which international capital inflows impact on private credit. The

theoretical framework combines the understanding of these channels from both the gap models (Bacha, 1990) and the loanable funds models.

Then the hypothesis is empirically tested using 5-year average data for 53 developing countries covering the 1990-2013 period and disaggregating international capital inflows into their main five types namely Foreign Direct Investment (FDI), debt securities, equity securities, remittances and Official Development Assistance (ODA). Our analysis applies different econometric techniques including OLS, fixed effects, dynamic GMM and system GMM.

This chapter's results show that there is a positive and statistically significant relationship between private and profit fetching capitals inflows i.e. FDI, debt and equity and private credit in developing countries while remittances and ODA are not significant determinants of private credit in developing countries. These results are in line with a bulk of previous studies and are robust to changing the measure of private credit. They are also robust to using different estimation techniques.

1.2 Organisation of the thesis

This thesis consists of four main chapters: chapters two, four and five are empirical while chapter 3 is theoretical. A review of relevant literature is provided in each of the chapters. Chapter 6 is a summary of the conclusions of the overall study.

Chapter 2 investigates the hypothesis that government ownership of banks leads to subsequent unsoundness of banks. The methodology involves initially using La Porta et al. (2002) dataset and then using a newly constructed dataset as well as applying various econometric approaches and conducting various robustness checks.

Chapter 3 presents a theoretical model explaining how democracy enhances the effectiveness of ODA in promoting financial development, while the lack of it makes a

marginal increase in ODA lead to greater corruption which results in poor financial development as owners of capital become reluctant to lend it out.

Chapter 4 empirically investigates the hypothesis that the effects of ODA on financial development are influenced by the level of democracy in recipient countries. It employs various econometric approaches and performs a number of robustness checks.

Chapter 5 starts by using the understanding of the gap model and the loanable funds model to derive a simple theoretical framework showing the channels through which foreign capital inflows may impact on private credit. Then we empirically test the hypothesis that different types of foreign capital inflows have different effects on credit availability in developing countries. This chapter employs various econometric approaches and performs a number of robustness checks.

Finally, chapter 6 summarises the conclusions of the whole study, gives policy recommendations and suggests further research.

Chapter 2

Does government ownership negatively affect soundness of banks? New evidence

2.1 Introduction

Despite the wave of bank privatization in the 70-80's, recent studies have shown that government ownership of banks is still significant throughout the world. According to La Porta, Lopez-de-Silanes and Shleifer (2002), hence forth called LLS, the world mean of government ownership of banks in 1970 was 58.9% while it only reduced to 41.6% in 1995. They also emphasized that government ownership of banks was more common in poor countries with poorly protected property rights. Most importantly, they argued that every 10% reduction in government ownership of banks would lead to a 0.24 % point increase in annual economic growth. The LLS conclusions were used by Bretton Wood institutions as evidence to support their recommendations to developing countries that privatising their banks would lead to healthier financial sectors and higher economic growth. However, this view became somehow questionable after the 2008 financial crisis with countries like the UK and US, where government ownership of banks was almost non-existent, taking over majority ownership in most of affected banks through bailout. This situation has brought back to the fore front the discussion of knowing whether government ownership of banks per se negatively affects their subsequent soundness and development. This paper contributes to this debate. Our main argument is that, contrary to LLS conclusions, government ownership of banks is only a scapegoat for a bigger problem of poor governance and ineffective or weak institutions as well as poor or lack of financial reforms.

This study builds on LLS paper. We initially use their dataset before using our own constructed dataset. Our first contribution to the debate resides in demonstrating that LLS results are fragile to controlling for variables that the literature has demonstrated to be fundamental determinants of soundness of banks and financial sector development but which LLS omitted to use. To their OLS regressions we add institutional quality variables such as control of corruption or bureaucratic quality from their own dataset. We also add the financial reform index from Abiad et al. (2008).

The positive correlation that arises in a cross-country relationship between government ownership of banks and financial crises frequently reflects reverse causality. Similarly, reverse causality between institutional development and financial sector development cannot be ruled out. Thus, our second contribution resides in accounting for possible endogeneity by using various instrumental variable approaches, while LLS based their conclusions on OLS regressions only.

Furthermore, we conduct various robustness checks including using various econometric estimation methods (OLS, IV 2SLS, LIML, heteroscedasticity robust GMM, iterative GMM, and IVREG2), different measures of institutional quality as well as various measures of soundness of banks. We find that in many cases, government ownership of banks is not a significant determinant of their subsequent soundness and in case where that relationship exists especially when we define soundness of banks in terms of loan availability, it is significantly positive. Moreover, financial reform and strong institutions are consistently found to be statistically and significantly linked to a strong banking sector.

The third and main contribution of this paper lies in using a recent dataset from 2001-2011 and broadening our definition to focus on financial development rather than soundness of banks' balance sheets to test the validity of our results. Our findings

confirm our hypothesis that government ownership of banks is not negatively associated with subsequent financial development while strong institutions and financial liberalization are associated with greater subsequent financial development. These results are robust to various measurements of financial development and institutional quality as well as different econometric approaches.

The paper is structured as follows: Section 2.2 discusses the two main views of government ownership of banks, i.e. the development view (with its associate social view) and the political view (with its associate agency view). Section 2.3 gives an overview of the literature about the determinants of financial instability and the role of government ownership of banks. Section 2.4 discusses our methodology which also involves description of our data, their sources and our econometric model. Section 2.5 presents the results of our analysis using LLS dataset with our added variables. Section 2.6 introduces our new dataset (covering the period 2001-2011), describes our new variables and their sources and presents our new results. Finally, section 2.7 concludes.

2.2 Development vs political view of government ownership of banks

In exploring the impact of government ownership of banks on economic performance, two competing hypotheses offer contradictory predictions. These are the political/agency view and the development/ social view.

2.2.1 Development view

The development view was largely advocated by Gerschenkron (1962). This view purports that government ownership of banks is necessary to enable government to both collect and direct savings towards strategic projects. This allows the government to overcome institutional failures that undermine private capital markets, and to generate

aggregate demand and other externalities that foster growth. Thus banks ownership allows the government to jump starting both financial and economic development. Indeed, investigating how bank ownership influenced credit supply during the recent financial crisis in Russia, Fungáčová et al. (2013) demonstrated that although there was an overall reduction in lending, state-owned banks' reduction was far less than the one by privately owned banks. This reinforced the feeling that in economic downturn periods, government owned banks may bolster their lending and as such better support the economy.

Other economists who support this view include Lewis (1950) and Myrdal (1968) who advocated for nationalization; Andrianova et al. (2012) who used the circular city model to show that when contract enforcement in the private sector is weak, government owned banks are more effective in mobilizing savings than the privately owned ones. Furthermore, Andrianova et al.(2009:15) demonstrated that actually government ownership of banks is associated with subsequent economic growth and advocated for the government owned banks to continue to play their developmental role both in developed and developing worlds by “containing extreme moral hazard behaviors” that are thought to be at the origin of the current financial crisis. Andrianova et al. (2012:463) used data for 128 countries for the period 1995-2007 to conclude that “...conditioning on other determinants of growth, countries with government owned banks have, on average, grown faster than countries with no or little government ownership of banks.”

Using data for 225 banks from 11 transition economies, Bonin et al. (2004) showed that privatization by itself is not enough to increase bank efficiency as government owned banks are not appreciably less efficient than domestic private banks. Similarly, in their study on the German banking market, Altunbas et al. (2001:21) did

not find enough evidence to suggest that privately owned banks are more efficient than public ones but concluded that “inefficiency measures indicate that public banks have slight cost and profit advantage over their private sector competitors”. Moreover, Detragiache et al. (2005) use data for 89 low and lower middle income countries and find that public ownership of banks is associated with more subsequent efficient banking sector and a better deposit mobilization even after controlling for market size and concentration.

Close to this view, there is the social view which is based on the economic theory of institutions, suggesting that whenever the social benefits of state-owned enterprises (SOEs) exceed the costs, state-owned enterprises are created to address market failures (Atkinson and Stiglitz, 1980). According to this view, SOEs in general and government owned banks in particular contribute to economic development and improve general welfare by compensating for market imperfections that leave socially desirable projects underfinanced (Stiglitz, 1993).

In brief, the advocates of state ownership of banks advance the following reasons: first, maintaining the safety and soundness of the banking system; second, mitigating market failures due to the presence of costly and asymmetric information; third, financing socially valuable (but financially unprofitable) projects; and finally promoting financial development and giving access to competitive banking services to residents of isolated areas.

2.2.2 Political view

On the other hand, the political view of government ownership of banks suggests that politicians prefer governments to own banks because this enables them to direct credit and favors, helping them to attract votes, political contributions and bribes in return. The consequence is a vicious cycle of bad economic decisions and re-election of

corrupt politicians (Kornai, 1979). According to this view, government ownership of banks leads to economic inefficiency by politicizing the allocation of resources, enabling it to finance projects that are politically desirable but economically unviable. Other economists who support this view include (Khwaja and Mian, 2005; Faccio, 2006; Claessens et al., 2008) who argue that, although politically connected firms are less likely to repay their loans, they receive larger loans from state banks and pay interests rates that are comparable to those paid by non-politically connected firms that are otherwise more likely to pay back their loans. In the same vein, analyzing the political influence on state-owned banks in Germany, Vins (2008) used data on 457 banks from the period 1994-2006 and information on 1,250 local elections to show that savings banks give significantly more loans to their corporate and private customers in the run up to an election and the probability that they lay off staff, close branches or engage in merger activity is significantly reduced in the approach of an election. Similarly, Cole (2007) showed that agricultural lending in India increases by 10% during election years and it is mostly directed to close constituencies. This argument was reinforced by Perotti and Vorage (2010) who used a theoretical model to show that politicians prefer private ownership when accountability is high.

Very close to the political view, is the agency view which, while recognising the existence of market imperfections that may justify the creation of SOEs, highlights the fact that agency costs within government bureaucracies may more than offset the social gains of public ownership. Among economists who support this view there is Banerjee (1997) who developed a theoretical model showing why government bureaucracies are usually associated with red tape, corruption and lack of incentives; Shleifer and Vishny (1994), Shleifer (1998) who see SOEs as a means for politicians to transfer resources to their cronies.

The political view gained prominence in a well-known paper “Government Ownership of Banks”, by LLS. They used data on ownership of banks for 92 countries and concluded that government ownership of banks in 1970 led to subsequent unsoundness and fragility of the banking sector. They suggest that a 0.24 % point increase in annual economic growth would result from every 10% reduction in government ownership of banks. They further argue that a 10% point increase in government ownership leads to an annual reduction of 0.1% in productivity growth.

Their conclusions were used by the Bretton Wood institutions as evidence to support their recommendation to different governments especially in the developing world to massively privatize their banks, in order to pave way for a sound banking sector seen as a very important driver of economic development. For instance the World Bank (2001:127) basing on LLS regressions said of Bangladesh that “... had the share of government ownership in Bangladesh been at the sample mean (57 %) throughout the period from 1970 instead of at 100 %, annual average growth would have risen by about 1.4 %, cumulating to a standard of living more than 50 % higher than it is today”. In the same report (p 123), the World Bank refers to LLS and argues that “research shows that, whatever its original objectives, public ownership tends to stunt financial sector development, thereby contributing to slower growth”.

However a closer look at the LLS paper reveals that their results suffer from omitted variable bias. While the literature suggests that the main determinants of financial stability include financial reforms and political and legal institutions (Beck et al., 2003; Chinn and Ito, 2006; McDonald and Schumacher, 2007; Roe and Siegel, 2009), the econometric analysis that led to LLS conclusions does not take them into account. In addition, while they find a strong correlation between government ownership of banks and other factors that influence growth such as the rule of law,

protection of property rights and tax rate, the inclusion of these factors in their regression model makes the coefficient on government ownership statistically indistinguishable from zero.

In this chapter, we conduct the same analysis as LLS paying due regard to those two determinants of soundness of the financial sector. We find that in presence of good quality institutions and financial reforms not only, government ownership of banks is not negatively correlated with subsequent soundness of banks but in fact, it may be positively associated with greater financial development and stability. However, before conducting our analysis, it is important to explore the determinants of financial instability by looking at the evidence from the literature.

2.3 Determinants of financial instability and the role of government ownership of banks: A brief literature review

Defining financial instability has proven a difficult task for economists. For the purpose of this study, we will refer to financial instability in general terms as stipulated by the following two definitions. Allen and Wood (2006:159) define financial instability as “episodes in which a large number of parties, whether they are households, companies or (individual) governments, experience financial crises which are not warranted by their previous behaviour and where these crises collectively have seriously adverse macro-economic effects”. On the other hand, in his definition, Mishkin (1999:6) emphasizes the intermediation role of the financial system in providing credit to the real sector and states that “financial instability occurs when shocks to the financial system interfere with information flow so that the financial

system can no longer do its job of channelling funds to those with productive investment opportunities”.

To our knowledge, apart from the attempt by LLS, no study has so far clearly established a direct association between government ownership of banks and the prevalence of financial crisis. Most actually do not even mention it as a cause. Studying the determinants of financial instability, Eichengreen (2004) singled out the following four main causes i.e. firstly unsustainable macroeconomic policies including monetary, fiscal and exchange rate policies; secondly fragile financial systems including inadequate prudential supervision, insufficient capital base, and poor risk management; thirdly institutional weaknesses and finally flaws in the structure of the international financial markets.

In many studies, financial liberalization is seen as an important cause of financial crisis. For instance, in the aftermath of the Asian crisis, Stiglitz (1989) wrote that financial and capital market liberalization which was done hurriedly before putting in place effective regulatory framework was the cause of the crisis. Caprio and Summers (1993), Hellmann et al. (2000) show that financial liberalization tends to make banking crises more likely because it leads to increased moral hazard. This moral hazard is often attributed to low bank franchise value that results from liberalization.

This argument was supported by Demirgüç-Kunt and Detragiache (1998) who analyzed the empirical relationship between banking crises and financial liberalization in a panel of 53 countries for the period 1980–95 and concluded that banking crises are more likely to occur in liberalized financial systems. On the other hand, Demirgüç-Kunt and Detragiache (1997) used data for 65 countries for the period 1980-1994 to show that a weak macroeconomic environment i.e. low GDP growth, high inflation, high real

interest rates, vulnerable balance of payments as well as the existence of deposit insurance and inefficiency in law enforcement are likely to lead to financial crisis.

Poor financial regulation and supervision can also lead to financial instability. In fact the literature seems to be in agreement that the latest financial crisis mainly came as a result of poor financial sector regulation. According to Andrianova et al.(2010) in the last two decades the poorly designed Basle approach towards financial regulation has allowed for regulatory capture in financial markets rendering banking regulation and supervision ineffective. Regulation and supervision were slow to catch up with new developments, in part due to political processes and capture, and failed to restrict excessive risk-taking. In the shadow banking system in particular but also at large, internationally active banks were permitted to grow without much oversight, leading eventually to both bank and nonbank financial instability (Wellink, 2009).

In brief, various studies have identified the main determinants of financial instability as macroeconomic shocks, poor bank management, sharp increase in short-term interest rates, exchange rate regime, lending booms, currency mismatches, inappropriate incentive structure such as the existence of ill-designed deposit insurance schemes, financial liberalization, weak institutions and inadequate legal infrastructure and external economic conditions (Caprio et al., 2000).

As earlier mentioned, LLS is the first paper to purport a direct link between government ownership of banks and financial sector instability. However, despite the existence of a large literature on the relationship between government ownership and economic performance as shown above, the discussion about the relationship between government ownership of banks and financial sector instability is not abundant. This debate is far from reaching a consensus to the point that even some respectable economists such as Barth, Caprio and Levine arrive at contradicting conclusions in their

different works. For instance Barth et al.(2004) using a dataset on bank regulation and supervision in 107 countries to assess the relationship between specific regulatory and supervisory practices and banking-sector development and fragility concluded that, after controlling for bank regulation, there is no correlation between state ownership of banks and financial instability. On the other hand Barth et al.(2000) used a sample of 59 developed and developing countries and found a negative relationship between state ownership and financial depth as measured by the ratios of bank and non-bank credit to the private sector over GDP, and by the value of securities traded domestically. In support of LLS, Caprio and Peria (2000) used the LLS data on government ownership of banks in a sample of 64 countries and found that greater government ownership does increase the likelihood of banking crises, although their model does not control for important institutional factors such as the rule of law, property rights, and government efficiency. In addition the finding that higher government ownership of banks increases the costs of banking crises is not statistically significant, and according to the authors themselves, is subject to significant difficulty in measuring the costs of crises.

All the above studies agree that government ownership of banks is more prevalent in poor countries with poor institutions, a situation that is prone to crisis by itself. The fact that they fail to control for this situation may justify why they all find a weak but positive causal relationship between the state ownership and financial instability.

Furthermore, this discussion seems more complicated because although financial instability may result from different factors including government ownership as per LLS and others, government ownership of banks may also come as a result of financial instability especially when there is a financial crisis and the government has to intervene to save the affected banks. So the direction of the relationship has always been a problem. The 2008 crisis has reinforced the pro-government ownership opinion by

exposing the failure of regulation as well as the opportunistic behavior of some private bankers who undertook too much risk to maximize their own selfish profits (Blundell-Wignall et al., 2009). This view is held by many economists including Shortland (2012) who says “the positive correlation that arises in a cross-country relationship between government ownership of banks and financial crises frequently reflects reverse causality: private banks that fail end up under government ownership because no other investor would buy them, and the political costs to governments of allowing banks to fail are often too high. Moreover, the financial crises that precede government takeovers of banks are normally followed by a severe recession, or at least slow economic growth. To ascribe the blame to governments is like arguing that hospitals are the causes of ill health because they are associated with illness. To claim that government banks should be privatized on the basis of such evidence is like arguing that by closing down hospitals you can improve the health of the general population”.

Similarly, analyzing the effect of ownership structure on financial stability in Germany, Beck and Demirgüç-Kunt (2009) used bank level data for 3,810 banks covering the period 1995-2007 and concluded that savings banks (government owned) are more stable than private banks. In the same vein, Barth et al. (2006) demonstrated that less accountable countries have more restricted bank entry and more constrained access to finance but concluded that there is no correlation between state ownership of banks and financial instability. Furthermore, Garcia and Fernández (2008) use a dynamic panel data model to analyse the risk taking behaviour of Spanish banks and find that Spanish commercial banks are less stable than Spanish savings banks that are government owned.

Studying the relationship between instability and bank ownership, Morck et al. (2011) find that the share of nonperforming loans and the probability of a major

banking crisis increase in the share of family owned banks, while the share of state banks is not significant. They also find that family control of the banking sector is significantly correlated with slower economic and productivity growth, greater financial instability, and worse income inequality, while state-controlled banking systems do not. In addition, according to Perotti and Vorage (2010), large banking crises are not more common in systems that are dominated by state banks. In fact, the literature shows that a move from state to private ownership of banks, especially to a few well connected owners, is often followed by financial crises. This was the case in Chile (1981), Mexico (1994), Asia (1997) and Russia (1998) where crises resulted from defaults from politically connected borrowers who received large loans from private banks (Bongini et al., 2001; Perotti , 2002).

However, Yeyati et al. (2004) draw a more cautious conclusion that while public banks generally tend to be less efficient than privately owned banks (with higher non-performing loans, more loans to the public sector, higher overheads, and lower returns) they are also deemed to be safer and as such able to pay lower rates on their deposits and extend credit at a lower rate. Although this may also happen because of subsidies that the state-owned bank receives from government, it is also important to bear in mind that a state-owned bank may not be primarily interested in making profits but in maximizing social welfare, making it difficult to compare its performance with the one of a privately owned profit maximizing bank. In fact while comparing the competitiveness of state-owned banks vis a vis private banks in Brazil, Coelho et al. (2013) find that the accounting costs associated with public banks are 46% higher than those of private ones. However, they caution that this cannot be used to conclude that public banks are worse than the private ones since their legal mandate including

promotion of credit market through product differentiation may justify why they operate at a higher cost.

Therefore it may be argued that studies that found negative relationship between government ownership and financial sector performance as opposed to the impact of private ownership may not have been comparing like with like. Alejandro et al. (2005) used data for 179 countries to find that while state-owned banks in developing countries tend to be less profitable than their counterparts in developed world, there is no strong correlation between ownership and performance for banks located in developed countries. Similarly, Wen (2010) uses data on 45 Chinese banks for the period 2003-2008 and finds no difference in performance between state-owned and privately owned banks.

Given the contradictory evidence in the literature, the debate about the relationship between government ownership of banks and subsequent financial instability is a non-settled issue. This paper is intended to contribute to that literature by using a recent dataset, controlling for various factors that have been found to contribute to financial instability and by using different econometric approaches that account for endogeneity.

2.4 Methodology, data and sources

This study seeks to investigate the hypothesis whether government ownership of banks leads to subsequent unsoundness of the financial sector. Our methodology is as follows: for comparability with LLS, we start by mainly using their dataset available at their website¹ to which we add data on financial reform from Abiad et al. (2008). After reproducing LLS results using OLS in Table 2.5, we show how they are fragile to adding corruption control (*corrupt*) and the financial reform index (*finref*) as other

¹ <http://mba.tuck.dartmouth.edu/pages/faculty/rafael.laporta/publications.html>

explanatory variables separately and then together. We then use more sophisticated econometric estimation methods to attend to endogeneity problems and conduct various robustness checks. Finally, we use the same econometric method but now construct a recent dataset covering 2001-2011. We also use 2 broader definitions of financial development (private credit and liquid liability as percentage of GDP rather than soundness of banks).

2.4.1 Data, sources and descriptive statistics

2.4.1.1 Dependent variable

Soundness of banks (*sndbks99*): As a measure of financial stability LLS (2002) used the soundness of banks indicator which they defined as the “index of world competitiveness report (WCR) assessing the soundness of banks in terms of their general health and sound balance sheets”. It was constructed by the World Economic Forum following an executive survey, where private investors were asked to answer to the question: how would you assess the soundness of banks in your country? Their answers were ranked on a 1-7 scale with 1 representing insolvent banking system that may require a government bailout; 7 meaning generally healthy banking system with sound balance sheets. We use their data measured for year 1999.

Furthermore, in their study, LLS measured different indicators of financial sector development. Among those, only loan availability (*loanav99*) refers to the year 1999 as the soundness of bank indicator. So, for robustness check, we chose also to use this variable in our study as an alternative measure of financial sector development. They describe it as an index of WCR’s assessment of the “relative easiness to obtain loans without a business plan and no collateral”. It is measured on a 1-7 scale, where higher scores indicate stronger agreement with the above statement.

Conscious that such censored scale data for one year may be subjective and may sometimes not be a good indicator of financial systems' soundness, we use it in this first part of the chapter in order to be as close and comparable as possible to LLS. In the second part of the chapter we will widen the definition and use proper measures of financial development.

2.4.1.2 Explanatory variables

In their OLS, LLS basically regressed the soundness of banks variable (*sndbks99*) on the left hand side and the explanatory variables GB70 (*gbbp_70* i.e. share of the assets of the top 10 banks in a given country owned by the government of that country in 1970), log GDP per capita in 1960 (*logy60f* expressed in current USD in 1960), and initial private credit/GDP (*prif_i60*) on the right hand side. The initial private credit/GDP (*prif_i60*) is defined as the value of credits by deposit money banks and other financial institutions to the private sector divided by GDP in 1960. It excludes credit issues by the central bank, credit to the public sector and cross-claims of one of the group of intermediaries to another. We use the same data for these variables.

In their dataset, LLS collected data on government efficiency indicators including corruption control from the Political Risk Services (1996) dataset. Their corruption index (*corrupt*) is scaled from 0-10 with low ratings indicating that “high government officials are likely to demand special payments” and “illegal payments are generally expected throughout lower levels of government” in the form of “bribes connected with import and export licenses, exchange controls, tax assessment, policy protection, or loans”. Then they did an average of the months of April and October of the monthly index between 1982 and 1995. They also gathered data on the bureaucratic quality index (*bqualitt*) which they got from the same source and used the same methodology to construct i.e. scaled from 0-10 with higher scores indicating greater government

efficiency. However, despite the large consensus in literature that poor institutional quality/ poor governance is detrimental to growth (Knack and Keefer, 1995; Acemoglu et al., 2001; Rodrik et al., 2004), they chose not to control for it.

As above discussed, *financial reform (finref)* is an important determinant of financial stability. We use the financial reform index from Abiad et al. (2008). This index is made of seven dimensions of financial reforms i.e. credit control (including aggregate credit ceilings and reserve requirements), interest rate liberalization, banking sector entry, capital account transactions, privatization, securities markets and banking sector supervision. Each dimension has various sub dimensions. Based on the score for each sub dimension, each dimension receives a ‘raw score’ which is then normalized to a 0-3 scale. That is, fully liberalized = 3; partially liberalized = 2; partially repressed = 1; fully repressed = 0. Then all the 7 indicators are added together making an index scaled from 0-21 which is then normalised to take values between 0 and 1.

We chose data for 1995 following Demirgüç-Kunt and Detragiache (1998) who, studying the determinants of banking crises in 53 countries concluded that the effect of financial liberalization is not immediate and is felt on average after 3-4 years. Thus, since we wanted to measure its effect on soundness of banks in 1999, we used our financial reform index for 1995. Our index is better than most of those used in previous studies because it combines all possible dimensions of financial reform, while most of previous studies used one or a few dimensions.

Other variables used in our study which are from LLS dataset include: *coups_av* described as the number of extra constitutional or forced changes in the top government elite and/or its effective control of the nation's power structure in a given year. Unsuccessful coups are not counted. The data covers the 1960-1980 period. Then *lat_abst* i.e. the absolute value of the latitude of the country, scaled to take values

between 0 and 1. Finally, legal origin has been found to be an important determinant of the type of institutions in different countries (La Porta et al., 1997, 1998; Mahoney, 2001). Therefore, we also used a dummy variable *comlaw* from LLS dataset which takes values of 1 if we have common law and 0 if we have civil or socialist legal systems.

2.4.1.3 Descriptive statistics

In Table 2.1 we summarize the variables. *Sndbks99* has a mean value of 4.59, with a minimum value of 1.74, a maximum value of 6.66 and a standard deviation of 1.45. Control of corruption i.e. *Corrupt* has a mean value of 5.65, with a minimum value of 0.17 and a maximum value of 10 with a standard deviation of 2.29 and data is available for 126 countries. Data on *gbbp_70* shows a mean value of 0.58, with a minimum of 0 and a maximum of 1. Financial reform (*finref*) has a mean value of 0.62 with a minimum value of 0.09 and a maximum of 1.

Table 2.1 Summary of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>sndbks99</i>	59	4.59	1.45	1.74	6.66
<i>corrupt</i>	126	5.65	2.29	0.17	10
<i>logy60f</i>	91	5.85	0.98	3.93	8.67
<i>prif_i60</i>	89	0.24	0.22	0	1.29
<i>finref</i>	87	0.62	0.21	0.09	1
<i>gbbp_70</i>	92	0.58	0.35	0	1
<i>coups_av</i>	146	0.04	0.16	0	1
<i>lat_abst</i>	209	0.28	0.18	0	0.8
<i>comlaw</i>	212	0.34	0.47	0	1

In Table 2.2 we show the correlation between variables. The correlation between control of corruption (*corrupt*) and *logy60f* is 0.82. This makes sense, since in general, those countries that fight corruption are deemed to grow faster. The negative correlation

between *corrupt* and *gbbp_70* on the one hand and between *finref* and *gbbp_70* on the other, suggest that countries where a big fraction of banks was in the hand of the government in the 70s are the same that continued to resist financial reform and control of corruption. This is in line with the literature. The correlation between *logy60f* and *finref* is 0.56. By looking at these correlations, one may suspect that there may be a problem of multicollinearity. Although OLS estimates are BLUE in presence of multicollinearity, it becomes difficult to reject the null because confidence intervals for coefficients tend to be very wide while t-statistics tend to be very small, so that coefficients will have to be larger in order to be statistically significant. That is why we conducted the collinearity diagnostic test using the Philip Ender's method. The rule of thumb is that if VIF (variance inflation factor) is greater than 10, then we should conclude that there is collinearity. In our case as shown in Table 2.3, all the VIFs are far less than 10 which lead us to conclude that there is no collinearity between our variables.

Table2. 2 Correlation between variables

	sndbks99	corrupt	logy60f	prif_i60	finref	gbbp_70	coups_av	lat_abst	comlaw
sndbks99	1								
corrupt	0.67	1							
logy60f	0.69	0.82	1						
prif_i60	0.29	0.48	0.37	1					
finref	0.56	0.48	0.56	0.24	1				
gbbp_70	-0.38	-0.46	-0.38	-0.17	-0.60	1			
coups_av	-0.29	-0.36	-0.30	-0.19	-0.02	0.09	1		
lat_abst	0.56	0.69	0.65	0.44	0.48	-0.23	-0.06	1	
comlaw	0.26	0.24	0.12	-0.26	0.09	-0.51	-0.19	-0.07	1

Table 2.3 Test for multicollinearity

Variable	VIF	SQRT VIF	Tolerance	R-Squared
corrupt	2.65	1.63	0.3768	0.6232
logy60f	2.45	1.57	0.4082	0.5918
prif_i60	1.43	1.19	0.7005	0.2995
finref	2.30	1.52	0.4355	0.5645
gbbp_70	1.67	1.29	0.5999	0.4001
Mean VIF	2.10			

In Table 2.4, we show the correlation between our endogenous variable *corrupt* and our instruments. The correlation between control of corruption *corrupt* and *lat_abst* is strikingly positive at 0.66. This is also in line with the literature, according to which countries in tropical areas are more likely to have poor institutions.

Table 2.4 Correlation between the endogenous (*corrupt*) variable and instruments

	corrupt	coups_av	lat_abst	comlaw
corrupt	1.00			
coups_av	-0.21	1.00		
lat_abst	0.66	-0.10	1.00	
comlaw	-0.03	-0.11	-0.22	1.00

2.5 Empirical model and econometric analysis

2.5.1 Empirical model

Our general model is the same as the one used by LLS i.e.

$FD_{99} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \varepsilon$ where FD_{99} is the measure of soundness of banks in 1999 and $X_1, X_2 \dots X_n$ are explanatory variables. ε is the error term. Specifically, LLS model is as follows:

$sndbks_{99} = \beta_0 + \beta_1 gbbp_{70} + \beta_2 logy60f + \beta_3 prif_{i60} + \varepsilon$ where $sndbks_{99}$ is the soundness of banks in 1999, $gbbp_{70}$ is government ownership of banks in 1970, $logy60f$ is log GDP per capita in 1960 expressed in current USD in 1960, and $prif_{i60}$ is the initial private credit/GDP. We will use the same model and add two other variables i.e. *finref* (financial reform index in 1995) and *corrupt/bqualitt* (control of corruption/bureaucratic quality) as explained above. So our model will be as follows:

$$sndbks_{99} = \beta_0 + \beta_1 gbbp_{70} + \beta_2 logy60f + \beta_3 prif_{i60} + \beta_4 corrupt + \beta_5 finref + \varepsilon$$

The main critique to this model is that it looks like an ad hoc mix of data for different and sometimes very distant years. Although it may be argued that countries which had better private credit to GDP ratios or higher GDP growth rates in the 60s may have benefited from that solid base to promote their financial development in later years, this cross-section model could be criticized for just combining single year observations (and measured for different years) to explain soundness of banks in 1999 i.e. almost 30 or 40 years later. However, as one of the objectives of this study is to show how fragile LLS results were despite their huge popularity, we adopted the same method to ensure comparability between our results and theirs.

2.5.2 Econometric analysis

We use various econometric methods. For comparability with LLS we first use the OLS regressions. To account for possible endogeneity we then use instrumental variables 2SLS, GMM, and IVREG2. We further use another version of IV namely LIML (Limited Information Maximum Likelihood) which is credited to have an advantage of working well even when instruments are weak. Our endogenous variable is control of corruption (*corrupt*) as a measure of institutional quality while our instruments are *coups_av*, *lat_abst* and *comlaw* described above. We chose these instruments in line with the literature. *Lat_abst* was chosen following Acemoglu et al. (2001) who demonstrated that the disease environment that faced the settlers from colonial powers played a crucial role in shaping the nature of institutions in those colonies. They suggested that the inhospitable character of tropical areas led to settlers opting for extractive institutions. It is reasonable to assume that this geographical parameter can only influence the financial sector soundness through institutions. It shows the absolute distance of a country from the equator. The closer to the equator countries are, the more tropical climate they have. *Comlaw* dummy (takes value of 1 if

the legal origin is British and 0 otherwise) was also chosen following the literature including La Porta et al. (1997, 1998) who argue that the origin of the legal code directly determines the way shareholders and creditors are treated as well as the level of contract enforcement. According to them, countries with a British legal origin tend to be less corrupt and protect the property right better than those with legal systems of French origin. Thus we believe that legal origin affects financial development through institutional quality. As for the average of coups *coups_av* instrument, we followed Barro (1991) who used an objective count of instances of political instability such as coup d'état to proxy the threat to property rights.

In addition, we conducted three further tests namely test of endogeneity, test for weak instruments and the Hansen's test of over identification restrictions.

2.5.3 Empirical results

2.5.3.1 Fragility of LLS results

In Table 2.5a, model LLS, we reproduce the LLS regression and obtain the same results. In the same table, in model OLS1 we add *corrupt* to LLS' OLS regression. Government ownership immediately loses its significance and R^2 increases by 10 % (from 0.43 to 0.53). Its coefficient's magnitude changes downward from -1.242 to -0.458 i.e. a staggering 63% change. *Corrupt* becomes positive and significant at 5%. By adding *bqualitt* in the regression (in model OLS2), *gbb_70's* significance vanishes and R^2 increases from 0.43 to 0.51. *Bqualitt* becomes positive and significant at 5%. The coefficient of *gbb_70* changes in magnitude from -1.242 to -0.495 i.e. a 60% change downward. This trend is maintained if we use other governance indicators such as rule of law index, tax compliance index, property right index, etc., suggesting that governance has more impact than ownership. Since *corrupt* is highly correlated with all the above governance variables (0.821 with *bqualitt*, 0.801 with rule of law and 0.735

with contract repudiation index), we chose to use *corrupt* as a proxy variable for governance in our OLS and IV regressions. Similarly, if we introduce *finref* alone in the LLS regression (Table 2.5a, model OLS3), *gbbp_70* loses its significance and its coefficient's magnitude changes from -1.242 to -0.411. R^2 increases from 0.4387 to 0.51. When we put all our variables in a regression at the same time (Table 2.5a model OLS4), *gbbp_70* becomes positive but not significant and the magnitude of its coefficient drops dramatically to 0.092 from 1.242 as by the LLS model. Both *corrupt* and *finref* become significant at 10% and 5% respectively while R^2 increases from 0.43 to 0.56 i.e. a staggering 13% increase. Standard errors are not very different from the LLS model. The downside of adding these two variables is that the number of observations drops from 54 to 47. Thus, to make sure that our results are not driven by the changes in the sample, we run the same regressions on the same sample made of 47 countries. Results are presented in table 2.5b and they are comparable to the ones obtained in table 2.5a

Table2.5a: LLS regression and its fragility: dependent variable is soundness of banks

	LLS	OLS1	OLS2	OLS3	OLS4
gbbp_70	-1.242** (0.521)	-0.458 (0.438)	-0.495 (0.455)	-0.411 (0.615)	0.092 (0.565)
prif_i60	0.382 (0.479)	0.029 (0.461)	0.296 (0.477)	0.666 (0.421)	0.070 (0.465)
logy60f	0.752*** (0.156)	0.531** (0.232)	0.765*** (0.233)	0.746*** (0.191)	0.416 (0.285)
corrupt		0.216** (0.105)			0.211* (0.114)
bqualitt			0.076** (0.037)		
finref				1.675 (1.027)	1.937** (0.899)
Constant	0.584 (1.121)	0.209 (1.049)	-0.282 (1.093)	-1.057 (1.212)	-0.772 (1.236)
Observations	54	51	51	48	47
R-squared	0.43	0.53	0.51	0.51	0.56

Note: Robust Standard errors in parentheses , * p<0.10, ** p<0.05, *** p<0.01

Table 2.5b: LLS regression and its fragility: dependent variable is soundness of banks. A common sample with 47 countries

	LLS	OLS1	OLS2	OLS3	OLS4
gbbp_70	-0.630 (0.504)	-0.444 (0.487)	-0.544 (0.517)	-0.193 (0.582)	0.092 (0.565)
prif_i60	0.558 (0.466)	0.216 (0.488)	0.508 (0.456)	0.490 (0.422)	0.071 (0.465)
logy60f	0.957*** (0.15)	0.644** (0.282)	0.892*** (0.253)	0.812*** (0.182)	0.416 (0.285)
corrupt		0.176* (0.101)			0.211* (0.114)
bqualitt			0.039* (0.021)		
finref				1.694* (0.999)	1.937** (0.899)
Constant	-0.923 (1.064)	-0.264 (1.201)	-0.829 (1.163)	-1.481 (1.16)	-0.772 (1.236)
N	47	47	47	47	47
R-sq	0.51	0.53	0.51	0.54	0.57

Note: Robust Standard errors in parentheses , * p<0.10, ** p<0.05, *** p<0.01

The results in the above two tables suggest that the LLS results are fragile to addition of explanatory variables that the literature has demonstrated to be good determinants of the soundness of the banking sector i.e. the quality of institutions and financial reforms. Running the LLS regression on 47 countries as in Table 2.5b model LLS suggests that LLS results may also be sensitive to the change in sample as government ownership of banks immediately loses its significance. Our preliminary results therefore show that if institutions are strengthened and proper financial reforms are undertaken, the fact that government ownership of banks was high in 70s in any

country does not really matter for the subsequent soundness of its banking sector. This is one main contribution of this chapter.

2.5.3.2 Instrumental variables

Given the popularity that the LLS conclusions enjoyed, we perform a number of robustness checks to establish whether the LLS results still hold. The first approach was to change the methodology by applying the instrumental variable and comparing the results thereof with those from OLS. In our study, reverse causality between institutional development and financial sector development cannot be ruled out as explained above. As earlier described, control of corruption and institutional quality are measured as average of the data from 1982 to 1995 while soundness of banks refers to year 1999 only. To be close to LLS we use the same data although with knowledge that a data from a censored scale variable for one year is not an ideal measure of financial development. We assume that soundness of banks measure is persistent so that the 1999 value could affect prior corruption.

If endogeneity exists, then our OLS estimators are biased and inconsistent. The resulting regression estimates measure only the magnitude of association rather than the magnitude and direction of causation which is needed for policy decisions. Moreover, according to Cameron and Trivedi (2009), if we use IV while the variables are all exogenous, then the IV estimators although consistent, they can be much less efficient than the OLS estimators. Thus it is necessary to test for endogeneity.

We tested for endogeneity in two ways. First we used the Hausman test principle of comparing the OLS and IV estimators. According to Cameron and Trivedi (2009), if there is not much difference between the two estimators' results, then there is no need of using IV and we conclude that the variable was exogenous. Table 2.6 shows that the two estimates are very different. For instance, the coefficient for *corrupt* is 0.211 in

OLS while it is 0.601 in IV 2SLS. Similarly, the coefficient for *finref* changes from 1.937 to 2.307. The second way of testing for endogeneity is using the robust Durbin-Wu-Hausman (DWH) test of endogeneity developed by Durbin (1954) Wu (1974) and Hausman (1978) and implemented by the *estat endogenous* stata command. This test produces a robust statistic because it uses a device of augmented regressors (Davidson 2000). In Table 2.6, the DWH test shows that we reject the null hypothesis that *corrupt* is exogenous at 10 % (since $p=0.062$) and thus conclude that it is endogenous.

We also conducted the Hansen's test for over identification restriction to confirm the validity and relevance of our instruments. The best way of doing it is using the IVREG2 estimator which, if applied on over identified model, yields the optimal GMM estimator with heteroscedastic errors (Cameron and Trivedi, 2009) but has the merit of producing at the same time the Hansen's J test and the Anderson Canon likelihood ratio statistic as proposed by Anderson (1984) and discussed in Hall et al. (1996). Our results in Table 2.6 show that Hansen's J $\chi^2(2) = 0.745$ ($p = 0.689$). Given that our $p > 0.05$ we do not reject the null hypothesis and conclude that our over identifying restriction is valid. Our test statistic is $\chi^2(2)$ distributed because we have $3-1=2$ over identifying restrictions. The Anderson Canon LR statistic has a p-value of 0.003 and as such it rejects the null hypothesis at 1% suggesting that our instruments are valid.

The IV 2SLS results are presented in Table 2.6 as model TwoSLS. *Corrupt* and *finref* are both significant at 1% and *gbbp_70* is positive and not significant. The coefficients obtained from IV 2SLS are very different from those obtained from OLS. As expected when we compare the precision between OLS and IV 2SLS, standards errors increase but in our case they do not increase dramatically even decreasing for *finref*.

Then we used the heteroscedasticity robust generalised method of moments (GMM.het) and the iterative GMM (iGMM) for further robustness check. GMM estimation is an extension of the class of simple IV estimators and was introduced by Hansen (1982). According to Hansen (2007), they have been widely used for the following two reasons: first because they have large sample properties that are easy to characterise in ways that facilitate comparison and secondly they can be constructed without specifying the full data generating process (which for instance would be necessary to write down the maximum likelihood estimator). Finally, according to Baum et al. (2003) the GMM is seen to be more efficient than the IV 2SLS estimator especially when the error term is heteroscedastic, while even in absence of heteroscedasticity, GMM is asymptotically better.

The GMM results are presented in Table 2.6 as model GMM-het. As with IV 2sls, *corrupt* and *finref* are both significant at 1% and their coefficient are not very different from those from IV2sls estimator. Here again *gbbp-70* is positive and not significant. Standard errors are also almost similar for the IV 2SLS model.

Hall (2005) demonstrated that there may be gains to finite-sample efficiency from using the iterative estimator. This method is a bit different from the normal GMM. The normal GMM obtains parameter estimates based on the initial weight matrix. However given that the definition of the weight matrix for the first step is arbitrary, and different choices will lead to different point estimates in the second step, the iGMM improves on this drawback by computing a new weight matrix based on those estimates, re-estimates the parameter based on that weight matrix, computes a new weight matrix, and so on, till convergence is achieved.

The results from the iterative GMM are presented in Table 2.6 as model GMM_igmm. Again *corrupt* and *finref* are significant at 1% and their coefficients are

very closely similar to those from IV 2SLS and GMM_het. Standards errors are also not very different. These results are supplemented by the IVREG2 results in model IVREG2. The user-written IVREG2 command has been described by Baum et al. (2003). It overlaps with the ivregress command but has the advantage of providing additional estimators and statistics. When it is applied to an over identified model, it yields the optimal GMM estimator when errors are heteroscedastic (Cameron and Trivedi, 2009).

To check whether our instruments are good determinants of our endogenous variable *corrupt* we used the ivregress with 2sls estimator with the option “vce (robust)” to control for heteroscedasticity errors and with the “first option” as proposed by Cameron and Trivedi (2009). The first stage regression, as in Table 2.7 shows that our instruments are good determinant of our endogenous variable and are all significant at 5%. We then conducted the test for weak instruments using the Stock Yogo (2005) test as shown in Table 2.6. The test shows that our instruments are weak since $F = 5.62506$. The rule of thumb as suggested by Staiger and Stock (1997) and supported by Stock and Yogo (2005) states that instruments are strong if the F statistics is greater than 10. The second test statistics proposed by Stock and Yogo (2005) is the minimum eigenvalue of the matrix analog of the F statistics. This statistics also shows us that our instruments are weak because our minimum eigenvalue is 4.41 while it should be greater than 13.91 with a 5% relative bias toleration.

Given that our instruments are valid as per our Hansen test results, but also cognisant that weak instruments may lead to biased IV estimators because the asymptotic identification of the equation becomes questionable, the above results led us to apply a more sophisticated method that is recommended when instruments are weak. This method is the LIML (Limited Information Maximum Likelihood) estimator as

described by Anderson and Rubin (1950). According to Pischke (2010) the LIML is asymptotically identical to 2SLS but superior as far as finite samples are concerned. It is a linear combination of OLS and 2SLS estimates with the weights depending on the data. The weights are such that they approximately eliminate the 2SLS bias.

The LIML results are presented in Table 2.6 as model LIML. As in other models previously described, *corrupt* and *finref* are significant at 1% and *gbbp_70* is positive and not significant.

Thus, across all the 5 IV models including the LIML coefficients and standard errors are almost similar. They are also comparable to the OLS estimator's results and this makes our results really robust.

Table 2.6 Instrumental variables

Dependent variable is soundness of banks. *Corrupt* measures institutional quality

	OLS	TwoSLS	GMM_het	GMM_igmm	IVREG2	LIML
corrupt	0.211* (0.114)	0.601*** (0.218)	0.635*** (0.214)	0.631*** (0.214)	0.635*** (0.207)	0.626*** (0.233)
finref	1.937** (0.899)	2.307*** (0.849)	2.247*** (0.863)	2.246*** (0.863)	2.247*** (0.844)	2.337*** (0.865)
gbbp_70	0.092 (0.565)	0.667 (0.717)	0.654 (0.717)	0.64 (0.716)	0.654 (0.706)	0.703 (0.733)
N	47	47	47	47	47	47
R-sq.	0.56	0.46	0.44	0.44	0.44	0.44
Durbin Wu Hausman test: p=0.062; Hansen J statistic (over identification test of all instruments): 0.745 Chi-sq. (2) P = 0.689; Anderson canon. corr. LR statistic (identification/IV relevance test): 13.763 Chi-sq. (3) P = 0.003; Stock and Yogo Test for weak instruments: F=5.625; Minimum Eigenvalue: 4.41 with critical value of 13.91 at 5% for 2sls relative bias.						
Note: Robust Standard errors in parentheses; * p<0.10, ** p<0.05, *** p<0.01; Controls: <i>logy60f</i> , <i>prif_i60</i> and the constant included in the regressions; Excluded instruments: <i>coup_av</i> , <i>lat_abst</i> and <i>comlaw</i> .						

Table 2.7 Validity of instrument using the first stage

corrupt	Coef.	Rob Std. Err.	T	P>t
logy60f	1.296	0.302	4.29	0.000
prif_i60	2.02	0.835	2.42	0.021
finref	-0.829	1.182	-0.7	0.487
gbbp_70	-0.67	0.695	-0.96	0.341
coups_av	-1.621	0.732	-2.21	0.033
lat_abst	3.17	1.182	2.68	0.011
comlaw	0.949	0.452	2.1	0.043

2.5.3.3 Further robustness check

Although at this point we are convinced that our results are robust, we went further to check how robust they are if we use a different measure of the soundness of banks. As mentioned earlier, in their dataset, LLS have different measures of soundness of banks. However the loan availability measure (*loanav99*) is the only one that is comparable to our soundness of banks (*sndbks99*). They are the only measures for which they have data for the year 1999. The results are presented in Table 2.8, Panel 1. We can observe that here *corrupt* and *finref* are still significant at 1% across all the models including OLS (except for LIML model where *finref* is significant at 5%). Most importantly here, *gbbp_70* becomes positive and significant at 1% in all the IV models (except for LIML where it is significant at 5%) suggesting that actually, it is easy to get loan in countries where government ownership of banks was prevalent. Seen from another angle, these results suggest that government-owned banks deliver better than the privately owned ones when it comes to provide credit. We get similar results when we use *bqualitt* instead of *corrupt* as shown in Table 2.8 Panel 2 and Panel 3

Table 2.8: Robustness checks

Panel 1 Using loan availability as dependent variable and corrupt as a measure of institutional quality

	OLS	TwoSLS	GMM_het	GMM_igmm	IVREG2	LIML
corrupt	0.304*** (0.061)	0.583*** (0.138)	0.596*** (0.137)	0.606*** (0.14)	0.596*** (0.131)	0.683*** (0.208)
finref	1.541*** (0.411)	1.884*** (0.629)	1.930*** (0.618)	1.872*** (0.618)	1.930*** (0.619)	2.001** (0.782)
gbbp_70	0.438* (0.23)	0.829*** (0.298)	0.864*** (0.308)	0.872*** (0.314)	0.864*** (0.295)	0.967** (0.384)
N	47	47	47	47	47	47
R-sq	0.732	0.589	0.569	0.553	0.569	0.471

Note: Robust Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; Controls: *logy60f*, *prif_i60* and the constant included in all the regressions; Excluded instruments: *coup_av*, *lat_abst* and *comlaw*.

Panel 2 Using Soundness of banks as dependent variable and bureaucratic quality as a measure of institutional quality.

	OLS	TwoSLS	LIML	GMM_het	GMM_igmm	IVREG2
bqualitt	0.0507 (0.101)	0.465** (0.185)	0.470** (0.188)	0.460** (0.182)	0.458** (0.181)	0.460** (0.183)
finref	1.731* (0.991)	1.955** (0.931)	1.960** (0.933)	1.900** (0.914)	1.897** (0.913)	1.900** (0.924)
gbbp_70	-0.0713 (0.620)	1.070 (0.883)	1.084 (0.889)	0.950 (0.836)	0.941 (0.835)	0.950 (0.839)
N	47	47	47	47	47	47
R-sq	0.541	0.369	0.365	0.372	0.374	0.372

Note: Robust Standard errors in parentheses; * p<0.10, ** p<0.05, *** p<0.01; Controls: *logy60f*, *prif_i60* and the constant included in all the regressions; Excluded instruments: *coup_av*, *lat_abst* and *comlaw*.

Panel 3 Using loan availability as dependent variable and bureaucratic quality as a measure of institutional quality.

	OLS	TwoSLS	LIML	GMM_het	GMM_igmm	IVREG2
bqualitt	0.196*** (0.0384)	0.405*** (0.108)	0.508*** (0.192)	0.419*** (0.111)	0.412*** (0.109)	0.419*** (0.108)
finref	1.334*** (0.402)	1.507*** (0.367)	1.585*** (0.419)	1.635*** (0.399)	1.571*** (0.393)	1.635*** (0.362)
gbbp_70	0.498** (0.245)	1.098*** (0.418)	1.369** (0.613)	1.242*** (0.425)	1.217*** (0.421)	1.242*** (0.411)
N	47	47	47	47	47	47
R-sq	0.685	0.580	0.435	0.558	0.565	0.558

Note: Robust Standard errors in parentheses; * p<0.10, ** p<0.05, *** p<0.01; Controls: *logy60f*, *prif_i60* and the constant included in all the regressions; Excluded instruments: *coup_av*, *lat_abst* and *comlaw*.

These results would suggest that in countries that had higher levels of government owned banks in 70s that strengthened their institutions and undertook proper financial reforms, it is easier to get a loan without having to present collaterals than in countries where government ownership of banks was not prevalent in the 70s.

The above results are not surprising in themselves. What is surprising is the fact that we get them using almost exclusively the data collected by LLS themselves. LLS concluded that government ownership is more prevalent in countries with weak institutions. In the same vein, Andrianova et al. (2008) argued that government ownership is a symptom of weak institutions. Thus, failing to control for this phenomenon clearly allows government ownership to pick its effect and we simply get the LLS results whose correctness cannot be trusted.

We obtain these results using the same OLS methodology as LLS but also by applying more sophisticated econometric estimators. However although our IV and OLS results give a similar story, perhaps the OLS ones are most credible. This is because one serious shortcoming of applying these sophisticated estimators in our case is that when applied to small sample (here $N \sim 47$) in a cross section analysis, IV estimators' bias may be large and our tests may not be powerful. This would lead to the view that the insignificant results come with little surprise. Again this small sample size is a weakness inherent with the nature of our analysis which is based on LLS data for comparability purposes.

In the following section, we try to overcome some of the shortcomings above described that are inherent to LLS analysis by undertaking a similar analysis but on a recent and larger dataset. However we still try to be as close to LLS as possible to ensure comparability.

2.6 Government ownership of banks and financial sector development 2001-2011

This section aims at further testing the validity of our previous findings by using a more recent dataset from 2001-2011. While we use similar econometric approaches as in the previous section, we make important changes in measuring some of our variables. Most importantly, in the previous section, we followed LLS and used their data on soundness of banks as our dependent variable. This index was constructed by the World Economic Forum following an executive survey, where private investors were asked to answer to the question: How would you assess the soundness of banks in your country? Their answers were ranked on a 1-7 scale with 1 representing insolvent banking system that may require a government bailout; 7 meaning generally healthy banking system with sound balance sheets. Such a survey may be subjective and may sometimes not be a good indicator of financial systems' soundness. For instance, the World Economic Forum report (2009) gives a country like United Kingdom a score of 3.8 and 4.8 to Germany on the one hand while Malawi is given 5.8, Senegal 5.9 and Gambia 5.6. If we are talking about soundness of balance sheets, this may be understood especially given that in 2009 the financial crisis was biting in UK and Germany. However this clearly does not reflect the level of development of the financial sector and may simply be seen as a mere coincidence. Therefore, in this section we broaden our definition of soundness of banks to utilise 2 widely used definitions of financial development. These are private credit, and liquid liability as a percentage of GDP. These measures have been recently advocated as good indicators of financial development (Rajan and Zingales, 2003; Baltagi et al., 2009) and they allow us to widen our thinking on the role of government ownership of banks on financial development rather than narrowly focusing on an

opinion survey about banks' balance sheets. We use average values for the period 2001-2011.

Furthermore, in the previous section we used government ownership of banks as defined by LLS i.e. share of the assets of the top 10 banks in a given country owned by the government of that country in 1970. In this section rather than focusing on top 10 banks, we define government ownership as the percentage of the banking system's assets in banks that are 50 % or more owned by the government. This is in line with previous research such as Andrianova et al. (2009, 2012). Finally, we control for foreign ownership of banks in 2001.

2.6. 1 Data and sources

2. 6.1.1 Dependent variable

Our dependent variable is *financial development*. In the literature various indicators have been used to measure financial development. In our study we will use two of the most used indicators from World Bank's Financial Development and Structure Dataset by Beck et al. (2000). They are liquid liability to GDP (*llgdp*) and private credit to GDP (*prcrgdp*). Liquid liability to GDP measures the ability of the financial intermediaries (comprising of central bank, deposit money banks and other financial institutions) to mobilise funds or the size of the financial system relative to the economy. It is calculated as liquid liabilities of banks and non-bank financial intermediaries (currency plus demand and interest bearing liabilities) over GDP. On the other hand, private credit to GDP is defined as the credit issued to the private sector by banks and other financial intermediaries divided by GDP, excluding credit issued to government, government agencies and public enterprises, as well as the credit issued by the monetary authority and development banks. According to Rajan and Zingales (2003: 9), it measures the "ease with which any entrepreneur or company with a sound project

can obtain finance”. As such a country is said to be less financially developed if there is little credit available for the private sector. In our cross-section estimates we use the average values of the above indicators for the 2001-2011 period.

2. 6. 1.2 Independent variables

Government ownership of banks (GOVBANKS): we use data from the World Bank dataset on banking regulation and financial structure (Caprio et al.,2008). The variable measures the percentage of the banking system’s assets in banks that are 50 % or more owned by the government as of year-end 2001. Although the data was also available for 1999, we chose to use the 2001 data because it is available for more countries i.e. 128 observations as opposed to 103 for 1999. The 2001 data also gives us more recent information as compared to 1999.

Institutional quality: There is a consensus in the literature that the quality of institutions affects financial development (Baltagi et al.,2009; Law and Habibullah, 2009). Herger et al. (2008) defined institutional quality as the extent to which man-made procedures foster investor protection and enhance access to funds for entrepreneurs within financial exchanges. Investors rely on the state for enforcing contracts and property rights protection. In countries where corrupt politicians/official abuse their authority for self-enrichment, investors are unwilling to invest or surrender funds with increasing risks of expropriation. This explains why these countries remain financially underdeveloped. To capture the quality of institutions we use three widely used indicators from the World Governance Indicators developed by Kaufmann et al. (2010). These are regulatory quality, control of corruption and rule of law. The three aggregate indicators were constructed using the unobserved component model whereby a large number of available subjective measures are combined into a single composite indicator. They range from approximately -2.5 to 2.5 with higher values indicating

better institutions and have been widely used in the literature (e.g. Morrissey and Udomkerdmongkol, 2012, Dollar and Kraay, 2003). We use the average values for the period 2001-2011. *Regulatory quality* (REG) measures the perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development; *Rule of law* (RUL) measures the perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police and the courts, as well as the likelihood of crime and violence; *Control of corruption* (CORRUPT) measures the perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests.

Foreign ownership of banks (Foreign): we control for foreign ownership of banks using data from the World Bank dataset on banking regulation and financial structure (Caprio et al., 2008). The variable measures the percentage of the banking system's assets in banks that are 50 % or more foreign owned as of year-end 2001. Before the recent financial crisis, the general consensus was that the benefits of foreign banks greatly outweigh the costs associated with foreign entry into the banking sector. Particularly, it was generally considered that foreign banks add to domestic competition, improve access to financial services, enhance financial and economic performance of their borrowers, bring greater financial stability, introduce new and more diverse products, greater use of up-to date technologies, and know-how spillovers, among other channels (Clarke et al., 2003, Claessens, 2006, Chopra, 2007, and Cull and Martinez Peria, 2011). However, recent studies have questioned that general consensus. These include Detragiache et al. (2008) and Beck and Martinez Peria (2007) who show that foreign banks “cherry pick” borrowers. In their opinion, this could undermine overall

access to financial services since cherry picking worsens the remaining credit pool and lowers financial development especially in low-income countries where relationship lending is important. In fact, Detragiache et al.(2008) show that the presence of foreign banks in low-income countries is associated with less credit being extended. Similarly, Allen et al.(2013), Fungáčová et al .(2013), Choi et al. (2014) among others have shown that foreign owned banks reduce their credit base in times of global financial crisis.

Financial reform (finref): We use financial reform from Abiad et al. (2008) as described earlier. However our indicator is the average of annual data covering the period 2001-2005. The choice of this period was dictated by the availability of the data as the above database covers only the period up to 2005.

Trade openness (TRADOP) measured as the sum of exports and imports of goods and services as a share of GDP from WDI. It is also an average of data from 2001 to 2011. Several studies have given support to the idea that an open economy may weaken the incentives and the political power of interest groups to resist financial deepening (Rajan and Zingales, 2003; Braun and Raddatz, 2008). Alternatively, increasing exporting opportunities may serve to boost the demand for external funding.

GDP (LGDP): GDP is another widely used determinant of financial development. We use the averaged data for GDP constant 2005 from 2001 to 2011. It helps us to control for the size of the economies. We transform it into log form to get the variable *LGDP*. Data is from the World Development Indicators (WDI) dataset.

Schooling (LOGEDU): The level of education is considered as one of the main determinants of financial development. A more educated society may translate into higher rates of innovation, higher overall productivity and faster introduction of new technology. Our argument is that financial management capability as well as capacity to exploit available financial products is fundamentally a question of human capital

development and thus of talented financial people. We use 2001-2011 averaged data on secondary school gross enrolment ratio from WDI. Gross enrolment ratio can exceed 100% due to the inclusion of over-aged and under-aged students because of early or late school entrance and grade repetition. We express our variable in log form.

For instrumental variables, we use similar instruments as described in the previous analysis i.e. average number of coups covering the 60s, 70s and 80s (*coups_av*), distance from the equator as measured by the latitude (*lat_abst*) and legal origin (*comlaw*) all from LLS (2002). Table 2.9 presents some descriptive statistics for our new data.

Table 2.9 Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
LLGDP	149	56.835	45.237	4.684	334.124
PRCGDP	150	47.033	42.984	2.632	188.958
REG	169	0.052	0.976	-2.425	1.859
RUL	171	0.046	1.006	-2.362	1.944
CORRUPT	169	0.057	1.005	-1.733	2.454
FINREF	147	0.589	0.269	0.109	1
Foreign	137	0.421	0.316	0	1
GOVBANKS	156	0.340	0.267	0.0004	0.999
LGDP	162	23.712	2.324	16.968	30.186
TRADOP	153	89.897	48.405	0.565	391.944

2. 6 .2 Empirical model

For comparability, we use a model that is as close as possible to LLS but add other controls including a measure of institutional strength.

$FD = \beta_0 + \beta_1 INST_1 + \beta_2 GOVBANKS_2 + \beta_3 X_3 + \dots + \beta_n X_n + \varepsilon$ where FD is the measure of financial development averaged from 2001 to 2011, INST stands for quality of institutions as measured by the three governance indicators (rule of law, regulatory quality and control of corruption) averaged from 2001-2011, GOVBANKS stands for

government ownership of banks in 2001 and $X_3, \dots X_n$ are other control variables as explained above.

2.6.3 Results

Our results using recent data confirm our conclusions when we used LLS dataset with more robust econometric methods and controlling for institutional quality, financial reform and foreign ownership of banks.

In Table 2.10 below, we present different OLS regressions models. LLREG (is a model where liquid liability is the dependent variable while regulatory quality is a measure of institutional quality. In PCRREG, private credit is the dependent variable while regulatory quality is the measure of institutional quality. In LLRUL liquid liability is the dependent variable, rule of law measures quality of institutions. In PCRRUL, private credit is the dependent variable while rule of law is used to measure quality of institutions. Similarly, in LLCORR liquid liability measures financial development while control for corruption is used to measure quality of institutions. Finally, in PCRCORR, private credit measures financial development while control of corruption measures quality of institutions. These OLS regressions show that always measures of quality of institutions are positive and highly significant at 1% while government ownership of banks (*GOVBANKS*) is always positive but only significant in PCRREG and PCRRUL. Foreign ownership of banks (*Foreign*) is negative and significant in all the models except in LLCORR model where it is negative but not significant. Financial reform (*FINREF*) is always positive but only significant in models where financial development is measure by private credit.

Table 2.10: OLS regressions

	LLREG	PCRREG	LLRUL	PCRRUL	LLCORR	PCRCORR
REG	24.26*** (4.56)	35.76*** (6.93)				
FINREF	11.32 (0.69)	24.05* (1.83)	17.38 (1.15)	32.53** (2.57)	12.35 (0.78)	22.28* (1.86)
Foreign	-24.14** (-2.04)	-42.6*** (-3.20)	-22.36* (-1.97)	-40.1*** (-3.52)	-18.12 (-1.56)	-33.5*** (-2.75)
GOVBANKS	3.701 (0.32)	16.54* (1.74)	1.902 (0.16)	19.00* (1.69)	6.109 (0.5)	11.2 (0.96)
RUL			22.18*** (5.21)	33.44*** (8.98)		
CORRUPT					18.09*** (4.03)	29.91*** (7.3)
N	76	76	76	76	76	76
R-squared	0.487	0.672	0.519	0.725	0.468	0.691

Note: t statistics in parentheses; significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. LGDP, Trade Openness (TRADOP), level of schooling (LOGEDU) and the constant included in all the regressions but not presented here for clarity of presentation.

Table 2.11 below presents results from OLS and instrumental variable estimators. As we use the instrumental variables, some countries are lost and we have a sample of 67 countries as opposed to 76 above. Therefore we re-estimate the OLS for comparability between OLS and instrumental variable results. In the three panels, we only present results with liquid liability as a measure of financial development and different measures of institutional quality. We get comparable results when we use private credit to GDP.

Table 2.11: Instrumental variables

Dependent variable is Liquid Liability with different measures of institutional quality

Panel1: Institutional quality measured by Regulatory quality

	OLS	TwoSLS	LIML	GMM_het	GMM_igmm	IVREG2
REG	22.83*** (3.8)	44.25** (2.56)	58.30* (1.87)	39.16** (2.44)	33.51** (2.28)	39.16** (2.28)
FINREF	3.06* (1.82)	21.87 (0.69)	34.21* (1.78)	8.902 (0.31)	0.112* (1.88)	8.902 (0.29)
Foreign	-32.0** (-2.52)	-31.64** (-2.37)	-31** (-2.05)	-31.51** (-2.48)	-31.34** (-2.55)	-31.51** (-2.37)
GOVBANKS	7.604 (0.61)	18.72 (1.33)	26.01* (1.89)	24.15* (1.94)	26.21** (2.23)	24.15* (1.82)
N	67	67	67	67	67	67
R-squared	0.51	0.42	0.262	0.453	0.477	0.453

Note: t statistics in parentheses. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. LGDP, Trade Openness (TRADOP), Level of schooling (LOGEDU) and the constant included in all the regressions but not presented here for clarity of presentation. Excluded instruments: *coup_av*, *lat_abst* and *comlaw*

Panel 2: Institutional quality measured by Rule of law

	OLS	TwoSLS	LIML	GMM_het	GMM_igmm	IVREG2
RUL	20.54*** (4.64)	26.08*** (2.88)	28.53** (2.39)	23.31*** (2.75)	17.25** (2.3)	23.31*** (2.61)
FINREF	7.96* (1.91)	5.529* (1.78)	4.453* (1.84)	13.29 (0.71)	18.88 (1.01)	13.29 (0.7)
Foreign	-32.29** (-2.60)	-32.2*** (-2.72)	-32*** (-2.67)	-30*** (-2.61)	-27.8** (-2.37)	-30*** (-2.58)
GOVBANKS	5.043 (0.4)	7.542* (1.87)	8.65* (1.77)	12.54 (1.23)	17.25* (1.78)	12.54 (1.18)
N	67	67	67	67	67	67
R-squared	0.54	0.53	0.52	0.53	0.52	0.53

Note: t statistics in parentheses. Significance levels: * p<0.10, ** p<0.05, *** p<0.01. LGDP, Trade Openness (TRADOP), Level of schooling (LOGEDU) and the constant included in all the regressions but not presented here for clarity of presentation. Excluded instruments: *coup_av*, *lat_abst* and *comlaw*.

Panel 3: institutional quality measured by control of corruption

	OLS	TwoSLS	LIML	GMM_het	GMM_igmm	IVREG2
CORRUPT	15.84*** (3.47)	23.20*** (2.59)	27.52** (2.08)	21.02** (2.56)	15.47** (2.14)	21.02** (2.4)
FINREF	3.238* (1.86)	3.153 (0.15)	6.908 (0.29)	6.969 (0.34)	14.45 (0.72)	6.969 (0.34)
Foreign	-28.88** (-2.24)	-27.25** (-2.19)	-26.2** (-2.03)	-25.7** (-2.10)	-24.81** (-2.02)	-25.7** (-2.07)
GOVBANKS	7.011 (0.54)	12.24 (1.05)	15.31 (1.23)	18.42* (1.73)	22.18** (2.13)	18.42* (1.68)
N	67	67	67	67	67	67
R-squared	0.47	0.50	0.45	0.48	0.46	0.48

Note: t statistics in parentheses. Significance levels: * p<0.10, ** p<0.05, *** p<0.01. LGDP, Trade Openness (TRADOP), Level of schooling (LOGEDU) and the constant included in all the regressions but not presented here for clarity of presentation. Excluded instruments: *coup_av*, *lat_abst* and *comlaw*

Our results show that government ownership of banks in 2001 is not negatively associated with subsequent financial development. In fact our results show that if there is any relationship, it is positive. In line with the literature, our results also show that institutional quality is an important determinant of financial development. This is in line with the literature (e.g :Andrianova et al. ,2009, 2012; Micco et al.,2005; Altunbas et al.,2001; Detragiache et al.,2005) and Wen,2010). However those studies are not directly comparable to ours. The main difference between them and our study stems from the fact that we consider the relationship between government ownership of banks and the subsequent soundness of the financial sector while they considered the relationship between government ownership of banks and economic growth.

Our results also show that foreign ownership of banks in 2001 is negatively associated with subsequent financial development. Although some section of the literature has found the same results, we suspect that our results may be mainly due to the fact that our data on financial development covers the recent 2008 crisis period. However research has shown that foreign owned banks reduce their credit base in times of global financial crisis (Allen et al.2013; Fungáčová et al .2013; Choi et al, 2014).

Finally our results show that, although not significant in all the models, but in general, there is a positive and statistically significant relationship between financial reforms and subsequent soundness of the financial sector. This is also in line with a section of the literature including Shehzad and De Haan (2008), Tressel and Detragiache (2008) among others.

2. 7. Conclusion

In this chapter, we investigated the generally believed assumption that government ownership leads to subsequent unsoundness of banks. Firstly, we based our analysis on the well-known LLS (2002) paper that was mainly used as evidence to support Bretton Wood institutions' recommendations for massive privatization of the banking sector in developing countries. We were able to show that their conclusions are fragile and only based on OLS regressions that suffer from omitted variable bias. Based on the literature that considers financial reforms and institutional quality as very important determinants of financial development, we introduced those two variables in the LLS regression and found that if there is any relationship between soundness of banks and government ownership, it is actually positive. Our proxy variable for institutional quality was control of corruption from LLS dataset but the trend of our results is maintained when we use other measures of institutional strength such as bureaucratic quality. Our results are also robust to various instrumental variable estimation methods including those used when instruments are weak. Similarly, our results are robust when we use loan availability as a measure of financial sector strength rather than using the soundness of banks indicator.

Finally, we constructed a recent dataset from 2001 to 2011 to test the same hypothesis that government ownership of banks leads to subsequent underdevelopment of the financial sector. We demonstrated that if there exist a relationship between government ownership of banks and subsequent financial development, it is positive. We also showed that higher levels of governance as measured by rule of law, control of corruption and regulatory quality as well as strong financial reforms lead to greater financial sector development. This confirmed our findings in the first part of the chapter. In addition, our results show that foreign ownership of banks in 2001 was

associated with subsequent lower financial development. These results are also in line with the literature but we suspect they were more influenced by the fact that our data covers the period of the recent financial crisis. This may also have influenced our results on government ownership.

This study has some weaknesses that are inherent to its motivation and how it is designed. In trying to be close to LLS for comparability purposes, we inherited all the LLS weaknesses such as using single variables with single observations for different years in a cross section analysis. Similarly, we are conscious that using sophisticated econometric methods such as those we used on a small data (N~47) may yield results that are not trustworthy. Nevertheless, we applied them alongside with OLS and the results are comparable. Although we managed to correct these weaknesses in the second part of the chapter where we collected recent data averaged over 2001-2011 and increased the sample size, we still believe a panel analysis would have been more useful. In fact, while cross-sectional estimation methods may, in principle, capture the long run relationship between the variables concerned, they do not take advantage of the time-series variation in the data, which could increase the efficiency of estimation. However we could not use panel analysis due to lack of data especially on government and foreign ownership of banks.

Our results show that in an environment with stronger institutions, government ownership of banks may lead to greater subsequent financial sector development as measured by soundness of banks, loan availability, private credit /GDP and liquid liability/GDP. However, we are not advocating for massive nationalization of banks. Our argument is that government ownership is not always bad and may even be beneficial in presence of strong institutions and proper financial reforms.

These results have policy implications, especially now that some governments in developed countries have taken large shares in banks that were affected by the 2008 crisis. While at some point they will need to re-privatize them, our results mean that rather than being worried by the fact that now governments are controlling these banks, the most important focus should now be on how to strengthen institutions and regulatory authorities. Similarly, to developing countries, our results emphasize the supreme necessity to build strong institutions and make necessary financial reforms if they want to make real progress in advancing their economic development in general and their financial sector in particular. In our view, institutional quality and financial reforms matter more than government ownership.

Chapter 3

Official Development Assistance and Financial Sector Development: A theoretical model

3.1 Introduction

A large body of literature has arisen in economics and political science to demonstrate that the presence of large amounts of natural resources has a negative impact on economic and political outcomes in what has been termed “The curse of natural resources” (Sachs and Warner, 1995 , 1999 , 2001 ; Ross ,2001). This debate has been extended to explain why the huge amount of official development assistance (ODA) transfers from developed to developing countries has not produced the development outcomes as expected. Actually some economists have argued that foreign aid leads to negative growth, incentives for irresponsible governance and lack of competitiveness abroad in what has been coined the “curse of foreign aid” (Djankov et al., 2008). They argue that aid has analogous effects to a natural resource curse. Djankov et al. (2008) core result is that foreign aid has a statistically significant negative effect on changes in political institutions (specifically democracy) and this effect is actually larger in magnitude than that caused by natural resource windfalls. Similarly, Rajan and Subramanian (2007) argue that manufacturing sector growth in developing countries is undermined by a detrimental effect of aid inflows on governance. Recently, economists have studied both types of curses together under what has been called “The curse of windfall incomes” (Nager, 2013).

In this chapter, we take a closer look at the relationship between foreign aid revenues and financial development (FD). We propose a theoretical model that predicts

a negative relationship between ODA and FD. Our theoretical model is based on Bhattacharyya and Hodler (2010) whose model demonstrates how natural resources revenues affect financial development in resource abundant countries. This theoretical framework inspired their empirical investigation in Bhattacharyya and Hodler (2014). However, we modify Bhattacharyya and Hodler (2010) model to suit the context of foreign aid. Thus rather than focusing on the relationship between natural resources and FD, our theoretical model explains how foreign aid negatively affects financial development in recipients with poor political institutions. We show how, if aid is not well monitored –and in practice a good proportion of it is not or the control is not effective- by promoting incentives for rent-seeking and reducing incentives for government to strengthen contract enforcement institutions, foreign aid weakens these institutions, making owners of capital reluctant to lend their funds to potential investors thereby negatively affecting financial development.

In this chapter we make the following contributions to the literature. First, to our knowledge no previous study has attempted to establish the existence of a theoretical relationship between ODA and FD in recipient countries. We not only propose such a theoretical model but also show why we should expect the effects of ODA on FD to depend on the quality of political institutions in recipient countries. Secondly, our theoretical model confirms previous empirical findings by intuitively showing how ODA negatively affects the recipient government's efforts to collect taxes. Thirdly, this model supports the concept of aid conditionality by showing how, by conditioning aid disbursements to clear achievements in democratic governance, donors can effectively discourage recipient governments' rent-seeking behaviour resulting in greater aid effectiveness.

The chapter is organised as follows: section 3.2 briefly reviews the literature. Subsection 3.2.1 defines official development assistance (ODA) and discusses the literature on foreign aid's impact on growth. Subsection 3.2.2 presents the most important dates in the evolution of foreign aid while subsection 3.2.3 discusses reasons why countries give aid and the factors that guide their choice of which countries to give aid to. Subsection 3.2.4 looks at the natural resources curse versus foreign aid curse; section 3.3 discusses our foreign aid and financial sector development theoretical model and section 3.4 concludes.

3. 2. Literature review

3. 2. 1. ODA and economic growth

According to the Organisation for Economic Cooperation and Development (OECD) (2003), official development assistance (ODA) is defined as flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 per cent (using a fixed 10 per cent rate of discount). ODA receipts comprise disbursements by bilateral donors (flows comprised of contributions of donor government agencies at all levels) and multilateral institutions. Technical cooperation is counted as ODA while loans, credits and grants for military purpose are excluded irrespective of their concessionary nature. In this chapter we will use ODA, aid and foreign aid interchangeably.

The above definition emphasises the fact that ODA is given for development purposes in recipient countries. However, the large empirical literature investigating the effects of ODA on economic growth has yielded inconclusive results, with no clear consensus view. Morrissey (2015) argues that this lack of consensus is attributable to

three specific limitations of cross-country growth regressions in the aid context. These are challenges in measuring aid so as to capture the ways in which it can affect growth; challenges in addressing simultaneity and endogeneity; and heterogeneity characterizing the data. In a similar vein, Juselius et al.(2014) argue that the discrepancies in the aid literature result from the choices researchers make regarding data transformations, econometric models, estimation methods, and assumptions related to endogeneity or exogeneity.

Rostow (1990) considers ODA as a precondition for the take-off into economic success. Papanek (1973) and Levy (1988) argue that aid is positively correlated with growth because it increases savings, investment and capital stock. Hansen and Tarp (2001) used data from 56 countries from 1974 to 1993 while Feyzioglu et al. (1998) used data from 38 countries from 1971 to 1990 to assess the impact of aid on investment and both concluded that it is positive. Similarly, Juselius et al. (2014), Lof et al. (2015), Dalgaard et al. (2004), Arndt et al. (2013a) and Karras (2006), find evidence for positive impact of foreign aid on growth. In fact in a detailed survey of empirical analyses from the last 30 years that make use of cross-country regressions in assessing the effectiveness of foreign aid, Hansen and Tarp (2000) show that empirical evidence from 131 such regressions demonstrates that aid (i) increases aggregate saving, although not by as much as the aid flow, (ii) increases investment, and (iii) has a positive effect on the growth rate whenever growth is driven by capital accumulation.

However, Bräutigam and Knack (2004) find evidence for a negative relationship, while Friedman (1958), Bauer (1972) and Moyo (2009) simply advocate for an end to aid, because for them aid leads to corruption and hinders economic development.

Rajan and Subramanian (2008), Reichel (1995), Mosley et al. (1987) and Boone (1996), find evidence to suggest that aid has no impact on growth. Although Burnside

and Dollar (2000) , World Bank (1998) and Alia and Anago (2014) concluded that foreign aid has positive effects, this conclusion applies only to economies in which it is combined with good fiscal, monetary, and trade policies. In other words, if the policy environment is poor, then aid is ineffective. To explain this, they singled out the tendency of recipient governments, especially when they have poor policies, to divert aid to government consumption spending rather than using it to finance growth-promoting investment (Burnside and Dollar, 2000). However, although Burnside and Dollar (2000) is rightly considered the core paper initiating this conditional strand of literature, its results were challenged by Hansen and Tarp (2001) who used essentially the same data and specifications to demonstrate that not only Burnside and Dollar (2000) results are fragile but also that aid is actually effective.

On the other hand, Doucouliagos and Paldam (2008) used the meta-regression analysis (MRA) covering 68 papers containing a total of 543 direct estimates and demonstrated that the effect of aid on growth estimates scatter considerably and add up to a small positive, but statistically insignificant effect. However, applying the same MRA methods to the same set of studies, but with random effects rather than fixed effects as in Doucouliagos and Paldam (2008), Mekasha and Tarp (2013) find that the effect of aid on growth is positive and statistically significant.

Stiglitz (2002) and Stern (2002) are more cautious and argue that aid may have failed in some cases but show that it has been supportive of growth in some countries and may have prevented decline in others. However, while Mosley et al.(1987) find this view somehow agreeable, they advance the argument of micro-macro paradox suggesting that the success of some individual aid projects cannot make up for the overall negative impact of aid on growth and development.

Investigating the mechanisms through which ODA influences economic growth, Morrissey (2001) identified four channels. These are: firstly, ODA increases investment in physical and human capital; secondly, ODA raises recipients' capacity to import capital goods or technology; thirdly, ODA is associated with technology transfer that increases the productivity of capital and promotes endogenous technical change and finally, ODA indirectly promotes investment and savings rates. Similarly, Gomanee et al.(2005) identified three main mechanisms through which aid positively affects growth i.e. through the promotion of investment (if ODA funds investment, then depending on that investment's productivity, ODA may promote growth), trade (by funding importation of capital goods and intermediate inputs) and the government fiscal behaviour.

However other economists are sceptical about the role of ODA in promoting investment. They include Herzer and Grimm (2012) who use panel cointegration and causality techniques to show that actually ODA has a statistically significant negative effect on private investment. This negative effect primarily stems from the crowding out of the private investment by aid financed public investment. Furthermore, the literature has demonstrated that most or all aid finances consumption rather than investment (Boone, 1996; Werker et al., 2009). Thus, the debate around the effect of ODA on economic growth is still a non-concluded matter.

3.2.2 Key dates in the chronology of foreign aid's evolution

Helping people in need has always been a human value. However, according to Ekiring (2000) formal country to country assistance is thought to have started in the 18th century when Fredrick the Great of Prussia subsidised his allies in order to secure their military support. Similarly, during the 19th century, the US already provided

assistance to foreign countries (as illustrated by the 1812 Act for the Relief of the Citizens of Venezuela for instance) while under the 1929 Colonial Development Act, the British government provided aid to its colonies for infrastructure projects (Moyo,2009). Nevertheless, foreign aid as we know it today became an important part of international politics and development in the aftermath of the Second World War, when the US used the Marshall Plan to help in the reconstruction of its European allies.

Since then, the evolution of aid practices has followed an ever changing path following the donors' ideology of the moment. According to Hjertholm and White (2000), the 1940s were marked by the Marshall Plan as a programme aid aimed at reconstructing the war ravaged Europe. During the 1950s the US and the Soviet Union were the major players and they mainly used aid in form of food aid and projects to counter each other's influence. The 1960s were also characterised by the rivalry between the two super powers but more bilateral and multilateral aid was also provided. The bilateral aid focused on technical assistance and budget support while the multilateral aid focused on funding projects. The 1970s was characterised by an expansion of multilateral assistance (World Bank, IMF and Arab funded agencies), donors focused on reducing poverty through improved agricultural sector and provision of basic needs. There was a fall in food aid but an increase in import support. The 1980s were marked by a rise in the role of NGOs, donors focused on macroeconomic reforms aimed at supporting the much publicised structural adjustment programmes in form of financial programme aid and debt relief. The 1990s saw the former Soviet Union and the Eastern Europe countries become aid recipient rather than aid providers. This was a decade of debt relief and poverty reduction. The end of the decade saw a move towards sector support. The 2000s was a decade of aid effectiveness and development results

through the Millennium Development Goals (MDGs), while the 2010s look to be a decade of ending poverty.

The following are the main dates in the evolution of aid.

1812: The US Congress passes the Act for the Relief of the Citizens of Venezuela, authorising the President to purchase goods worth up to USD 50,000 to help Venezuela after the March 1892 earthquake.

1870s: Chamberlain's government started discussing the UK official finance for colonies

1896: The US Ministry of Agriculture started transferring food surplus to foreign countries with the main intention of developing new markets.

1918: After the First World War, the US sent 6.23 million tonnes of food aid to Europe

1929: First UK Colonial Development Act allowing for loans and grants for infrastructure in British colonies.

1933: To deal with the great depression, the US enacted the Agricultural Adjustment Act whereby farmers were paid not to grow more than a certain amount of crops in order to raise prices. This was accompanied by systematic shipments of food outside to help in emergency situations by the Federal Emergency Relief administration.

1941: In US, appointment of the Presidential Committee to review public relief for countries at war. This resulted in the creation of the President's War Relief Control Board in 1942.

1943: Formation of UN Relief and Rehabilitation Administration (UNRRA).

1944: Bretton Wood conference created the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development which later became the World Bank. Creation of Oxfam and CARE.

1947: Launching of Marshall Plan for the reconstruction of Europe. Approximately 25 per cent of the USD 13 billion assistance was food, feed and fertilizers.

1949: UN establishes Expanded Programme of Technical Assistance (EPTA) with the aim of enhancing institutional capacity in developing countries. In US President Truman elaborates his “Point Four Programme” calling for a Marshall plan-like programme aimed at helping low income countries.

1950: Creation of the International Cooperation Administration (ICA) in US aimed at coordinating aid efforts and development works in developing countries.

1951: US Mutual Security Act allowing the US to transfer about USD 7.5 billion to its allies especially in Europe to counter communism in the context of the cold war. The UN recommends creation of the Special United Nations Fund for Economic Development (SUNFED) which was officially established in 1954.

1954: Agricultural Trade Development and Assistance Act established the US Food for Peace programme

1956: Khrushchev announces expanded Soviet aid programme.

1960: Establishment of the International Development Association (IDA) under World Bank auspices. It provides soft loans, credits and grants to poor countries for development programmes in order to boost their economic growth, reduce inequality and improve the welfare of their people. Moreover there was creation of the Development Assistance Group (renamed Development Assistance Committee, DAC, in 1961). It is a forum of some 29 OECD (Organisation for Economic Co-operation and Development) countries where they discuss issues to do with foreign aid, development and poverty reduction in developing countries.

1961: Foreign Assistance Act (FAA) that reorganised the US aid programmes, separated military and civilian assistance, provided for the creation of the USAID to administer and oversee the provision of ODA. Most importantly it said that the US will not provide aid to governments that violate human rights.

1963: Creation of World Food Programme (WFP)- major multilateral channel for food aid.

1965: UN Special Fund and EPTA merged to form UNDP (United Nations Development Programme).

1968: DAC agrees definition of official development assistance (ODA)

1969: Pearson Report proposes an increase in aid up to 0.7 per cent of GNP by 1975. For efficiency the report proposes more ownership by recipient countries by playing an increased role in the formation and execution of their development policies based on their own needs.

1970: The UN General Assembly adopts a resolution calling for developed countries to increase their aid to 0.7% of their GNP by 1975.

1973: Robert McNamara speech launches World Bank reorientation towards poverty reduction.

1975: First Lomé convention establishing the framework for EC-ACP aid.

1980: First structural adjustment loans (SAL). Publication of the Brandt Report which was seen as the second major report on foreign aid (after the Pearson report). It was followed by the second Brandt report in 1983. Both reports emphasised the interdependency between developed and developing countries and suggested that wealthier countries should help poor ones in their own good. They proposed the doubling of ODA to reach the target of 0.7% by 1985.

1987: Launch of Special Programme of Assistance for Africa (SPA) aimed at supporting the debt-distressed Sub-Saharan Africa countries in their structural adjustment programs. Publication of UNICEF-sponsored study “Adjustment with a Human Face” that criticised the IMF and World Bank led structural adjustment programmes.

1989: World Bank launches governance agenda.

1990: End of cold war. First Human Development Report (UNDP) and World Development Report (World Bank) on poverty: donor policy shifts toward poverty reduction.

1995: Copenhagen World Summit for Social Development. Launching of the 2020 initiative and formulation of what have become “DAC targets”. It pledged to put people at the centre of development by making poverty reduction, full employment and social integration overriding objectives of development.

1996: World Bank and the IMF jointly launch a debt relief initiative for the heavily indebted poor countries (HIPC). OECD report “Shaping the 21st Century: the Contribution of Developing Cooperation” advocates for recipient owned and led development process, effective partnership between donors and recipients, coordination and harmonisation of aid by donor countries.

1997: The “State in a Changing World” report by the World Bank emphasised the importance of the role that recipient governments must play if aid is to achieve its objectives.

1998: The World Bank report “Assessing Aid: what works, what doesn’t and why?” recommends that aid can only be effective in a stable macroeconomic environment, where trade regime is open, with efficient public bureaucracies and strong institutions.

2000: The UN Summit and the Millennium Declaration emphasise achieving Millennium Development Goals (MDGs) and International Development Targets (IDTs) by 2015.

2002: The Monterrey Consensus of the International Conference on Financing for Development. UN member states reiterate the importance of donor-recipient partnership

and aid harmonisation. They agree to work towards untying of aid and enhancing recipient countries' ownership. Developed countries re-commit to the 0.7 % target.

2003: The Rome Declaration on harmonisation. The High Level Forum on harmonisation agreed to take practical measures to improve the management and effectiveness of aid. This implies that donors' assistance must be aligned with recipients' development priorities. This also requires reviewing and identifying means to adapting institutions' and countries' policies, procedures and practices to facilitate harmonisation.

2004: The Marrakech Roundtable brought together recipient countries and aid agencies to evaluate the progress in harmonisation. They reviewed past efforts and discussed how to strengthen recipients' and agencies' commitments to harmonisation monitoring and evaluation around national priorities and systems.

2005: The Paris Declaration on Aid effectiveness. This was signed by 61 bilateral and multilateral donors and 56 recipient countries. With its five main interlinked commitments (ownership, harmonisation, alignment, management for results and mutual accountability), it is seen as a culmination of the efforts of harmonisation previously made in Marrakech and Rome.

2008: Accra Third High Level Forum on aid effectiveness. Donors and recipient agreed on the "Accra Agenda for Action" that calls for increased predictability of aid flows, recipient countries' leading role in development policies, more inclusive and effective partnership between all the stakeholders, greater steps in untying aid and relaxation of conditionalities. The forum launched the International Aid Transparency Initiative, a global campaign aimed at creating transparency in recording how aid money is spent to make sure it reaches the poor. The role of civil society as a development partner was clearly recognised and re-emphasised.

2011: Busan 4th High Level Forum on aid effectiveness: Donors and aid recipient countries agreed to take urgent steps to achieving the MDGs. The declaration emphasised the importance of promoting good governance, democracy and human rights, the private sector, gender equality and empowerment of women in the quest to achieving sustainable development. This was called the Global Partnership for Effective Development Cooperation and was endorsed by 160 countries and 45 organisations.

2013: UN High Level Panel report on the post 2015 Development agenda called “A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development”. The report proposes a move from reducing to ending poverty, transforming economies for jobs and inclusive growth, recognising peace and good governance as core elements of wellbeing, commitment to environmentally sustainable development and forging a new global partnership involving governments, civil society, women, marginalised groups, etc.

2014: Mexico, First High Level Meeting of the Global Partnership for Effective Development Cooperation. It re-emphasized the importance of ownership of development priorities by developing countries, transparency and accountability, inclusive development, business as development partner, the importance of domestic resources mobilisation, etc.

2015: The UN General Assembly adopted the 2030 Development Agenda known as “*Transforming our world: the 2030 Agenda for Sustainable Development*”. Its main paragraph (51) outlines the 17 Sustainable Development Goals and its associated 169 targets.

3.2.3 Who gets aid and why?

As mentioned earlier, the approach and motivations of providing aid has changed overtime following the political and development ideologies that prevailed at the time.

Furthermore, donor countries adopt different approaches in line with their particular motivations. However, the heated debate on why countries give aid and how they choose where to send their assistance is still not settled.

Sogge (2002) identified three basic objectives of the World Bank and OECD countries in giving aid, namely: reducing material poverty by fostering economic growth and by providing public infrastructure and basic social services; promoting good governance by creating effective, honest and democratically accountable institutions to manage the economy and the legal order as well as by promoting civil and political rights; and protecting the environment and reversing the negative environmental trends.

In a similar vein, Sagasti (2005) highlights three main sets of rationales behind ODA namely: international solidarity and religious motivation whereby altruistic, ethical and humanitarian concerns motivate rich countries to assist the poor in developing world; narrow and enlightened self-interest in terms of strategic, security, political, economic and commercial interests; and provision of international public goods for the interests of both donors and recipients such as confronting global and regional environmental threats, fighting epidemics, maintaining the stability of the international system, etc.

The two last points made by Sagasti (2005) are very pertinent. Indeed, in addition to the widely publicised altruistic and ethical motivations, it has been demonstrated that aid is mainly used as an instrument of foreign policy, whereby donor governments are more interested in strategic and political alliances for their own hegemonistic agenda. Wood (1986) and Ruttan (1996) showed that strategic political considerations have consistently been the major forces that shape aid allocations, while in recent years, especially after September 11th Al Qaeda's attacks, donors' security interests have grown even more important (Brown, 2005; Bandyopadhyay and Vermann, 2013).

Alesina and Dollar (2000) investigated whether the failure of aid can be attributed to pattern of aid allocation by rich countries. They concluded that bilateral aid is primarily given for strategic and political reasons rather than as a reward for healthier reforms and good policies. They found evidence that a former colony with poor institutions and economic policies would receive twice the amount of aid to a non-former colony with better institutions and economic policies. On the other hand, faced with the moral obligation to provide peacekeeping as a public good but unwilling to provide their own troops because a failed operation would be politically too costly, governments in the West use aid to reward countries that provide peacekeeping troops in troubled areas (Boutton and D'Orazio, 2013).

However, the 1990s disappearance of communism and the Soviet Union removed the main threat to the US and its Western allies' security. Thus they started prioritizing democracy and good governance as a condition to their assistance. The multilateral institutions followed suit. This came as response to studies such as the World Bank (1998) and Alesina and Dollar (2000) which showed that undemocratic but strategically important governments were getting twice as much as democratic but not strategically important governments. In fact, in 2002, President Bush announced the creation of the Millennium Challenge Corporation (MCC) to oversee the distribution of US aid to countries that perform well on a set of independently compiled governance indicators. In Bush's words, the MCC was meant to reward nations that "root out corruption, respect human rights and adhere to the rule of law" (Bush, 2002). However, this move has also produced mixed results. For instance, Easterly and Pfutze (2008) compared the practices by 48 aid agencies (31 bilateral and 17 multilateral) to show that an average aid agency directs its aid to corrupt governments while 78% of aid is given to autocratic countries. In a similar vein, according to Moyo (2009), even when aid agencies are

paying lip service to the issue of governance, they seem to be arbitrary and inconsistent among themselves whom they classify as corrupt autocrat because of their selfish interests. She wonders for instance how a country like Ethiopia can be a darling of donors (Ethiopia is one of the biggest beneficiaries of MCC), while according to her, it is common knowledge that the Ethiopian government rigs elections, jails opposition politicians, engages in corrupt practices that give it a ranking on Transparency International of 138th out of 179 countries, etc. This view is supported by Neumayer (2001d), who analysed the role of human rights in aid allocation decision for 21 OECD countries for the period 1987-1995 and concluded that, despite the rhetoric, donors do not consistently reward respect to human rights when they decide whom to give aid.

Moreover, individual donors' aid allocations are influenced by other donors' decisions. Dudley and Montmarquette (1976) describe a "bandwagon effect" whereby a donor decides to allocate its assistance to a recipient because many other donors have done so, while Frot and Santiso (2011) and Riddell (2007) describe the herding behaviour among donors whereby all of a sudden, donors pump money into a "star" country because they have seen others doing so. On the other hand, donors may allocate their aid to a recipient country to secure friendship with the recipient's powerful ally. For instance, Katada (1997) argue that Japanese aid allocation decisions are shaped by the following simultaneous objectives: own economic and political interests; collaboration with the USA in support of the latter's influence in the developing world; and improvement of the USA-Japan relationship by satisfying US interests in the Asia-Pacific region.

Thus, the lack of consistency and predictability in terms of who should get aid continues to puzzle and confuse the endless debate on aid effectiveness. Economists and political scientists continue to disagree on how useful aid is or what should be done to

make it more effective. Some have even called for its end because they consider it as a curse rather than a cure.

3.2.4 Natural resource vs foreign aid curse

There is currently consensus in the economics and political science literature that the presence of large amounts of natural resources has a negative impact on economic and political outcomes in what has been termed “The curse of natural resources” (Sachs and Warner, 1995, 1999, 2001; Ross, 2001).

Given that foreign aid is a source of non-tax windfall resources to the recipient countries, recent studies have argued that it may be detrimental to economic growth and governance in a fashion that is similar to the curse of natural resources. This comparison stems from their similar potential to damage the economies through three phenomena namely Dutch Disease (Younger, 1992; Rajan and Subramanian, 2005), revenue volatility (Arellano et al., 2009) as well as their potential to cause political instability by increasing corruption and reducing accountability (Bräutigam and Knack, 2004). Nager (2013) terms their similar effect as “curse of windfall incomes”. For Collier (2006:1483) they are “both sovereign rents, generating rent-seeking behaviour”. Smith (2006:19) describes them as “free resources” that result in policies that are harmful to both the economy and social welfare. In addition, both are partly fungible and provide extra resources that the ruling elite can easily appropriate (Khilji and Zampelli, 1994; Feyzioglu et al., 1998).

Natural resources rents and aid are both non-tax revenues and have been found to actually lead to reduced government’s efforts in tax collection. Ross (2001) showed that the effect of oil on authoritarianism acts through decreased tax revenue, while Remmer (2004) demonstrated that aid lowers tax effort. Similarly, using data for 118 countries

during 1980–2009, Benedek et al. (2012) concluded that the increase in ODA grants is associated with an equivalent reduction in tax revenues in countries with weak institutions. Disaggregating aid into loans and grants, Gupta et al. (2004) show that grants reduce tax effort but find a positive relationship between tax revenues and loans. Thornton (2014) uses a panel of 93 countries to show that one standard deviation increase in aid flows (equivalent to about 5% of recipient country GDP) causes the tax revenue-to-GDP ratio to drop by 0.52 percentage point.

However, the debate on the relationship between aid and recipient government's tax efforts often leads to contradictions. For instance Clist and Morrissey (2011) replicate and extend the analysis of Gupta et al. (2004) and show that the results are not robust. They actually found a positive effect of aid on tax revenue when they considered the period since the mid-1980s. Similarly, Carter (2013) shows that the results in Benedek et al. (2012) are not robust and are sensitive to the choice of econometric method. Recently, Morrissey and Torrance (2015) find no robust relationship between aid and tax revenue, whether using total aid or disaggregating it into grants and loans. Our model contributes to this unsettled debate.

Comparing the effect of both foreign aid and oil revenues on political institutions, Djankov et al. (2005a: 3) findings confirm the existence of a “foreign aid curse”. They show that both natural resources and foreign aid have statistically significant negative effect on democratic institutions. Moreover, they find that foreign aid is even more damaging to democracy than natural resources: “If the average amount of aid over GDP was 1.9% over the period 1960-1999, then the recipient country would have gone from the average level of democracy in recipient countries in the initial year to a total absence of democracy”. The effect of oil in the long-run is far smaller: Their findings show that “if the average amount of oil revenue over GDP was 12.2% over the same period, then

the recipient country would go from the average level of democracy of the recipient countries in the initial year to a total absence of democracy”. This means that, rather than promoting good governance and democracy, foreign aid may actually work against them.

Indeed, Bräutigam and Knack (2004) use the ICRG (International Country Risk Guide) index to show that higher levels of aid are associated with larger declines in quality of governance and in tax revenue as a share of GDP. They argue that although aid can be useful as in the case of Taiwan and South Korea, it has been a source of institutional destruction and increased moral hazard in Africa. Furthermore, using data from 66 aid recipient countries, Svensson (2000) showed that foreign aid and windfalls are associated with higher corruption in countries more likely to suffer from competition among different ethnic groups.

According to Morrison (2007), the only difference between ODA and natural resources rent is that aid can be made conditional on certain policy changes by the government. In fact, according to Morrissey (2013), conditionality in the context of aid policy is understood as attaching policy reform requirements (conditions) to aid to enhance its effectiveness in promoting growth and poverty reduction. Thus, aid conditionality is supposed to oblige recipient governments change their policies and especially to curb corruption, foster democracy and human rights. Aid conditionality also restricts the discretion that the recipient has in using it which makes it less prone to mismanagement and capture as opposed to natural resource revenues. Indeed, conditionality is widely hailed to have been “very effective” (Sedelmeier, 2008: 806) in the European Union’s enlargement strategy where the desirability of EU membership has prompted candidate states to adhere to conditions stipulated in the so-called *Acqui Communautaire*. Similarly, Öhler et al.(2010) argue that conditionality could work if

donors could adopt the ex-post rather than the usual ex-ante conditionality. That means donors should make credible promises that larger amounts of aid will be disbursed after key reforms have been implemented rather than making continuous small tranches of aid disbursements conditional on future changes in policies.

However, often conditionality is hard to enforce and donors face the difficulties resulting from potential moral hazard and adverse selection when they decide on which countries to help. According to Morrissey (2013) adverse selection arises from the fact that there are good, intermediate and bad recipients. Donors' main objective being to reduce poverty in recipient countries they prefer to give aid to recipients who will make the best use of it (i.e. good type) but they do not know which recipients these are. Similarly, moral hazard arises from the fact that donors would like to give aid to recipients who would use it properly. However, after receiving aid, some bad recipients may divert it to other uses. Although donors have made remarkable efforts to circumvent these difficulties, conditionality enforcement is still elusive.

On the one hand, recipients may fail to implement a reform imposed by conditionality because they are simply unable to do so or conditionality may fail to deliver the expected outcome because it was not appropriate in the first place (Morrissey, 2013). Moreover, the threat of punishment for non-compliance with conditionality is not credible since although most donors will claim to give aid to reduce poverty in recipient countries, often aid is also motivated by reasons such as building strategic alliances. Consequently, even when conditions are attached in theory, aid recipient governments do not fulfil them and donors keep quiet because of their other own interests or simply they do not want to be seen as abandoning the poor. In the words of Kanbur (2000, pp.321-323), "... the evidence is that aid flows continue even when conditionality is violated... Conditionality can be introduced on paper with much

pomp and circumstance, but when push comes to shove, all of the pressures, mostly from the donor side, are to look the other way when conditionality is violated.” Similarly, Collier (1997) argues that aid conditionality has failed because donors have been reluctant to implement the punishment in case of recipient’s breach of the conditionality agreement. For these reasons, “conditionality turned out to be a paper tiger: governments discovered they only needed to promise to reform, not actually do it” Collier (2007, p.67). Using data from 200 structural adjustment programs, Svensson (2003) concludes that there is no link between a country’s reform effort, or fulfilment of conditionality, and the disbursement rate of aid funds. The World Bank’s own internal evaluations find a similar disconnect between disbursement and conditionality fulfilment (World Bank, 1992a).

Although conditionality has undoubtedly improved transparency in the management of aid at the same time reducing considerably the discretion of recipient government in managing it, practical evidence shows that there is still a long way to go for aid to be free from mismanagement and corrupt practices. When aid is offered without such conditions or with conditions that will never be met or enforced (and a good proportion of aid is), it acts basically identically to natural resource revenues. In addition, although aid is not fully fungible as demonstrated by Van de Sijpe (2012), it is hard to deny the fact that aid relaxes the burden from recipient governments and makes it easier for them to commit their own resources to other uses including sometimes the non-developmental ones which would probably not have been funded if there was no aid. As such aid’s unintended side effects may end up being to strengthen authoritarian regimes at the same time weakening citizens’ position vis-a-vis the government in the same way as revenues from natural resources do. In the words of Prof. Angus Deaton, the 2015 Economics Nobel Prize winner, as quoted in the Times of 17th October 2015,

“I’m certainly not claiming that all foreign aid harms people. But I do believe, on average, it’s probably not doing much good. It breaks the links of responsibility between governments and their own people because the governments then finish up paying attention to aid agencies and not to what their own people need”(Frean, 2015).

In view of the above literature, it is clear that the debate on the effectiveness of foreign aid on economic growth on the one hand and the debate about the reasons that motivate aid donors on the other are still non-settled issues. Some economists have found evidence to suggest that foreign aid promotes economic growth while others have found zero or even negative impact. In short Clemens et al. (2004) describe the aid literature as having been alternately marred by aid proponents “confirmation bias” (Easterly 2006, 48) or by aid opponents’ selective reading of the empirical evidence (Hansen and Tarp 2000, 393). Our study contributes to this literature by introducing a new debate about the impact of aid on growth through financial development and investigates the role of political institutions. This chapter proposes a theoretical framework for that relationship.

Studying the impact of natural resources revenues on financial sector development Bhattacharyya and Hodler (2010) showed that they play a detrimental role. They suggested a theoretical model that demonstrates how, when political institutions are weak, natural resources revenues hinder contract enforcement institutions which leads to poor financial sector development. Inspired by this theoretical model, Bhattacharyya and Hodler (2014), use within-country variation in a sample covering the period 1970–2005 and 133 countries to empirically demonstrate that as poor contract enforcement leads to low financial development, resource revenues may hinder financial development in countries with poor political institutions, but not in countries with comparatively better political institutions. To our knowledge, despite the comparability

between natural resources and ODA revenues as explained above, no thorough study has been conducted on the impact of foreign aid on financial development in recipient countries.

Based on Bhattacharyya and Hodler (2010) and Bhattacharyya and Hodler (2014) hence forth called BH (2010) and BH (2014), we propose a theoretical model that explains how political institutions affect the relationship between foreign aid and financial development. Our hypothesis is that if aid is not conditioned to democratic and accountable governance, it weakens institutions by creating incentives for rent-seeking in recipient countries and by reducing the incentives for government to strengthen contract enforcement institutions. Through weak institutions, foreign aid hinders financial sector development.

3.3 ODA vs FD: A Theoretical Model

3.3.1 How does this model differ from the BH (2010)?

By building on BH (2010) model on natural resources and financial sector development to demonstrate the effect of ODA on financial development, we are innovatively applying part of their reasoning to a totally different concept with totally different policy implications. While natural resources are a sovereign property of the country and as such foreign governments may not be able to fully influence the way those revenues are used, ODA's use can be made conditional to specific targets both in governance and human development.

Secondly, our model is different from the one by BH (2010) because ODA is not taxable while natural resource revenues are. Furthermore, while BH (2010) consider tax (t) as exogenously fixed, we argue that a dictator can also choose different levels of tax collection and this is another indication of institutional strength or weakness. If t is high,

it means the government collects more taxes and this shows how strong the tax administration is (i.e. t is directly related to λ because if λ is high, then t is also high and vice versa). This has also helped us to study the relationship between aid and efforts to collect taxes by recipient governments. Many studies, including Moss et al. (2008), Knack (2009), and Thornton (2014) have shown that ODA reduces the incentives for the government to collect taxes.

This model differs from BH(2010) because to us, the probability that citizens will be able to remove a corrupt government depends on both the level of contract enforcement in the country as well as the level of pressure that the donors put on aid recipient government to govern democratically. This foreign influence will dictate the choice that the government will make to either be corrupt or not. In addition, contrary to BH(2010), we recognise the fact that it is costly for citizens to oust a government. Thus if they try to oust it and fail, they lose a fraction of their revenues.

The other important difference between this model and the one by BH(2010) is that to them as long as citizens observe any level of corruption greater than zero i.e. $\theta > 0$, they start the process of ousting the corrupt government. In this model, we are able to demonstrate that there is a threshold of acceptable corruption levels that citizens will have to live with. In our opinion this is more realistic. Furthermore, in this model, when the government chooses to be corrupt, its maximization problem is constrained by the condition that, since government needs to collect taxes t to pay for salaries, it must balance this with the amount it collects for its own enrichment i.e. corruption rents φ . This means that the government is constrained by $t + \varphi \leq 1$ condition while BH(2010)'s model solves an unconstrained maximization problem.

Finally, we try to be more realistic by recognising the fact that when a government is ousted, even though the incoming government may try to recover the ill-

acquired wealth from the outgoing government, the later still keeps a fraction of that wealth. Contrary to BH(2010) who did not apportion the recovered revenues to any player, we have assumed that this is going to the citizens.

3.3.2 Economic part of the model

We suppose an economy with a government, citizens and one firm. Each citizen has 1 unit of capital and 1 unit of labour that he supplies inelastically. The firm borrows and hires from citizens to produce output Y with a Cobb Douglas production technology $Y=L^\beta K^{1-\beta}$ with $\beta \in [0, 1]$. The capital K that citizens lend to the firm represents our measure of financial development. So $K \leq 1$. If K is high, it means that citizens lend a big fraction of their capital which makes more capital available for the firm to borrow. This assumption is in line with the literature, where private credit is widely used as a measure of financial development.

After production, the firm pays wages W to its workers. To simplify the analysis, we assume that the labour legislation is so strong that the firm has no possibility of defaulting on wages. However depending on the quality of institutions that enforce loan contracts, it can decide to pay back the capital loan, K , or not. If it pays back, the amount to be paid is $(1+r)K$ where r is the interest rate.

We further assume a situation where if the firm does not pay back, λ i.e. a share of its profit net of wage is confiscated by the contract enforcement institution which is independent from government. Then that fraction λ of the firm's profit is given to citizens. $\lambda \in [0, 1]$ and this measures the level of contract enforcement or equivalently, the quality/strength of institutions enforcing contracts.

Suppose the country receives foreign aid equal to A . This means that country's total income is $Y+A$ (i.e. output from the firm's production and aid).

3.3.3 Political part of the model

The government sets the level of contract enforcement $\lambda \in [0, 1]$. The government can also decide to extract some rents for personal enrichment i.e. ϕ . In other words, ϕ represents the level of corruption in the country and since the government needs to collect taxes t to pay for its expenses including salaries, it makes sure that $(t + \phi) \leq 1$. In extreme cases, a dictator may choose to forget about taxes because he gets his rents through corruption. The taxation system collapses, as it happened in Zaire when civil servants including the military (except Mobutu's body guards) were not paid. However, this is an extreme case and we shall only focus on the general case whereby salaries are always paid.

Similarly, some literature (e.g. Leff, 1964; Huntington, 1968; Heckelman and Powel, 2010) has argued that when economic freedom is most limited, some low levels of corruption may be growth enhancing by allowing individuals to pay bribes in order to circumvent inefficient rules and bureaucratic delays. Our model will take this into consideration by assuming that there exists a level of corruption that citizens may decide to live with.

While it may be argued that corruption rate is never announced publicly, we know that in corrupt countries, everybody knows that it is there and for instance one will know approximately how much bribe she will have to pay to get a given service. This was the case in Zaire and it is still the case in many African countries such as Kenya, Tanzania and Uganda where it has got a nicer name of "Kitu kidogo" a Swahili name meaning "something small" as to say that one must pay something small (i.e. a bribe) -though not always small- before getting a service (Mutsamura, 2009), or in Cameroon where they call it "oiling of palms" or "pushing the files" or "buying a beer". As the Uganda National Integrity report (2008:16) puts it, many people consider paying bribe

as a means to access services. One of their respondents said “... Even when you are buying land, there are very many middlemen including the LCs (Local councillors) who always want to be paid off not to choke the deal. The LCs have now fixed a percentage of money to be paid to them on each plot of land sold within their area of jurisdiction”.

Given that ODA is not taxable, then total government revenue is $(t + \phi) Y + \phi A$ (i.e. their salary from taxes and the amount they unlawfully appropriate in different corruption deals).

So the government may decide to appropriate a certain percentage of ODA as well as seeking bribe, but this will depend on the level of contract enforcement in the country. As in BH (2010) model, there is a trade-off between the levels of contract enforcement and corruption. The reason being that in general, it is costly to establish and promote the rule of law, and contract enforcement, in particular. Thus, the presence of a strong contract enforcement environment is likely to reduce or even eliminate the amount of resources that the government can appropriate. In the same way, if there is rule of law, it becomes very difficult to fraudulently appropriate resources. According to BH(2010), the other justification of this assumption is that some politicians may be better in fostering contract enforcement while others are better at engaging in corruption, such that a head of government who primarily appoints ministers that are good in fostering contract enforcement may end up with a cabinet that does poorly in embezzling resources. Furthermore, as government does not have unlimited time at its disposal, the more time it devotes to fostering contract enforcement the less time becomes available for corrupt activities and vice versa. Thus, government's choice of λ and ϕ satisfies $(\lambda + \phi) \leq 1$ and although in practice the institutional change takes some time, we simplify our analysis by assuming that by choosing a certain level of ϕ , the government sets, de facto, the level of λ . If λ has been historically high, then ϕ cannot

be too high. But if λ is historically low as in most aid recipient countries, then by choosing low ϕ , the government effectively chooses to strengthen contract enforcement.

On the other hand, when a government is elected into office, it enters into contractual agreement with citizens because they vote for a leader whose manifesto they like most. If he does not deliver on it, they remove him. They can only succeed in removing him if contract enforcement institutions are strong. We should have in mind that the main assumption here is that democracy and contract enforcement go together and one implies the other. We should however note that the case of countries such as China is an exception and does not represent the general trend and not at least the case of most aid recipient countries. If there is a culture of strong contract enforcement, then the government will know that if it does not adhere to transparency (a fact that will oblige the firm to pay back) but engages in corruption (which is itself facilitated by the lack of strong contract enforcing institutions and which will encourage the firm not to pay back), the population will remove it during the next election or can simply call for fresh elections and remove it even before the end of the current term.

If citizens try to oust the government, there is probability p that they can succeed and p also measures the levels of democracy. If citizens are successful, the government is ousted. The assumption is that citizens inherently dislike corruption and like democracy and transparency. However, their success in removing a corrupt government depends on the strength of democratic institutions, which in turn depends on both internal and external factors. It is worth remembering that the possibility of citizens to freely elect or remove their leaders, express preferences about different policies with possibility of rejecting them are some of the fundamentals of democracy as defined by Freedom House and Polity IV. If we consider internal factors to be the strength of contract enforcement institutions and external factors to be the fact that ODA is

conditioned to strong democracy, then we can have $p = \mu_1 \lambda + \mu_2 F$ where λ and F represent internal and external factors respectively. μ_2 represents the importance and enforceability of political governance conditionality i.e. the likelihood that donor government may enforce the conditionality attached to aid if the recipient government does not give freedom to citizens or does not allow effective checks and balances.

So if μ_2 is high, then the chance that citizens have in changing the government through elections is high. This should not be understood as meaning that donors should aim at removing governments in recipient countries. Actually, the constitution of the World Bank prohibits her from pursuing such or a similar a target. However, every effort should be made to avoid that aid prolongs the misery of the people it is intended to help. In the words of Djankov et al. (2008 pp.170) who paraphrased Collier and Dollar (2004), “at a minimum donors and international agencies should abide by the Hippocratic Oath: do no harm”.

The size of μ_2 will depend on the importance of ODA to the survival of the incumbent government and as Djankov et al. (2008) and Moyo (2009) demonstrated, most of aid recipient governments have continuously depended on ODA with countries such as Burkina Faso having two-thirds of their budget being funded by foreign aid. In fact Bräutigam and Knack (2004) showed that in 1999, 17 Sub-Saharan Africa countries relied on aid for more than 50% of government expenditure with other 10 countries depending on aid for more than 25% of their expenditure. So for most aid recipient countries, μ_2 is potentially high, but often aid donors decide not to use it for their own country's interests.

Moreover, there is probability $1-p$ i.e. $1 - \mu_1 \lambda - \mu_2 F$ that the government can stay in power even if it is corrupt. Finally, removing the government is costly. Thus citizens lose a certain amount of revenues “ δ ” when they try to oust it. Therefore because of

these transaction costs that accrue when the incumbent government is removed, citizens will decide to keep it in office if they are indifferent between the two outcomes (i.e. removing it or keeping it).

3.3.4 Payoffs

If the incumbent government stays in power, it will get salary and the corruption rents. Knowing that a fraction α of the taxes collected is used to pay for public goods, that means that the government gets $[(1-\alpha)t+\phi]Y + \phi A$. If it is ousted, it loses its salaries and pays back some of the wealth illegally acquired. This is ideally what should happen in a real democracy where laws punishing this kind of corrupt behaviour such as the POCA (Proceeds of Criminal Act) are in force. Since it is not necessary that all these proceeds are recovered, as long as a positive amount can be returned, we will assume that the government keeps a fraction b of what it has collected when it is ousted. It may be argued that in real life when a corrupt government is removed, it keeps the salaries already paid as well as the illegally appropriated resources.

Although this may be true in many cases, we have seen in the recent past, countries successfully recovering a good share of the plundered resources, thanks to the cooperation in the international judiciary system. For instance, according to the International Centre for Assets Recovery (2014), after the death of Sani Abacha, the Nigerian government successfully initiated action to recover the funds that he had stolen from public coffers.

On the other hand, if the government is not corrupt, citizens will have no incentive to remove it and it gets its revenues from tax collection i.e. $t Y$.

On the other hand each citizen's income comes from 3 sources namely:

a. The wage W

b. A share α of the revenues collected by the incumbent government i.e. αY in the form of public good as well as the part of the aid that is not misappropriated by government in its corruption practices i.e. $(1-\phi)A$ if the government is corrupt and stays; that is $\alpha Y + (1-\phi)A$. If the government is corrupt and is ousted, the citizens will recover $(1-b) \{[(1-\alpha) Y + \phi A]\}$ out of the government's corruption rents. If the government is not corrupt, citizens receive $\alpha Y + A$.

c. If the firm pays back, the citizens get $1+r K$ and $(1-K) + \lambda \pi$ otherwise

Finally, let's turn to the firm's payoffs. As earlier explained, we assume that if the government is not corrupt, the contract enforcement institutions are so strong that the firm cannot afford not to pay back. This case is not interesting for our study. However, if the government is corrupt, the firm will decide whether to pay back or not.

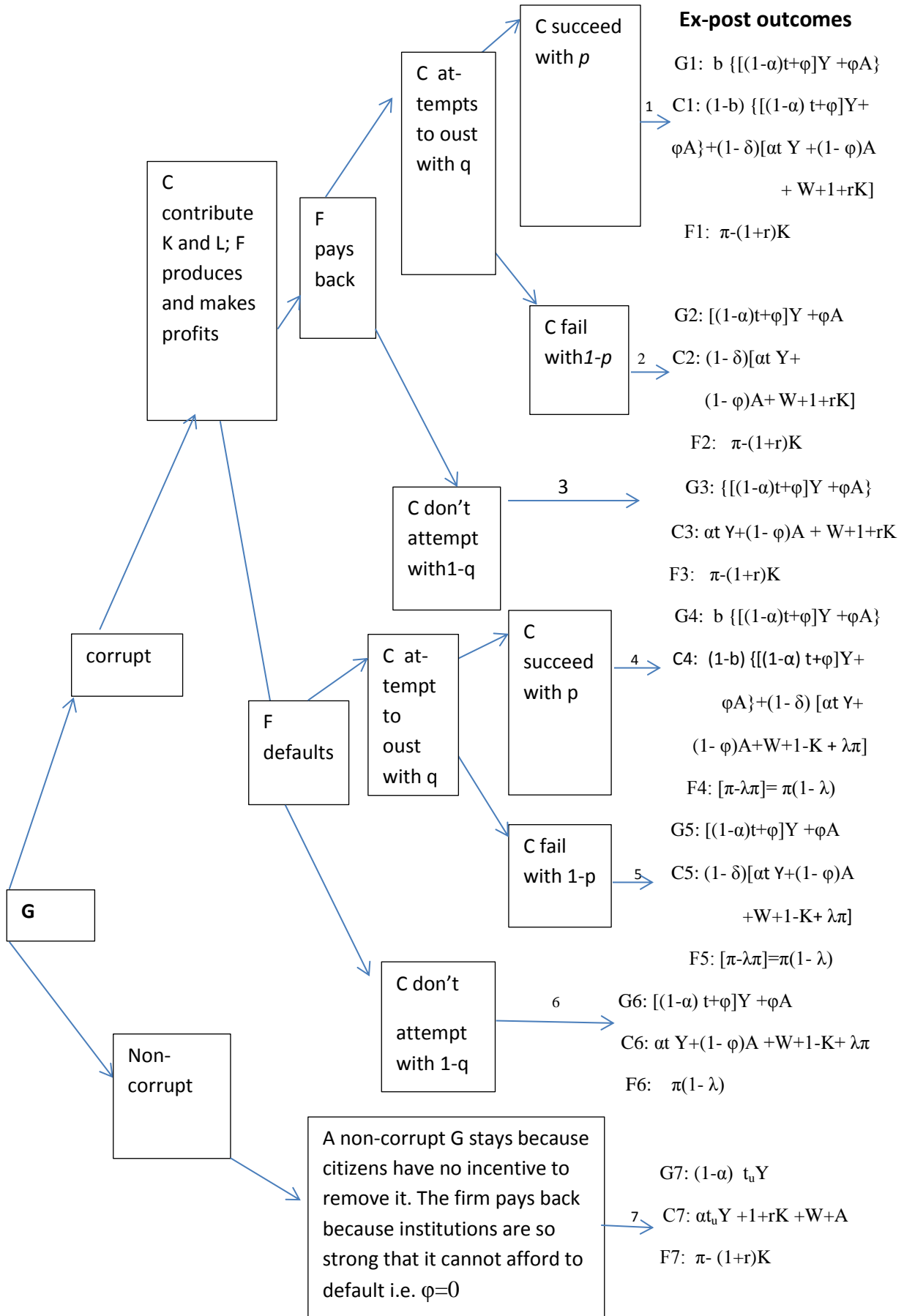
a. If the firm pays back, it gets its profit net of $K(1+r)$ i.e. $\pi - K(1+r)$.

b. If the firm does not pay back, it gets $\pi(1-\lambda)$ i.e. a fraction of its profits is confiscated by a contract enforcement institution which is independent from government and given to citizens.

The tree in Figure 1 below represents the decisions and payoffs of the main players. In the tree, G stands for government, C represents citizens, F stands for firm, K is capital, L is labour, W stands for wage, Y represents the output, A represents aid receipts, π is profits. G1, C1, F1, G2, C2, F2, etc. represent the different ex post payoffs for all the players depending on the actions they take as represented by the different sequences of arrows. For instance, G1 means payoff for the government represented by the sequence of arrows ending with arrow 1. G2 represents the payoff for the government represented by the sequence of arrows ending with arrow 2 and so on. Similarly, the following parameters are used in the tree. b is the percentage of revenues that the government retains if it is ousted, ϕ is the rate of corruption, q is the probability

that citizens will attempt to oust a corrupt government, p is the probability of successfully ousting a corrupt government, α is the share of the revenues collected by government which is given to citizens in terms of public goods. In real life, however corrupt a government can be, it always tries to provide some public goods for instance in terms of education, hospitals, army, police, etc. These may not be efficient, but they are always there and they are presented as meant to help citizens. Of course some of them like security services are usually there to protect the dictator rather than the citizens. δ is the share of the revenues of citizens that is used when attempting to remove the government, t is the tax rate when the government is corrupt while t_u is the tax rate when the government is not corrupt. In principle, these two tax rates may be different because the objectives of a corrupt government in terms of taxation are reasonably understood to be different from when it is not corrupt.

Figure1. Decision tree indicating ex-post payoffs for all the players



The timing of the game is in the following sequence:

1. The government chooses t, λ and ϕ .
2. Each citizen chooses K to give to the firm and the firm hires L
3. The firm produces Y to the economy and makes profits π
4. The firm decides whether to repay $K(1+r)$ to citizens or not
5. If the firm decides not to pay back, then a fraction of their profit, $\lambda \pi$ is confiscated by law enforcers who are independent of government and this amount is given to citizens
6. Citizens choose whether to oust the government with probability q and choose not to oust it with probability $1-q$. They can succeed in removing the government with probability p and they can fail with probability $1-p$. However removing government is costly and citizens will have to spend a fraction δ of the revenues that they get if they do not attempt. When the government collects revenues, it uses those on three issues i.e. salaries t , corruption rents with rate ϕ and the provision of public goods α . If the government is ousted, it retains a fraction b of the revenues they collected with the remaining fraction $1-b$ going back to citizens. If they stay, then they retain all of it.

Therefore payoffs for the three players are as follows:

If the firm pays back and citizens attempt to oust the government, their pay off is $C1+C2$ i.e. $p\{(1-b) \{[(1-\alpha)t+\phi]Y + \phi A\} + (1-\delta)[\alpha Y + (1-\phi)A + W + 1+rK]\} + (1-p)(1-\delta) [\alpha Y + (1-\phi)A + W + 1+rK]$. The government will receive $G1+G2$ i.e. $qp b \{[(1-\alpha)t+\phi]Y + \phi A\} + (1-p)q \{[(1-\alpha)t+\phi]Y + \phi A\}$. The firm will receive $\pi - K(1+r)$.

If the firm pays back and citizens do not attempt to oust the government, they get

$C3: \alpha Y + (1-\phi)A + W + 1+rK$. The government gets $G3: (1-q) [(1-\alpha)t+\phi]Y + \phi A$ and the firm receives $F3: \pi - K(1+r)$.

If the firm defaults and citizens decide to attempt ousting the government, they receive $C_4 + C_5 = p \{ (1-b) \{ [(1-\alpha) t + \phi] Y + \phi A \} + (1-\delta) [\alpha Y + (1-\phi) A + W + 1 - K + \lambda \pi] \} + (1-p) (1-\delta) [\alpha Y + (1-\phi) A + W + 1 - K + \lambda \pi]$.

The government receives $G_4 + G_5 = qpb \{ [(1-\alpha) t + \phi] Y + \phi A \} + q(1-p) \{ [(1-\alpha) t + \phi] Y + \phi A \}$ as above because the payoff of the government does not depend on the firm's decision. The firm then receives $(1-\lambda)\pi$. If the firm defaults and citizens decide not to attempt ousting the government, they get C_6 : $\alpha Y + (1-\phi) A + W + 1 - K + \lambda \pi$. Then the government gets G_6 : $(1-q) \{ [(1-\alpha) t + \phi] Y + \phi A \}$. The firm gets $(1-\lambda)\pi$.

Equilibrium analysis

We derive our results in two steps: Firstly, we derive the equilibrium of the economy and financial development for any λ , t and ϕ . Then we check how levels of ODA affect financial development in the politico-economic model. Using backward induction, we analyse each player's incentives from the payoffs above by answering the following questions: When will citizens decide to oust the government? When will the firm decide to pay back or default? And finally when will the government decide to be corrupt or not?

Citizens must choose to either oust the corrupt government or not. If the firm pays back, they will decide to remove the government if and only if $pC_1 + (1-p)C_2 \geq C_3$. If the firm defaults, they will decide to remove the government if and only if $pC_4 + (1-p)C_5 \geq C_6$.

So, when will the citizens decide to oust the government?

This decision will depend on whether the firm pays back the loan or not.

Thus, if the firm pays back citizens will only decide to remove the government if $p \{ (1-b) \{ [(1-\alpha) t + \phi] Y + \phi A \} + (1-\delta) [\alpha Y + (1-\phi) A + W + 1 + rK] \} + (1-p) (1-\delta) \{ \alpha Y + (1-\phi) A + W + 1 + rK \} \geq \alpha Y + (1-\phi) A + W + 1 + rK$. By solving for ϕ we get

$$\phi \geq \frac{\delta [\alpha t Y + A + W + 1 + rK] - p(1-b)(1-\alpha)tY}{p(1-b)(Y+A) + \delta A} \equiv \underline{\phi} \quad (1)$$

On the other hand, if the firm does not pay back, citizens will decide to attempt ousting the government only if $p\{(1-b)\{[(1-\alpha)t + \phi]Y + \phi A\} + (1-\delta)[\alpha t Y + (1-\phi)A + W + 1 - K + \lambda\pi]\} + (1-p)(1-\delta)[\alpha t Y + (1-\phi)A + W + 1 - K + \lambda\pi] \geq \alpha t Y + (1-\phi)A + W + 1 - K + \lambda\pi$. By

$$\text{solving for } \phi \text{ we get } \phi \geq \frac{\delta [\alpha t Y + A + W(1-\lambda) + 1 - K + \lambda(1-t)Y] - p(1-b)(1-\alpha)tY}{p(1-b)(Y+A) + \delta(A + \lambda Y)} \equiv \underline{\phi} \quad (1)'$$

This means that if the corruption level goes beyond these thresholds, citizens will decide to oust the government. Otherwise they will live with it.

When will the firm decide to pay back?

By looking at the payoffs above, the firm decides to pay back if and only if

$p[\pi - K(1+r)] + (1-p)[\pi - K(1+r)] \geq p\pi(1-\lambda) + (1-p)\pi(1-\lambda)$. By rearranging this inequality we get $K(1+r) \leq \pi\lambda \quad (2)$.

So the firm pays back if and only if the amount that would be confiscated in case of default is greater than what it owes the citizens.

When will Government decide to be corrupt?

In our model the government can decide to be corrupt or not. We have shown above the government's payoffs associated with each decision. So the government will decide to be corrupt if and only if $pqG1 + q(1-p)G2 + (1-q)G3 \geq (1-\alpha)t_u Y$ i.e.

$$qp\{[(1-\alpha)t + \phi]Y + \phi A\} + q(1-p)\{[(1-\alpha)t + \phi]Y + \phi A\} + (1-q)[(1-\alpha)t + \phi]Y + \phi A \geq (1-\alpha)t_u Y.$$

$$\text{By solving for } b \text{ we get } b \geq 1 - \frac{1}{pq} \left[1 - \frac{(1-\alpha)t_u Y}{[(1-\alpha)t + \phi]Y + \phi A} \right] \equiv \underline{b} \quad (3)$$

So the government will decide to be corrupt only and only if it is sure that the amount it will retain if it is ousted is greater than the above fraction, \underline{b} . From the same inequality,

this is only possible if the government can set $\phi \geq \frac{(1-\alpha)t_u Y}{(Y+A)[1+pq(b-1)]} - \frac{(1-\alpha)t Y}{(Y+A)}$

Now let's turn to the impact of ODA on K per se:

Since the labour market is competitive, and labour is supplied inelastically, then in equilibrium $L=1$. We know that with a Cobb-Douglass production technology $Y=L^\beta K^{1-\beta}$ $MP_L = w = \Delta Y / \Delta L = \beta Y/L$ and $MP_K = \Delta Y / \Delta K = (1-\beta) Y/K$. So, with $L=1$ then $w = \beta Y = \beta K^{1-\beta}$. But the firm knows that it will pay tax and some bribe i.e. $(t + \phi)Y$. Thus, it will set its equilibrium wage at $(1-t-\phi) \beta Y = (1-t-\phi) \beta K^{1-\beta}$. Therefore, the firm's total revenue net of taxes and bribes is $TR = (1-t-\phi) Y = (1-t-\phi) K^{1-\beta}$ and its profit $\pi = (1-t-\phi) K^{1-\beta} - (1-t-\phi) \beta K^{1-\beta} = (1-t-\phi) (1-\beta) K^{1-\beta}$.

As said earlier, the firm will decide to pay back or default depending on the quality of contract enforcement institutions, i.e. λ . The firm will pay back if and only if $(1+r) K \leq \lambda \pi$ i.e. if the proportion of its profits that may be confiscated in case it defaults is greater than the debt due. We can solve for K by rearranging as follows:

$$(1+r) K \leq \lambda \pi \rightarrow K \leq \frac{\lambda \pi}{1+r} \quad \text{with } \pi = (1-t-\phi) (1-\beta) K^{1-\beta} \text{ we get } K \leq \frac{\lambda (1-t-\phi)(1-\beta) K^{1-\beta}}{1+r}$$

solving for K we get $K \leq \left[\frac{\lambda (1-t-\phi)(1-\beta)}{1+r} \right]^{1/\beta}$. Since β is constant, then we can write

$$K \leq H(\lambda, \phi, t, r) \equiv \left[\frac{\lambda (1-t-\phi)(1-\beta)}{1+r} \right]^{\frac{1}{\beta}} \quad (4). \text{ Here, H increases in } \lambda, \text{ and decreases in } \phi, t \text{ and } r \text{ and } H(\lambda, \phi, t, r) < 1 \text{ for any } \lambda, \phi, t \text{ and } r \geq 0 \text{ meaning that citizens will not lend all the capital because } K \leq H < 1.$$

In a competitive market, the competition among citizens (i.e. owners of capital) will drive interest rates to zero i.e. $r = 0$. Thus, at the equilibrium level of λ , t and ϕ , our financial development $K = H(\lambda, \phi, t, 0)$ because citizens will only lend their capital to a level at which the firm will not default, but also to a level that maximizes their interest payments. At that level of K our domestic production is $Y = H(\lambda, \phi, t, 0)^\beta$.

Players will be involved in the political game as follows:

The Government has set the levels of λ , t and ϕ , and now the citizens decide to oust the government because $\phi \geq \underline{\phi}$ i.e. the level of corruption cannot be tolerated by citizens as demonstrated above in equation (1). However, the government knows the market outcomes of its policy and the likely citizens' reaction. So it can decide to be uncorrupt and reinforce contract enforcement institutions i.e. $\lambda=1$ and $\phi=0$. As said earlier, we assume that by choosing a given level of ϕ , the government sets itself a target of λ . On the other hand, if it decides to be corrupt, it will maximize its total revenue i.e. maximize $[(1-\alpha)t + \phi] H(\lambda, \phi, t, 0)^B + \phi A$ meaning that it will set ϕ at its maximum possible.

The two options of being corrupt or uncorrupt give two different payoffs to government as follows:

a) Uncorrupt $S^u = H(1, 0, 1, 0)^B$. As earlier explained, we assume that when the government is not corrupt, its main concern is the welfare of its people such that it sets $\phi=0$. Thus, although in real life institutional change takes time, we simplify our analysis by assuming that by choosing $\phi=0$, it sets $\lambda=1$

b) Corrupt $S^c = \max_{\phi} \{ qpb \{ [(1-\alpha)t + \phi] H(1-\phi, \phi, t, 0)^B + \phi A \} + (1-p) q \{ [(1-\alpha)t + \phi] H(1-\phi, \phi, t, 0)^B + \phi A \} + (1-q) \{ [(1-\alpha)t + \phi] H(1-\phi, \phi, t, 0)^B + \phi A \} \}$. Equivalently,

$$S^c = \max_{\phi} \{ \{ [(1-\alpha)t + \phi] H(1-\phi, \phi, t, 0)^B + \phi A \} [1 + (pq(b-1))] \} \text{ with } \lambda = 1 - \phi.$$

The government will choose the best uncorrupt strategy if and only if

$S^u \geq (1-p) S^c$ i.e. when the outcome of being uncorrupt is greater than the outcome of being corrupt and stay in power. As we demonstrated earlier, this can be written as

$$S^u \geq (1 - \mu_1 \lambda - \mu_2 F) S^c. \text{ By rearranging we can solve for } \mu_2.$$

We get $\mu_2 \geq \frac{1}{F} (1 - \mu_1 \lambda - \frac{S_u}{S_c}) \equiv \mu'_2$ (5). So the government chooses the uncorrupt strategy if $\mu_2 \geq \mu'_2$. Otherwise, the government will prefer to maximize its revenue through corruption.

Now let's check the effect of higher A on financial development:

Proposition 1: *If donors' willingness (or capacity) to enforce promotion of democratic governance conditionality is weak, i.e. $\mu_2 \leq \mu'_2$ then a marginal increase in official development assistance (ODA) leads to more corruption and reduces financial development K in recipient country. On the other hand, if $\mu_2 \geq \mu'_2$ i.e. if that willingness is high, then ODA does not affect levels of corruption and therefore does not reduce financial development.*

Proof

If $\mu_2 \geq \mu'_2$ i.e. the pressure that donors exercise on the recipient government to promote democracy by making it an enforceable condition to ODA disbursement is big, then democracy and political contract enforcement institutions are strong. In this case, the aid recipient government chooses the uncorrupt strategy and $K = H(1, 0, 1, 0)$ at any level of A. Thus, marginal change in A has no effect on K.

On the other hand, if $\mu_2 \leq \mu'_2$ i.e. the pressure that donors exercise on the recipient government to promote democracy by making it a condition to ODA disbursement is not significant, then democracy and political contract enforcement institutions are weak.

The recipient government chooses the corrupt strategy with φ maximizing

$$\{[(1-\alpha)t+\varphi]H(1-\varphi, \varphi, t, 0)^\beta + \varphi A\} [1+(pq(b-1))] \text{ subject to } t+\varphi \leq 1$$

Let's now solve the government's maximization problem:

$$\max_{\varphi} \{[(1-\alpha)t+\varphi]H(1-\varphi, \varphi, t, 0)^\beta + \varphi A\} [1+(pq(b-1))] \text{ subject to } t+\varphi \leq 1 \quad (6) \text{ which is the same as } \max_{\varphi} \{[(1-\alpha)t+\varphi] K^\beta + \varphi A\} [1+(pq(b-1))] \text{ subject to } t+\varphi \leq 1.$$

$[1+(pq(b-1))]$ being a constant we can ignore it here to simplify our analysis.

From equation (4), we know that $K \leq H(\lambda, \phi, t, r) \equiv \left[\frac{\lambda(1-t-\phi)(1-\beta)}{1+r} \right]^{\frac{1}{\beta}}$ and $\lambda = 1 - \phi$

So (6) becomes $\max_{\phi} [(1-\alpha)t + \phi] \left[\frac{(1-\phi)(1-t-\phi)(1-\beta)}{1+r} \right] + \phi A$ subject to $t + \phi \leq 1$

And we have $r = 0$ because of competition

So we have a Lagrangian function:

$$\max_{\phi} L \equiv [(1-\alpha)t + \phi] (1-\phi) (1-t-\phi) (1-\beta) + \phi A + v(1-t-\phi)$$

The first order condition is

$$\frac{\partial L}{\partial \phi} = (1-\beta) \{ (1-\phi) (1-t-\phi) + [(1-\alpha)t + \phi] \frac{\partial (1-\phi)(1-t-\phi)}{\partial \phi} \} + A - v = 0$$

$$\text{FOC gives us } \frac{\partial L}{\partial \phi} = G \equiv (1-\beta) \{ (1-\phi) (1-t-\phi) - (2-t-2\phi) [(1-\alpha)t + \phi] \} + A - v = 0 \quad (7)$$

$$\frac{\partial L}{\partial t} = G' \equiv (1-\alpha) (1-\phi) (1-t-\phi) (1-\beta) - [(1-\alpha)t + \phi] (1-\phi) (1-\beta) - v = 0 \quad (8)$$

$$\frac{\partial L}{\partial v} = G'' \equiv 1 - t - \phi = 0 \quad (9)$$

and the second order condition must hold i.e. $\frac{\partial G}{\partial \phi} < 0$. Looking at the above equation (7)

we can observe that $\frac{\partial G}{\partial A} > 0$. We know that implicit function rule is as follows: $\frac{\partial y}{\partial x} =$

$-F_x / F_y$. Thus, $\frac{\partial \phi}{\partial A} = -F_A / F_{\phi} = -\frac{\partial G}{\partial A} / \frac{\partial G}{\partial \phi}$. Therefore, the implicit function theorem implies

that $\frac{\partial \phi}{\partial A} > 0$. This means that an increase in foreign aid leads to more corruption.

On the other hand, since $\frac{\partial H(1-\phi, \phi, 0, t)}{\partial \phi} < 0$ i.e. $\frac{\partial K}{\partial \phi} < 0$ and $\frac{\partial \phi}{\partial A} > 0$ as above

demonstrated, then the chain rule implies that $\frac{\partial K}{\partial A} < 0$. We know that the chain rule is as

follows: $Y = f(u)$ and $U = g(x)$, then $\frac{\partial y}{\partial x} = \frac{\partial y}{\partial u} \cdot \frac{\partial u}{\partial x}$. Thus, in our case we have $\frac{\partial K}{\partial A} = \frac{\partial K}{\partial \phi} \cdot \frac{\partial \phi}{\partial A}$

< 0 . This means that a marginal increase in ODA leads to a decrease in K.

END OF PROOF

Proposition 2: *If donors' willingness (or capacity) to enforce promotion of democratic governance conditionality is weak, i.e. $\mu_2 \leq \mu'_2$ then a marginal increase in Official*

Development Assistance (ODA) reduces tax collection efforts in recipient country. On the other hand, if $\mu_2 \geq \mu'_2$ i.e. donors' willingness is high, then ODA does not reduce efforts to collect taxes.

Proof

From equation (7), let's check the impact of ODA on taxation. $\frac{\partial G}{\partial t} = (1-\beta)\{-(1-\phi)-[(1-\alpha)t+\phi] + (1-\alpha)(2-t-2\phi)\}$ i.e. $(1-\beta)\{(2\phi-1) + 2(1-\alpha)[t-(1-\phi)]\}$. With $t+\phi=1$ we can observe that the above expression becomes $\frac{\partial G}{\partial t} = (1-\beta)(2\phi-1)$

Thus, $\frac{\partial G}{\partial t} > 0$ for any $\phi > 0.5$ and $\frac{\partial G}{\partial t} < 0$ for any $\phi < 0.5$. Since from equation (2) $\frac{\partial G}{\partial A}$

> 0 then the implicit function suggests that $\frac{\partial t}{\partial A} = -F_A/F_t$ i.e. $-\frac{\frac{\partial G}{\partial A}}{\frac{\partial G}{\partial t}}$ that is $\frac{\partial t}{\partial A} < 0$ for any

$\phi > 0.5$ i.e. a marginal increase in ODA leads to a decrease in taxes collected when corruption levels are beyond 0.5. On the other hand, $\frac{\partial t}{\partial A} > 0$ for any $\phi < 0.5$ meaning that a marginal increase in aid leads to an increase in taxes collected in countries that are less corrupt. *END OF PROOF.*

The intuition behind the figure 0.5 is not clear. However, the basic point here is that aid is less effective on tax if corruption is above some threshold. This result is consistent with previous research including Benedek et al. (2012) who, using data for 40 countries, grouped them into quartiles using the ICRG index and concluded that the coefficient estimates on ODA grants is significantly negative for countries falling in the bottom two quartiles. For the bottom quartile of corrupt countries, they found this effect to be particularly strong with almost complete revenue offset on each additional dollar of net ODA. Other studies with similar or comparable conclusions include Gupta et al. (2004), Ghura (1998), Knack (2001), Remmer (2004). However, these results should be carefully interpreted as in practice, most of high aid recipients are also high

corruption and low tax countries making it hard to argue that aid is the cause of low tax revenues. In fact as earlier mentioned, there are other studies that have criticised this kind of results and proved them to be fragile or sensitive to the choice of econometric methodology. These include Clist and Morrissey (2011), Carter (2013) and Morrissey and Torrance (2015) among others.

3.4 Conclusion

In this chapter, we have innovatively built a theoretical model that intuitively shows the negative relationship between ODA and financial development on the one hand and ODA and government's efforts to collect taxes on the other. This model has the merit of being the first of its kind in this ODA-financial development-institutions nexus.

The main implication of our model is that a marginal increase in ODA leads to a marginal increase in corruption levels when recipient government know that donors are not likely to implement the governance conditionality clauses (if any) attached to aid. Since there is a trade-off between corruption and strength of contract enforcement institutions, this leads to weak institutions and contracts cannot be enforced effectively. This in turn makes citizens reluctant to lend their capital so that capital available for lending decreases. In brief, by weakening contract enforcement institutions through increased corruption, a marginal increase in aid leads to a decrease in capital available for lending and this is an indication of poor financial sector development.

In the same way, our model predicts that an increase in ODA may lead to fewer taxes collected. However, the model predicts that this relationship only applies after a certain threshold. This may make sense, because in countries where corruption is not very high, ODA is likely to help in strengthening the tax administration so that more tax

is collected. In fact there is a literature (e.g. Leff, 1964; Huntington, 1968; Heckelman and Powel, 2010) which argues that low levels of corruption may be growth enhancing especially when economic freedom is most limited because it allows individuals to pay bribes in order to circumvent inefficient rules and bureaucratic delays. However the same literature purports that the beneficial impact of corruption decreases as economic freedom increase. Nevertheless, we feel that further research is needed to ascertain and determine the real meaning of those thresholds.

Since this study is the first to propose a theoretical framework showing the impact of aid on financial development, further research is recommended to explore the impact of relaxing some of the strong assumptions that we made. It is recommended for instance that further studies investigate how the model's predictions would change by modifying how aid is entered.

The intuitive prediction of the model presented in this chapter concurs with earlier research which found that ODA weakens institutions by creating a dependency mentality in recipient countries. Instead of concentrating on collecting taxes and making policies that help the private firm produce more (which would only be possible if it can get enough capital/loan), government officials spend time trying to find out how to get more bribes on the one hand and please donors on the other. Accountability becomes more directed to foreign donors rather than to the citizens (whose taxes are no longer a priority), citizens engagement which is a reflection of democracy declines, contract enforcement institutions become weaker, lenders decide not to lend because the likelihood of getting reimbursed with interest decreases and the financial sector becomes less and less developed.

Chapter 4

Official Development Assistance and Financial Development: Does democracy matter?

4.1 Introduction

There is an abundant literature about the effects of ODA on economic growth on the one hand and on the role of political and economic institutions in shaping economic and financial development on the other. The literature suggest that institutions that promote the rule of law, the protection of property rights as well as contract enforcement and put effective constraints on rulers lead to higher levels of financial development (La Porta et al., 1998; Rajan and Zingales, 2003; Haber et al., 2007; Asongu, 2011d). In particular, the literature contends that contracting institutions which regulate transactions between creditors and debtors are a key determinant of financial development. In presence of weak contracting institutions, creditors find it difficult to enforce contracts, and debtors may have little incentive to repay their debt. As a result private investors and banks might be reluctant to borrow or lend, even when they are highly liquid (La Porta et al., 1997, 1998, 2000; Djankov et al., 2007). On the other hand, Acemoglu et al. (2005) and Acemoglu and Robinson (2012) argue that the quality of political institutions is an important determinant of the quality of contracting institutions and the economic policies chosen by the elite. However, a developing strand of literature argues that aid may hinder democratic deepening by fostering bad institutions in the same way as other unearned incomes such as natural resources do

(Djankov et al., 2008). Indeed, critics of foreign aid contend that aid actually promotes corruption and worsens bureaucratic quality, especially in heterogeneous societies (Knack, 2001; Svensson, 2000).

In the previous chapter, we developed a theoretical model showing how ODA revenues affect economic policy choices and corruption in recipient countries. Our model predicts that, when governments in aid recipient countries are not concerned that donors may punish them if they do not promote democracy, higher ODA revenues increase corruption by the political leaders. This situation weakens contract enforcement institutions, under which owners of capital are reluctant to lend it to borrowers because the chances of getting reimbursed are minimal. Thus financial markets do not develop as they cannot fulfil one of their most important roles of intermediating society's savings and allocating them to their best uses.

Based on the above literature and the theoretical model developed in the previous chapter, the present chapter empirically investigates the hypothesis whether the effects of Official Development Assistance (ODA) on FD depend on the level of democracy in recipient countries. Using annual frequencies of panel data for 37 developing countries covering 1980–2005, we apply different econometric approaches including OLS, IV 2SLS, fixed effects and dynamic GMM to show that ODA's effect on financial development is positive in democracies and negative in autocracies. These results are robust to various measures of financial development and democracy. As a robustness check we also present results from 4-year averaged panel data. The results are comparable to the ones obtained when we use annual data.

In this chapter we used two broad measures of financial development. These are private credit as a percentage of GDP and liquid liability as a percentage of GDP. In the context of this chapter, private credit to GDP should only be understood as a measure of

financial development rather than as the amount of cash money given to the private sector through banks. It is true that a good proportion of ODA flows does not get to recipients through the local deposit money banks and as such may not have a direct impact on the cash amount available to borrow by the private investors. However, in line with the above mentioned literature, we are of the opinion that their well-documented tendency to increase rent-seeking behaviour, to reduce accountability and to weaken contract enforcement institutions (Djankov et al., 2008; Svensson, 2000) especially in countries where political institutions are weak is likely to have an effect on financial development.

This chapter contributes to the literature by introducing a new kind of debate in the ODA-financial development- democracy nexus. Firstly, while to our knowledge, no previous research has empirically explored the relationship between financial development and foreign aid our study is also the first one to empirically investigate the combined effect of ODA and democracy on financial development. In line with previous studies in the aid-growth literature, our findings show that ODA is ineffective in promoting FD. However we also demonstrate that the relationship between ODA and FD is conditioned by the quality of democratic institutions. The innovation involves using an interaction variable between ODA and democracy to show that, aid is harmful to financial development when given to autocracies but this harmfulness can be reversed if aid is given to democracies. Thus we also contribute to the relatively scarce literature on the political determinants of FD. Furthermore, contrary to previous studies that have mainly used 5, 10 or even 20-year average data, we base our conclusions on annual frequencies. This approach allowed us to make maximum use of time and cross-country dimensions of our dataset.

Our results support our theoretical model in the previous chapter which showed how ODA hinders financial development by weakening contract enforcement institutions especially when democratic institutions are not strong and donors are not willing or are unable to enforce the aid conditionality including the currently most publicised one requiring recipients to promote democracy. These findings have policy implications for both donors and recipients: aid is ineffective in promoting financial development. However, promoting democracy would minimise its harmfulness. Therefore, donors and recipients must work together to strengthen democratic institutions which would provide necessary checks and balances, laying down the ground for a possible solid and sustainable aid-induced economic growth.

The chapter is organised as follows: section 4.2 briefly reviews the literature. Subsection 4.2.1 discusses the literature on financial development, economic growth and ODA; subsection 4.2.2 discusses democracy and economic growth; subsection 4.2.3 looks at democracy and financial development; subsection 4.2.4 discusses democracy, ODA and aid effectiveness. Section 4.3 discusses the empirical strategy, the data and their sources as well as the model specification. Section 4.4 presents and analyses our empirical results while section 4.5 concludes.

4. 2. Literature review

4.2.1 Financial development, economic growth and ODA

A large and growing literature (e.g. Beck et al., 2000; Claessens and Laeven, 2003; King and Levine, 1993b; Levine and Zervos, 1998; Demetriades and Andrianova, 2004) has established the causal relationship between financial development and growth. The argument to support this view is that financial systems are critical for

economic growth because of their function of intermediating society's savings and allocating them to their best uses. This is the view of Beck et al. (2000) who demonstrated that finance has a more important impact on growth through fostering productivity growth and resource allocation rather than through pure capital accumulation. Furthermore, Klapper et al. (2006); Aghion et al. (2007); Ayyagari et al. (2011) argue that availability of external finance promotes entrepreneurship and higher firms entry as well as firms' dynamism and innovation while Rajan and Zingales (1998), Beck et al. (2005, 2006a) concluded that finance availability also allows existing firms to exploit new investment opportunities and to achieve larger equilibrium size.

However, it is important to note that despite the fact that the relationship between finance and economic growth has been a subject of heated debates among economists for a long time, the direction of causality remains an unresolved issue. Analysing the importance of technological innovation on long term economic growth, Schumpeter (1912) argued that the banking system plays a crucial role in allowing entrepreneurs to invest in innovation and exploit other productive investment opportunities. However this view was challenged by Robinson (1952) who argued that it is the economic growth that creates the demand for various types of financial services to which the financial system develops to respond. Out of the debate, emerged another view according to which the causality runs into both directions (Arestis et al., 2001; Demetriades and Khaled, 1996; Luintel and Khan, 1999).

Previous research has shown that the financial effect of aid on the economy can be seen through its capacity to lead to real exchange rate appreciation and Dutch disease (Rajan and Subramanian, 2011; Elbadawi, 1999; White and Wignaraja, 1992; van Wijnbergen, 1986). According to van Wijnbergen (1986) substantial amounts of aid

may put upward pressure on the real exchange rate and therefore counteract the export promotion schemes often recommended by aid donors. On the other hand, Nyoni (1998) analysed the impact of aid on the real exchange rate in Tanzania for the period 1967–93 and found that the real exchange rate depreciated more during periods of increased aid flows. Similarly, in a study covering 1962–96, Sackey (2001) finds evidence of a dampening effect of aid on the real exchange rate in Ghana while Kallon (2014) did not find evidence to support the Dutch disease hypothesis for Sierra Leone.

The effects of aid on financial development can also be seen through its impact on institutions. Knack (2001) and Svensson (2000) argue that aid promotes corruption and worsens bureaucratic quality, especially in heterogeneous societies. Similarly, Djankov et al., (2008) and Nager (2013) contend that aid may hinder democratic deepening by fostering bad institutions in the same way as other unearned incomes such as natural resources do. Acemoglu et al. (2005) and Acemoglu and Robinson (2012) argue that the quality of political institutions is an important determinant of the quality of contracting institutions and the economic policies chosen by the elite. Contracting institutions which regulate transactions between creditors and debtors are a key determinant of financial development. In absence of strong contracting institutions, creditors find it difficult to enforce contracts, and debtors may have little incentive to repay their debt. As a result private investors and banks might be reluctant to borrow or lend, even when they are highly liquid (La Porta et al., 1997 , 1998 , 2000 ; Djankov et al., 2007). This results in poor financial development outcomes as the financial markets fail to achieve their role of mobilising and pooling resources and allocating them to their best uses.

Thus, the debate around the aid-finance-growth nexus so far remains a rather unsettled issue. Our study contributes to this debate by introducing a new perspective through which the effect of aid on growth can be explained by looking at its effects on

financial development. Our reasoning is that if financial development is one of the engines of growth, and aid has an impact on FD, then the effects of aid on growth could be channelled through financial development. This is done by empirically investigating the relationship between aid and finance in light of the strength of existing democratic institutions using broader measures of financial development.

4. 2.2 Democracy and economic growth

Over the last decades, the debate around the impact of democracy on economic growth has yielded highly contradictory conclusions. In fact, the consensus seems to be that there is an inconclusive relationship between democracy and economic growth, depending upon the specifics of channels observed in different regions and countries. For example, Acemoglu et al. (2014), Clague et al. (1996) and Haggard (1997) argue that democratic regimes do better in promoting economic growth than autocratic ones since they are better at promoting property rights as well as managing and consolidating economic reforms. However, according to Olson (1982) and Alesina and Rodrick (1994) democracy is bad for growth because democratic regimes are more open to pressure from interest groups. For similar reasons, Rao (1984) argues that authoritarian regimes are better at mobilising savings and can be better at promoting economic growth by sacrificing current consumption for investment.

Those who believe that democracy promotes growth argue that it is only in a democratic environment where liberty, free-flowing information and property rights are maintained that agents have incentive to work hard to maximize their profit and the market is effective in allocating resources (North, 1990). They also argue that politicians are potential looters (Harrington, 1992) and democratic institutions can act as deterrent (North, 1990). Similarly, Tavares and Wacziarg (2001) investigated the effect of democracy on economic growth and found that democracy boosts growth because of its

favourable effect on the accumulation of human capital and by reducing income inequality. In a similar vein, Acemoglu et al. (2014) argue that by encouraging investment, increasing schooling, inducing economic reforms, improving public good provision, and reducing social unrest, democratization increases GDP per capita by about 20% in the long run.

However other studies find that democracies may be vulnerable to social conflicts due to ethnic and class struggles. This may also lead to governments adopting short termist policies where long term and profitable investments are sacrificed to respond to popular demands for immediate consumption (Huntington, 1968). On the other hand, since democratic systems are characterized by a larger role of interest groups, they may hold back economic growth by putting in place policies that favour specific business sectors or important voting blocs which may also cause inefficient redistribution of resources (Olson, 1982; Becker, 1983).

Comparing fiscal federalism in China and Russia, Blanchard and Shleifer (2000) concluded that political centralization in China reduces both the risk of capture and the scope of competition for rents by local governments while the partly dysfunctional democracy in transitional Russia hinders economic growth due to rampant local capture and competition for rents. This negative relationship was also confirmed by Helliwell (1994) in a cross-sectional and pooled data for 125 countries over the 1960-1985 period. In a similar vein, reporting results from cross-country regressions, Barro (1996) argued that democracy has a small negative effect on economic growth. He also found evidence of a nonlinear relationship where democracy increases growth at low levels of democracy but reduces it at higher levels.

However Doucouliagos and Ulubasoglu (2008) applied meta-analysis and meta-regression analysis to the total pool of 81 studies with 470 published estimates of the

democracy-growth association and concluded that there is zero direct effect of democracy on economic growth. These findings are similar to previous ones such as Bhagwati (1995) and Przeworski and Limongi (1993). Nevertheless, they found a significant indirect effect of democracy on economic growth by promoting human capital formation, the level of economic freedom, political stability and inflation control.

4. 2.3 Democracy and financial development

As far as the relationship between democracy and FD is concerned, the existing literature emphasises the importance of political and legal institutions in promoting financial development. For instance, Haber (2008) studied the process by which banks in Brazil, US and Mexico developed in the period before 1930. He concluded that by increasing competition and participation in the political system, democracy limits government's power to manage and control the financial sector, reduces rent-seeking and opportunistic behaviours, and thus promotes competition and efficiency in the financial markets. In the same vein, La Porta et al. (2002) use data for 92 countries around the world and their findings suggest that by discouraging government ownership of financial institutions, democratic regimes encourage financial development. Similarly, Yang (2011) has found a positive relationship between democracy and the banking sector development, while Wittman (1989) argues that democratic institutions may enhance the efficiency of financial markets resulting in lower transaction costs.

On the other hand, Ghardallou and Boudriga (2013) use data for 112 developed and developing countries over the period 1984-2007 and conclude that there is a nonlinear relationship between financial development and democracy. More specifically, their findings suggest a U-shaped relationship between democracy and the banking sector development. Moreover, using the same sample, Ghardallou and

Boudriga (2008) argue that democracy enhances FD in countries with strong institutional framework. They also argue that more political rights in a democratic system reduce the degree of political power and hence boost the development of the financial sector. However, democracy hampers the development of the financial sector when the country's institutional quality is poor.

In brief, the supportive literature suggest that institutions that promote the rule of law, the protection of property rights as well as contract enforcement and put effective constraints on rulers are found to lead to higher levels of financial development (La Porta et al., 1998; Rajan and Zingales, 2003; Haber et al., 2007; Asongu, 2011d).

4.2.4 Democracy, ODA and aid effectiveness

The large literature about the relationship between democracy and aid on the one hand and between democracy and aid effectiveness on the other has yielded contradictory conclusions. For some, the political landscape in recipient countries is the key reason for poor aid developmental outcomes. For others, foreign aid itself helps to sustain and perpetuate non-developmental political conditions.

According to Knack (2004), foreign aid has the potential to contribute to democratization in several ways: (1) through technical assistance focusing on electoral processes, the strengthening of legislatures and judiciaries as checks on executive power, and the promotion of civil society organizations, including a free press; (2) through conditionality; and (3) by improving education and increasing per capita incomes, which research has proved to be conducive to democratization. However, in the same study, he undertook a multivariate analysis of the impact of aid on democratization in a sample of 105 recipient countries over the 1975-2000 and found no evidence that aid promotes democracy. In the same vein, Bauer (1972), Harford and Klein (2005) ; Moss et al. (2008), Djankov et al. (2008) suggest that aid may hinder

democratic deepening by fostering bad institutions in the same way as other unearned incomes such as natural resources do. The argument is that the availability of these unearned resources enables leaders to conveniently avoid taxing the citizenry. This makes them less accountable to citizens whose role in state matters becomes increasingly weak resulting in decreasing demand for representative democracy and good governance (Levi,1988; North and Weingast, 1989; Tilly ,1990; Moore, 1998). According to Smith (2008) and Morrison (2009) non-tax revenues can enable dictators to pay off poor citizens with social spending or public goods, thereby reducing their incentive to revolt. Similarly, Remmer (2004, 80) argues that foreign aid increases government spending because it permits the political leaders to “reward their followers or otherwise enhance their chances of political survival” without incurring the political costs associated with taxing citizens.

In addition to hurting state capacity and promoting rent-seeking, foreign aid dependency is believed to have a direct detrimental effect on democratic development and may actually lead to more dictatorship (Bräutigam,2000; Van de Walle,2005; Kalyvitis and Vlachakia,2012). However, Dutta et al. (2013) propose a different view that they call “amplification effect” of foreign aid on political institutions in the recipient countries. Their argument is that foreign aid amplifies recipients’ existing political institutional orientations by making dictatorships more dictatorial and democracies more democratic. It does not cause democracies to become dictatorial nor dictatorships become democratic.

As far as aid effectiveness is concerned, Boone (1996) uses data for 96 countries to investigate the effect of political variables on aid effectiveness in two types of government i.e. liberal democracy vs. autocracy and found that the impact of aid on consumption and investment does not vary with regime type. He also compared the aid

effectiveness in his defined three types of government namely elitist (a government that maximizes the welfare of the ruling elite), egalitarian (a government that maximises the welfare of the less wealthy citizens) and laissez-faire (government with minimum state intervention whose main aim is guaranteeing security and reducing taxes and market distortions). He concluded that as far as the use of aid is concerned, most government are elitist and thus aid is mainly used in the political interest of the ruling elite rather than to reduce poverty or promote investment. However, Svensson (1999) suggests that the impact of aid on income growth is higher in more democratic nations, as measured by the Freedom House indexes of political rights and civil liberties. Similarly, Isham et al. (1997) use a cross-national dataset on the performance of government investment projects financed by the World Bank and found that in general, projects in countries with highest levels of civil liberties exhibited an economic rate of return of 8-22 percentage points higher than projects in countries with weaker civil liberties.

Furthermore, Kosack (2003) investigated the impact of aid on quality of life measured in three ways i.e. income levels in terms of GDP per capita; longevity and health measured as life expectancy; and education measured as school enrolment and the level of literacy. He found no evidence that aid affects quality of life. However in democratic countries, he finds a positive and highly significant relationship between them. At the same time, he concludes that aid may be detrimental to quality of life in recipient nations under autocratic regimes. In the same vein, Bräutigam and Knack (2004) argue that the adverse effects of aid are more severe in an environment of low democratic accountability. McGillivray et al. (2006) reached similar conclusions stating that aid has decreasing returns and that external and climatic conditions, political

conditions, and institutional quality are the three most important determinants of its effectiveness.

Some economists have investigated whether political instability in the recipient country matters for the effectiveness of aid. Islam (2002) used annual data for a sample of 21 Sub-Saharan African and 11 Asian countries for the period 1968-1997. He measured political instability in terms of assassinations, riots, strikes, revolutions and coups d'état based on De Haan and Siermann (1996). He revised this measure by using the freedom index scores from Freedom in the World, and Freedom House for the years 1993-97. Then he added the political stability measure, and its interaction with aid to a Burnside-Dollar type of growth model. The interaction term of aid and political stability was found to be positive and statistically significant. These results suggest that aid is only effective when the political situation of the recipient country is stable; in politically unstable environments aid does not have any effect on growth. Similarly, Chauvet and Guillaumont (2002) estimated a growth model, using data for 53 countries for the period 1975-99. They used a political instability measure constructed as a composite of the number of coups d'états and a measure of regime changes obtained from Marshall and Jagers (2000). They also interacted aid and the political instability measure. The coefficient of their interaction variable was negative and statistically significant. They therefore concluded that aid is more effective in politically stable environments. Recently, Balamoune-Lutz (2012) used a panel data for 37 African countries to show that aid enhances growth in countries with higher social cohesion.

In view of the above literature, it is clear that the debate on the effectiveness of foreign aid on economic growth on the one hand and the literature on the effect of democracy on aid effectiveness on the other is still a non-settled issue. While foreign aid has been lauded for facilitating economic growth by supplementing domestic

financial resources necessary for investment, it has also been blamed for promoting corruption and weakening contract enforcement institutions which are otherwise a prerequisite for better financial development outcomes. Our study contributes to this debate by investigating the impact of aid on financial development paying particular attention to the role of democratic institutions in recipient countries.

4.3 Empirical Strategy, Data and sources

In this chapter, we investigate whether and how the effects of ODA on financial sector development in recipient countries are influenced by the quality of political institutions i.e. the level of democracy. We use a sample of 37 countries² from different parts of the globe for the period 1980-2005. Using the World Bank income classification in 2005, the 37 countries in our sample can be divided into 3 income groups i.e. 14 low income countries (income less than USD 875), 17 lower-middle income countries (between USD 876 and 3465) and 6 upper-middle income countries (between USD 3466 and 10,725). By looking at these countries, one may be tempted to suspect that they can be dichotomised into two categories i.e. high aid-low FD and low aid-high FD. The following check allows us to conclude that this is not the case. We call high aid those countries which received ODA as a percentage of GNI for the whole period greater than the sample's average of 5.11% while low aid countries received less than that average. Our data shows that only 10 countries out of 37 are high aid. Our data also shows that 21 and 17 countries are low FD using private credit to GDP (period average is 24.79) and liquid liability to GDP (period average is 33.83) respectively. According to our dataset, only 7 countries are "high aid, low FD". So this confirms that

² Albania, Algeria, Argentina, Bangladesh, Bolivia, Brazil, Burkina Faso, Colombia, Costa Rica, Cote d'Ivoire, Dominican Rep, Ecuador, Egypt, El Salvador, Guatemala, India, Indonesia, Kenya, Madagascar, Malaysia, Mexico, Morocco, Mozambique, Nicaragua, Nigeria, Pakistan, Paraguay, Peru, Philippines, Senegal, Sri Lanka, Tanzania, Tunisia, Uganda, Uruguay, Vietnam, Zimbabwe.

countries in our data cannot be dichotomised into two categories i.e. “high aid-low FD” and “low aid -high FD” only, as there are those that are “low aid- low FD” as there are also “high aid- high FD” countries in our sample. This understanding of heterogeneity in our sample will guide us in our choice for econometric methodologies. The choice of this sample as well as the period covered was motivated by the availability of data. In fact data for financial development is rarely available for the period before 1980.

Given that most of previous studies on aid-growth nexus have used pooled regressions to draw their conclusions, we also start by running both OLS and IV 2SLS regressions. Pooled regressions assume the homogeneous behaviour of the dependent variable for all the individuals in the sample. However, the level of financial development varies considerably between countries and years. We therefore move to panel regressions. Miletkov and Wintoki (2009) suggest that democratic institutions and financial sector development are jointly determined by unobservable country-specific factors. Therefore, we need to control for time invariant country specific fixed factors. That is why we used random and fixed effects estimations. To account for possible endogeneity of aid, we also use fixed and random effects with instrumental variables. We conducted the Hausman test to decide between random and fixed effect. Given that FD is persistent, we finally used dynamic GMM estimators (Arellano Bond and Blundell and Bond) to account for possible endogeneity of all the regressors, to allow financial development depend in part on its previous values and at the same time take care of fixed effects.

4.3.1 Data and sources

4.3.1.1 Response variable

Financial development: We use private credit by deposit money banks and other financial institutions as a percentage of GDP (*pcrdbofgdp*) from Beck and Demirgüç-

Kunt (2009) to measure financial sector development. They calculated it using the following deflation method: $\{(0.5) * [F_t/P_{et} + F_{t-1}/P_{et-1}]\} / [GDP_t/P_{at}]$ where F is credit to the private sector, P_e is end of period CPI, and P_a is average annual CPI. It is defined as claims on the private sector by deposit money banks and other financial institutions divided by GDP. It measures the availability of credit to the private sector and has been widely used in the finance-growth literature (Levine and Loayza, 2000; Beck et al., 2003). Actually, prior studies (e.g. Levine et al., 2000; Rajan and Zingales, 1998; Claessens and Laeven, 2003; Beck et al., 2003; and Bekaert et al., 2005) advocate the use of private credit as a reliable measure of financial development. This measure means that when credit is easily available to the private sector in a given country, then that country is said to be financially developed. In other words this shows how good the financial sector is in performing one of its main roles i.e. channelling savings to investors. It excludes credit issued to governments and public enterprises and credits issued by the central bank. These are usually controlled by the elite and may be allocated regardless of their expected return.

A part from its wide use in the literature, this indicator is particularly important for our study because it captures very well the notion of financial sector development that we presented in the theoretical part of the chapter i.e. the availability of credit to the private firm.

In the context of this chapter, this measure should only be understood as an indicator of financial development rather than as the amount of cash money given to the private sector through banks. It is true that most of ODA flows do not get to recipients through the local deposit money banks and as such may not have a direct impact on private credit as a measure of FD. However, their well-documented tendency to increase rent-seeking behaviour and reduce accountability (Djankov et al., 2008; Svensson,

2000) especially in countries where political institutions are weak is likely to have an effect on financial development as measured by private credit to GDP.

For robustness check, we also used liquid liability as a percentage of GDP (*llgdp*) from Beck and Demirgüç-Kunt (2009) to measure FD. It measures the ability of the financial intermediaries (comprising of central bank, deposit money banks and other financial institutions) to mobilise funds or the size of the financial system relative to the economy. It is calculated as liquid liabilities of banks and non-bank financial intermediaries (currency plus demand and interest bearing liabilities) over GDP.

4.3.1.2 Explanatory variables

Official development assistance: We use the net ODA received as a percentage of GNI from the WDI dataset. Net official development assistance (ODA) consists of disbursements of loans made on concessional terms (net of repayments of principal with a grant element of at least 25 percent calculated at a rate of discount of 10 percent) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in recipient countries. Comparing net official development assistance to Burnside and Dollar's effective development aid (this excludes concessional loans), Easterly (2003), says that it is a more reasonable measure of the actual transfer to liquidity-constrained governments. ODA has two very important characteristics: firstly it includes all transfers from official sources with at least a 25% grant element and secondly, it has to go fully towards improving human or economic welfare. It therefore excludes military assistance and other forms of assistance that do not have the primary aim of development (OECD, 2008). However this measure has shortcomings. These include: firstly, data on ODA is collected by OECD as reported by donor countries. However, given that some aid given by an ever increasing number of

NGOs may qualify as ODA and despite the efforts by the OECD to collect all the data, it is doubtful that they can claim to collect all the data on ODA from all the organisations and agencies (OECD, 2008). On the other hand, the fact that some aid is fungible (Feyzioglu et al., 1998) means that aid receipts can free resources that were meant to be used for development to be used for military purposes or other oppressive activities that actually reduce economic development. Finally, often the amount of ODA that donors report to be allocated to a recipient is greater than the amount the recipient reports as having received (Morrissey, 2015). Therefore, our estimates may be affected by this potential underestimation or overestimation of ODA receipts. However, given that we did not have a better alternative, we decided to use the World Development Indicators (WDI) dataset in line with the literature (e.g. Easterly, 2003; Svensson, 1999; Hansen and Tarp, 2001).

Democracy (DEM): Democracy is a very complex, vague and disputed concept. It is hard to find a system that is fully democratic or fully autocratic. That is why all the existing democracy indexes have their own shortcomings in terms of validity and reliability (Munck and Verclien 2002). To measure the effects of democracy (DEM) on financial development, we used two indicators from two different sources i.e. the political right index (*polright*) from the Freedom House database and the “polity2” score (*Politynew*) from the Polity IV database (Marshall et al., 2012). The Freedom House political right index is assessed on a 1-7 scale, with 1 being the most democratic country and 7 being the least democratic. According to this index, countries with a rating of 1 “enjoy a wide range of political rights, including free and fair elections. Candidates who are elected actually rule, political parties are competitive, the opposition plays an important role and enjoys real power, and the interests of minority groups are well represented in politics and government”. However to be consistent with

other measures, we rescaled the index so that 1 represents the least democratic country and 7 the most democratic.

The revised combined polity score indicator “polity2” is a modified version of the largely used polity variable that measures the degree of democracy based on the competitiveness of political participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive. It varies from -10 (strongly autocratic) to +10 (strongly democratic) and is defined as the democracy score minus the autocracy score. The polity score was modified by applying a simple treatment, to convert instances of standardized authority scores (i.e., -66, -77, and -88) to conventional polity scores (i.e., within the range, -10 to +10). This was done by using the following rules: -66 cases of foreign “interruption” are treated as “system missing”; -77 cases of “interregnum,” or anarchy, are converted to a “neutral” polity score of “0” while -88 cases of “transition” are prorated across the span of the transition. Again, for consistency across our measures and following Acemoglu et al. (2008) and Aslaksen (2007) we normalised the score to lie between 0 and 1.

We chose these two measures for three main reasons: firstly, the data is available for most of our sample and they give a very clear definition of democracy; secondly, these indicators are widely used in the literature (Knack, 2004; Kosack, 2003; Acemoglu et al., 2008); thirdly and most importantly, they both focus on the concept of political participation which is also embedded in our definition of democracy in our theoretical model.

4.3.1.3 Control variables

Regime stability (durable): We use “durable” from the polity IV database (Marshall et al., 2012) to measure the stability of government in aid recipient countries. It is defined as the number of years that have passed since the most recent regime

change. In calculating the “durable” value, the first year during which a new (post-change) polity is established is coded as the baseline “year zero” (value = 0) and each subsequent year adds one to the value of the “durable” variable consecutively until a new regime change or transition period occurs.

This is an important determinant of financial sector development because investors in unstable countries are scared by possible expropriation and thus prefer to hold physical assets rather than to invest in financial assets. On the other hand, according to Lindgren (2006: 5) in periods of political instability, “many entrepreneurs choose to engage only in economic pursuits that yield fast and large returns... further aggravating the already bleak prospects for a conflict economy”. Shorter-term investments obviously require less sophisticated capital market institutions than longer-term investments. Furthermore, political instability is often accompanied by capital (both financial and human) flight which inevitably leads to lower financial sector development (Collier and Gunning, 1995). Thus, stability of government is needed for investors to trust it and have confidence to invest. We expect regime stability to have a positive relationship with financial development.

GNI per capita growth (gnigr): is included to control for wealth effects on financial development. The effect of GNI per capita growth on financial development is ambiguous. On the one hand several studies highlight that per capita income could serve as a good proxy for the general development and sophistication of institutions (La Porta et al., 1997; La Porta et al., 1998; Beck et al., 2003; Djankov et al., 2007). On the other hand, the convergence theory postulates that countries with higher levels of development, as reflected in GNI per capita, have lower growth levels (Levine and Renelt, 1992; Easterly and Levine, 1997). Since financial development indicators tend to be highly correlated with per capita income, it is likely that the faster growing

countries will have lower levels of financial development. We therefore expect a negative relationship between financial development and GNI per capita growth. The data is also from the WDI database.

Inflation (inflgdpdefl): measured as the annual growth of the GDP deflator, is included because inflation is widely deemed to be an important determinant of banking sector development and equity market activity (Boyd et al., 2001). It is used as a proxy for macroeconomic stability and monetary policy (Burnside and Dollar, 2000; Svensson, 1999). Inflation is supposed to affect private credit since it makes loan contracting over extended periods more difficult. It could also have a dampening effect on liquid liabilities since it makes depositors more hesitant to place their savings in the formal financial system for fear of not being able to get them back quickly enough. We therefore expect the coefficient for inflation to be negative. The data is from the WDI.

Financial reforms (finrefabiad): Financial liberalization has been found to be one of the most important determinants of financial development. Some studies have pointed at it as the driver of financial crisis and financial fragility (Demirgüç-Kunt and Detragiache, 1999), while others regard it as promoting the flow of financial resources, thereby reducing capital costs, stimulating investment and fostering financial development and economic growth (McKinnon, 1973; Shaw, 1973). We use financial reform data from Abiad et al. (2008). This index measures banking reforms for 91 countries covering 1973–2005. They constructed it using seven dimensions of financial reforms i.e. credit control (including aggregate credit ceilings) and reserve requirements, interest rate liberalization, banking sector entry, capital account transactions, privatization, securities markets and banking sector supervision. Each dimension has various sub dimensions. Based on the score for each sub dimension, each dimension receives a ‘raw score’ which is then normalized to a 0-3 scale. That is, fully

liberalized = 3; partially liberalized = 2; partially repressed = 1; fully repressed = 0. Then all the 7 indicators are added together making an index scaled from 0-21 which is finally normalised to take values between 0 and 1.

Population (lpop): by its size and its density, population positively affects financial development. According to Allen et al. (2013) a larger size of population should lead to higher financial development because of scale and networking effects that make provision of financial services more efficient in larger economies. On the other hand, a higher population density as measured by the number of residents per square kilometre should have a positive coefficient since it is easier for financial institutions to accumulate savings when a higher number of potential depositors have easy access to them. The data is from the WDI.

Trade openness %GDP (tradop): Trade is the sum of exports and imports of goods and services measured as a share of GDP. Many previous studies have shown that financial development is positively correlated with openness to both trade and capital flows (Rajan and Zingales, 2003; Baltagi et al., 2009; Svaleryd and Vlachos, 2002). We use the data from WDI.

Latitude (lat_abst): measures the absolute distance of a country from the Equator. The closer to the equator the country is, the more tropical is its climate. Smaller absolute latitudes are associated with more unfavourable environments, which are associated with weaker institutions according to the settler mortality hypothesis of Acemoglu et al. (2001). Thus, we expect a positive relationship between latitude and financial sector development. Data is from La Porta et al. (2002).

The following interaction variables have also been used in the model.
 $ODADEM12 = ODA \times \text{Political right index}$; $ODADEM10 = ODA \times \text{Politinew}$;
 $ODAPOL$: $ODA \text{ lagged 5 times} \times \text{political right}$.

4.3.1.4 Descriptive statistics

In Tables 4.1 and 4.2, we present some statistics to describe the above variables. From Table 4.1, it can be seen that all the variables (except latitude: *lat_abst*) display considerable variations both between and within countries which justifies the use of panel data estimation techniques. The following is the description of our main variables, the rest can be consulted in the above mentioned tables. *Private credit % GDP* (*pcrdbofgdp*) has a mean of 24.794 with a minimum value of 0.006 while its maximum is 155.17. Its overall standard deviation is 19.579. Its within variation is 10.307 while the between variation is 16.665. *Liquid liability % GDP i.e. (llgdp)* displays an overall standard deviation of 22.362, a within variation of 9.387 with a between variation of 19.771. Its mean is 33.838, with a minimum value of 0.025 and a maximum of 132.34. *ODA* (net ODA % GNI) has a mean of 5.105, a minimum value of -0.475 and a maximum of 81.29. Its overall standard deviation is 8.203, while the between variation is 6.44 with a within variation of 5.229. The *political right index* (*polright*) has a mean value of 4.057, an overall standard deviation of 1.738, a between variation of 1.409 and a within variation of 1.041. Its minimum value is 1 while its maximum is 7. The “*politynew*” index has a mean value of 0.566, with an overall standard deviation of 0.324 a between and a within variation of 0.247 and 0.213 respectively. Its minimum value is 0.05 while its maximum is 1.

Table 4.1 Summary of variables

Variable		Mean	Std. Dev.	Min	Max
pcrdbofgdp	overall	24.794	19.579	0.006	155.17
	between		16.665	3.689	97.025
	within		10.307	-29.51	85.978
Llgdp	overall	33.838	22.362	0.025	132.34
	between		19.771	5.775	107.243
	within		9.387	-11.834	131.415
ODA	overall	5.105	8.203	-0.475	81.29
	between		6.44	0.0439	29.661
	within		5.229	-20.583	59.851
politynew	overall	0.566	0.324	0.05	1
	between		0.247	0.142	1
	within		0.213	-0.169	1.13
polright	overall	4.057	1.738	1	7
	between		1.409	1.076	7
	within		1.041	-0.596	7.134
finrefabiad	overall	0.429	0.256	0	0.952
	between		0.102	0.25	0.642
	within		0.235	-0.057	0.898
tradop	overall	54.529	29.006	11.545	220.407
	between		25.786	19.517	158.959
	within		14.015	-11.501	115.976
durable	overall	15.825	16.832	0	86
	between		15.225	3.692	73.5
	within		7.585	-22.636	41.786
gnigr	overall	3.482314	4.823	-20.927	17.15
	between		1.579	0.863	7.26
	within		4.582	-19.674	18.068
inflgdpdefl	overall	93.543	723.424	-27.048	13611.6
	between		222.336	-0.452	1124.111
	within		688.654	-1027.3	12581.03

lat_abst	overall	0.185	0.115	0.011	0.455
	between		0.117	0.011	0.455
	within		0	0.185	0.185
lpop	overall	16.879	1.306	14.667	20.854
	between		1.312	14.935	20.628
	within		0.166	16.441	17.28

Note: The following abbreviations will be used to represent the variables in different tables: Private credit % GDP (*Pcrdbofgdp*); Liquid liabilities %GDP (*llgdp*); Official development assistance/ GNI (*ODA*); Democracy (*DEM*); Political right index (*polright*) ;Revised Combined Polity Score indicator or “polity2” (*Politynew*); Regime stability (durable); GNI per capita growth (*gnigr*); Inflation (*inflgdpdefl*); Financial reform (*finrefabiad*); Population (*lpop*); Trade openness/GDP (*tradop*); Latitude (*lat_abst*); *Ssa*, *french*, *latinam*, *centamer*, *egypt*: regional dummies for Sub Sahara Africa, French zone, Latin America, Central America and Egypt respectively; *ODADEM12* :ODA × Political right index; *ODADEM10*: ODA × Politynew; *ODAPOL*: ODA lagged 5 times × political right; *INFANTLAG5*: Infant mortality lagged 5 periods; *INFPOL*: *INFANTLAG5* × political right.

Table 4.2 presents correlation between our variables. As expected, the correlation between *pcrdbofgdp* and *llgdp* is as high as 0.792. The correlation between *pcrdbofgdp* and ODA is negative at -0.285, while the correlation between *llgdp* and ODA is also negative at -0.202. The correlation between *pcrdbofgdp* and *polright* is negative at -0.1047 while the correlation between *pcrdbofgdp* and *politynew* is also negative but very small at -0.095. Similarly, the correlation between *llgdp* and *polright* is also negative at -0.176 while the one between *llgdp* and *politynew* -0.157. As expected, the correlation between *polright* and *politynew* is 0.830 because they measure almost the same thing.

In brief, the summary statistics presented in Tables 4.1 and 4.2 allow us to conclude that there is no risk of multicollinearity among variables which should allow the identification of the various parameters of interest.

Table 4.2 Correlation between variables

	pcrdbofgdp	llgdp	ODA	politynew	polright	finrefabiad	tradop	durable	gnigr	inflgdpdefl	lat_abst	lpop
pcrdbofgdp	1											
llgdp	0.792	1										
ODA	-0.285	-0.202	1									
politynew	-0.095	-0.157	-0.19	1								
polright	-0.104	-0.176	-0.169	0.83	1							
finrefabiad	0.14	0.118	0.022	0.265	0.079	1						
tradop	0.579	0.498	-0.04	-0.011	-0.139	0.293	1					
durable	0.206	0.298	-0.103	0.04	0.077	-0.041	0.223	1				
gnigr	-0.013	0.089	0.11	0.023	-0.027	0.088	0.078	0.111	1			
inflgdpdefl	-0.064	-0.1	-0.045	0.089	0.096	-0.088	-0.096	-0.063	-0.114	1		
lat_abst	-0.03	0.152	-0.163	-0.068	-0.01	-0.018	-0.174	-0.144	-0.026	0	1	
lpop	0.077	0.192	-0.211	-0.092	-0.124	-0.093	-0.263	0.086	0.124	0.006	-0.026	1

4.3.2 Model specification

Our economic model follows the standard literature on determinants of financial development. In particular, we follow Baltagi et al. (2009) who argue that to make maximum use of time and cross-country dimensions of the dataset one must make estimations with data's annual frequencies. However, they also recommend that we make an allowance for the possibility that the annual observations on financial development may not represent long run equilibrium values in any given year, due to slow adjustment to changes in other variables.

Our estimates are based on the empirical model that we define as follows:

$$FD_{it} = \beta_0 + \beta_1 ODA_{it} + \beta_2 DEM_{it} + \beta_3 ODA_{it} \times DEM_{it} + \beta_4 X_{it} + u_{it} \quad (1)$$
 where

the subscripts i and t represent individual country and year respectively. FD is the aggregate measure of financial development. ODA is a measure of net official development assistance receipts, DEM is the democracy variable. \mathbf{X} is the vector of other controls. $ODA \times DEM$ is the interaction between ODA and a measure of democracy. u_{it} is a term that contains country and time specific fixed effects as well as the error term: $u_{it} = \mu_i + \varepsilon_t + v_{it}$ where the v_{it} are assumed to be independent and identically distributed with mean zero and variance σ_v^2 .

Our specification is also similar to the existing literature on the aid-growth nexus (Boone, 1996; Burnside and Dollar, 2000; Hansen and Tarp, 2000; Rajan and Subramanian, 2008). However there are two major differences: first, our dependent variable is financial development in the aid recipient country. We want to find out how ODA affects financial sector development rather than its impact on economic growth. Secondly and most importantly, we introduce the use of the interaction term between ODA and democracy (DEM). Our hypothesis is that the stronger democratic institutions

are in the aid recipient country, the greater the effect of ODA in promoting financial sector development. Thus we expect a positive coefficient on the interaction term.

Our study is also different from the previous ones in the empirical aid-growth literature because we use annual data while most of previous studies have used 4,5 or even 10-year averages (Burnside and Dollar, 2000; Clemens et al., 2004 among others). This aggregation has been subject to critiques. Freeman (1989) calls it “temporal aggregation bias” and argues that averaging a country’s growth rates over multiple years eliminates all the information about its year-to-year variation. Thus, our approach allows us to make maximum use of both time and cross-country dimensions of the available data. This view is supported by Baltagi et al. (2009) who argue that smoothing out time series data removes useful variations from the data which may result in imprecise estimates while it does not always achieve the sought after result of capturing steady state equilibrium. Freeman (1989: 92) recommends the use of “natural time unit of the theory” to deal with the temporal aggregation bias and inefficiency. Therefore, since aid donor governments appropriate their foreign aid on a yearly basis (as part of their annual budgets) and aid recipient governments usually formulate their annual economic plans that include annual aid receipts, the natural time unit of any theory about the causal effect of aid should be the country/year and not the country/four- or five-year period and definitely not the country/decade period (Bearce, 2009).

As a robustness check and to keep up with some literature, we will present results from 4 year sub-period average data to recognise the fact that data averaging may smooth year on year variability in the dependent variable that is not due to the explanatory variable.

It is worth reminding that coefficients associated with the interaction terms demonstrate whether the effects of ODA on FD depend systematically on the quality of

democratic institutions. Therefore, as in the case of all the models with multiplicative terms, the regression coefficients for ODA and DEM reflect conditional relationships.

For the purpose of our study, the most important variables are ODA and the interaction term. The interpretation of the overall effect of ODA depends on the strength of democratic institutions. However, it should be clearly stated that, for the purpose of this study, we make no direct prediction concerning the sign of β_2 , which measures the effect of having a more democratic regime when the country receives no aid. Thus, given equation (1), the total effect of ODA on financial sector development can be shown as: total effect of ODA on FD = $d(FD) = \frac{dFD_{it}}{dODA_{it}} = \beta_1 + \beta_3 DEM_{it}$

4.4 Empirical results and analysis

Given the various contradictions in the literature as far as the impact of ODA on growth is concerned, and also given that previous studies have used different statistical analyses to arrive at those results, we try to use as many econometric methods as possible to test the robustness of our results. When dealing with annual data, one needs to address time series properties. That is why our first step was to check the stationarity of our series. As our results showed that our series are stationary, we chose our econometric methodology following the literature. We start by using the most used techniques of pooled OLS, IV 2SLS regressions, and fixed effects. We then conducted the difference GMM estimator as proposed by Arellano and Bond (1991) as well as the dynamic system GMM method as presented by Blundell and Bond (1998).

4.4.1 Test of stationarity

Since we are using annual data, we need to worry about stationarity of our series. This is because the selection of an appropriate estimation method crucially depends on whether the variables entering the relationship are stationary or not. If variables are not

stationary, then empirical results derived from standard estimators such as OLS could be spurious. Hence, given that we have an unbalanced panel data, in the first step of the analysis, we use the Augmented Dickey-Fuller (ADF) (1979) unit root tests to assess the stationarity of each series. The results are presented in table 4.3 and show that all the variables are $I(0)$ i.e. stationary.

To conduct the ADF test, we use the *xtunitroot fisher type* test with “*dfuller*” and a drift option. According to Whitehead (2002), this test conducted on panel data performs a unit-root test on each panel’s series separately, and then combines the p-values to obtain an overall test of whether the panel series contain a unit root. This combination is done by using the four methods proposed by Choi (2001). Three of the methods differ in whether they use the inverse χ^2 , inverse-normal, or inverse-logit transformation of p-values, and the fourth is a modification of the inverse χ^2 transformation that is suitable for when N tends to infinity. The inverse-normal and inverse-logit transformations can be used whether N is finite or infinite. *Xtunitroot fisher* tests the null hypothesis that all panels contain a unit root. For a finite number of panels, the alternative is that at least one panel is stationary. We used two lags in the ADF regressions, and we removed cross-sectional means by using “*demean*”. Levin et al.(2002) recommend this procedure to mitigate the impact of cross-sectional dependence. Results presented in table 4.3 show that all four of the tests strongly reject the null hypothesis that all the panels contain unit roots. Therefore, we conclude that our variables are stationary and can now proceed with our analysis using OLS, IV,FE and GMM.

Table 4.3 Unit Root test for variables in levels

Test	LLGDP	pcrdbofgdp	ODA	Polright	finrefabiad	tradop	DURABLE	lpop	gnigr	INFL	polity
Inverse chi-squared p	164***	178.56***	263.72***	259.16***	219.61***	203.91***	153.82***	152.98***	357.42***	239.89***	235.114***
Inverse normal Z	-6.56***	-7.06***	-11.46***	-10.59***	-9.13***	-8.83***	-5.48***	-3.37***	-14.24***	-10.52***	-9.45***
Inverse logit t L*	-6.46***	-7.05***	-11.85***	-11.45***	-9.46***	-8.83***	-5.62***	-3.73***	-16.38***	-10.72***	-10.22***
Modified inv. chi-squared Pm	7.67***	8.88***	15.59***	15.22***	11.97***	10.68***	6.56***	6.49**	23.78***	13.64***	13.24***

Note: Augmented Dickey-Fuller tests results, with drift and demean options. Significance levels: * p<0.10, ** p<0.05, *** p<0.01

4.4.2 Pooled OLS and IV 2SLS regressions

Now that we are assured that our variables are stationary, we start our analysis by using the commonly used methods of static pooled OLS and 2SLS instrumental variables following Burnside and Dollar (2001), Easterly et al. (2003), Boone (1996), Rajan and Subramanian (2008), Kosack (2003) etc. In Table 4.4, we first present a regression without the interaction variable in model OLS1 to investigate whether aid in aggregate has any effect on financial development. ODA is negative and significant at 1% while democracy (DEM) is negative but not significant. All other explanatory variables have expected signs and are significant at 1% except growth in GNI (*gnigr*) which is significant at 5% and inflation which is not significant but has a negative sign as expected. Our results are consistent with the aid-growth literature (the bulk of which find a negative relationship), although the fact that we have a different dependent variable makes our results not directly comparable. Introducing the interaction variable ($ODA_{DEM12} = ODA \times \text{Political right index}$) in model OLS2 does not change the story but gives us a positive and highly significant interaction variable (at 1%). However, the magnitude of the ODA's coefficient almost triples from -0.437 to -1.253, reflecting the conditional effect of ODA on financial development i.e. the negative effect of ODA on financial development is higher when democracy is zero.

There are many reasons to be sceptical about the OLS results presented above since the aid variable may be reasonably suspected to be correlated with other variables. For instance, as less developed financial sector usually goes hand in hand with poverty, we may expect that countries will receive less and less aid as their financial sector improves and vice versa. Thus there may be a negative correlation between aid and financial sector development but this does not imply causation from aid to financial sector development. Furthermore, it has been widely documented that aid is given for

strategic, cultural or historical (e.g. colonial) rather than humanitarian reasons. Therefore, to draw conclusions on the aid-financial development relationship, it is important to account for this possible endogeneity. Thus, in our IV 2SLS regressions we consider ODA and the interaction variable ODADEM12 as endogenous. We use the instruments that have been previously used in the literature. For donors' strategic interests, we follow Islam (2002) and use dummies for Central America (*centamer*), Latin America (*latinam*) and Egypt (*egyp*) for US interests, Sub Sahara Africa (*ssa*) for EU interests, Franc zone (*frenchz*) for French interests from its former colonies. Furthermore, Maizels and Nissanke (1984), Dowling and Hiemenz (1985), Mosley (1980), and Wall (1995) demonstrated that the needs of recipient countries are also an important factor determining where aid goes. Thus we follow previous literature (e.g. Boone, 1996; Kosack, 2003) and use infant mortality (INFANTLAG5) from WDI dataset as an instrument. We lag it 5 periods to avoid possible endogeneity. Moreover, following the literature (Hansen and Tarp, 2001; Clemens et al., 2004) we use the lagged ODA as an instrument for ODA since countries tend to give aid to those allies they have been giving aid to. Following Burnside and Dollar (2000), Hansen and Tarp (2001), Clemens et al.(2004) we also have to instrument for our interaction term ODADEM12. This requires using some non-linear instruments such as INFPOL (INFANTLAG5 \times political right) and ODAPOL (ODA₋₅ \times political right).

The IV results are presented in Table 4.4 as model TwoSLS. ODA is negative and significant at 1%. Compared to OLS2 results, its coefficient's magnitude increases from -1.253 to -2.401. Interestingly, our interaction variable ODADEM12 is positive and significant at 1% and its magnitude increases from 0.183 to 0.294. In the 3 models above R-squared is above 0.49.

However, to rely on IV regressions we need to conduct a few tests especially to determine the validity and strength of our instruments. First of all we want to know whether our variables are really endogenous. This is because if we treat them as endogenous while they are exogenous, our IV estimators will be consistent, but they may be less efficient than the OLS estimators (Cameron and Trivedi, 2009). Thus we conducted the robust Durbin-Wu-Hausman (DWH) test of endogeneity implemented by the “estat endogenous” stata command. We get a p-value of $0.0023 < 0.05$ leading to a strong rejection of the null hypothesis that ODA and ODADEM12 are exogenous.

We then conduct another test to check whether our instruments are strong enough. This is very important because if we use weak instruments, the asymptotic theory may provide us with a poor guide to the finite sample distribution of the IV estimator (Cameron and Trivedi, 2009). We use the “*estat firststage, forcenonrobust all*” stata command and present the results in Table 4.5. Since our model is over identified, we also use the minimum eigenvalue statistic as defined by Stock and Yogo (2005). Our test gives us a minimum eigenvalue statistic = 41.868 which is far greater than the 5% critical value of 18.30. This is an assurance that our instruments are strong.

Table 4.4 Pooled OLS and IV 2SLS regressions: dependent variable is private credit %GDP, democracy measured by *polright* from Freedom House

	OLS1	OLS2	TwoSLS
ODA	-0.437*** (-5.68)	-1.253*** (-4.88)	-2.011*** (-4.12)
DEM	-0.315 (-0.94)	-1.056** (-2.38)	-1.415** (-2.52)
ODADEM12		0.183*** (3.26)	0.294*** (2.87)
finrefabiad	27.32*** (6.59)	25.95*** (6.34)	26.08*** (6.21)
tradop	0.433*** (12.16)	0.421*** (11.64)	0.420*** (11.33)
durable	0.117*** (3.65)	0.125*** (3.9)	0.101*** (3.12)
gnigr	-0.288** (-2.32)	-0.303** (-2.43)	-0.265** (-2.13)
inflgdpdefl	-0.000753 (-1.07)	-0.000775 (-1.09)	-0.00103* (-1.71)
lat_abst	17.97*** (4.33)	14.52*** (3.49)	9.930** (2.14)
lpop	4.367*** (9.95)	4.208*** (9.62)	4.175*** (8.75)
Constant	-76.21*** (-8.68)	-68.70*** (-7.58)	-65.24*** (-6.13)
Observations	805	805	777
R-squared	0.492	0.497	0.499

DWH Test of endogeneity p = 0.0023

Stock and Yogo Test of instruments' strength: Minimum Eigenvalue: 41.8686 with critical value of 18.30 at 5%

Note: t statistics in parentheses (with heteroscedasticity robust standard errors),

* p<0.10, ** p<0.05, *** p<0.01, time dummies are included in all regressions.

Furthermore, in Table 4.5 we present first stage regression to show that all our instruments are good determinants of our endogenous variables. Column 1 presents the first stage regressions with ODA being the dependent variable while column 2 presents the same information when ODADEM12 is the dependent variable.

Table 4.5 First stage regressions for 2SLS with two endogenous variables i.e. ODA and the interaction variable ODADEM12. DEM measured by political right.

Variable	Column 1 ODA	Column 2 ODADEM12
INFANTLAG5	-0.003 (-0.33)	-0.115*** (-2.99)
ODALAG5	0.112 (0.77)	-1.497** (-2.49)
ODAPOL	0.073** (1.98)	0.810*** (4.70)
INFPOL	0.001 (0.80)	0.024*** (2.97)
ssa	3.022*** (3.58)	13.555*** (3.61)
frenchz	0.411 (0.81)	2.149 (1.16)
latinam	-2.7*** (-3.98)	-9.828*** (-3.06)
centamer	-3.439*** (-4.55)	-10.268*** (-3.12)
egyp	2.304*** (2.82)	13.128*** (4.83)
cons	26.430*** (5.53)	83.727*** (4.08)
N	777	777
R2	0.61	0.62
F Test	16.54	18.28
Prob. F >0	0.000	0.000

Note: t-values in parenthesis, * p<0.10, ** p<0.05, *** p<0.01, All the regressions include year dummies, controls for *DEM*, *finrefabiad*, *tradop*, *durable*, *gnigr*, *inflgdpdefl*, *lat_abst* and *lpop*. F test is test of joint significance of all the regressors.

These results imply that the impact of ODA on financial sector development depends both on the level of aid and democracy in the recipient country. Precisely, this implies that aid's effect on financial development is negative in autocracies and

increasingly negative the more autocratic the country. Similarly, the significant and positive coefficients of the interaction variable imply that the above negative effect decreases as countries become more democratic. These are the two major results of this chapter and they will hold with remarkable consistency despite the numerous robustness checks that we conduct.

4.4.3 Fixed and random effects

Standard OLS and IV 2SLS would assume homogeneity and no correlation between unit i 's observations in different periods or between different units in the same period. In our study, the unit of analysis is country-year. Countries are heterogeneous units, where geographical, historical and cultural characteristics (among others) potentially influence their level of financial development. If any of these country-specific variables affect both the level of financial development, the level of aid received and the level of democracy, failure to control for it in our statistical model would lead to omitted variable bias (Ross, 2006).

This leads us to using a fixed effect (FE) estimator. We use this estimator when we are only interested in evaluating the impact of variables that vary over time. According to Reyna (2014), when using the FE estimator, we assume that something within the individual may impact or bias the predictor or outcome variables and as above mentioned, we need to control for this. That is the rationale behind the assumption of the correlation between entity's error term and predictor variables. FE removes the effect of those time invariant characteristics from the predictor variables so we can assess the predictors' net effect. Furthermore, FE estimator assumes that the time invariant characteristics are unique to the individual and are not correlated with other individual characteristics. This means that each entity is different and each entity's

error term and the constant (which captures the individual characteristics) are not correlated with the others.

The fact that FE estimator cannot be used to investigate the impact of time invariant characteristics on the dependent variable can be seen as one of its main shortcomings (Kohler and Kreuter, 2009). Given that our unit of analysis is country-year, we can reasonably argue that differences across countries have some influence on their financial development. Thus we also run a random effect (RE) model, allowing the variation across countries to be random and uncorrelated with the predictor variables. To decide between the random and fixed effects models we use the Hausman test. It helps us to test the null hypothesis that the preferred model is the random effects against the alternative that the fixed effects model is better. In other words it tests whether the unique errors (u_i) are correlated with the regressors and the null hypothesis is that they are not (Green, 2008). The rule of thumb is that if the overall chi-square statistic has a probability less than 0.05 i.e. it is significant then we use the fixed effects model. In all our regressions we include time dummies to remove universal time related shocks from the errors.

While FE and RE are the essential panel methods for linear models, Cameron and Trivedi (2009) proposed an extension of the cross-section IV methodology to account for endogeneity in the panel models. This is done by using the “xtivreg” stata command which has different options. Most importantly, the FE option performs a within 2SLS regression of $y_{it} - \bar{y}_i$ on an intercept and $x_{it} - \bar{x}_i$ with the instruments $z_{it} - \bar{z}_i$. Similarly, the RE option performs RE 2SLS regression of $y_{it} - \hat{\theta}_i \bar{y}_i$ on an intercept and $x_{it} - \hat{\theta}_i \bar{x}_i$ with the instruments $z_{it} - \hat{\theta}_i \bar{z}_i$. Given that the literature has mainly considered ODA as an endogenous variable as explained above, we also apply this method. It has the

advantage of taking into account both fixed effects and endogeneity. We use the same instruments as described above.

Table 4.6a presents our robust results in models FE_rob and RE_rob. It also presents our IV results in models FE_twoSLS and RE_TwoSLS. In all the models, the interaction variable is positive and significant at 5%. Similarly, ODA is negative and significant in all the models except in FE_twoSLS but even here it has the expected negative sign. The Hausman test gives us a chi-square with $p=0.000$, therefore strongly rejecting the null hypothesis that RE provides consistent estimates. We therefore base our interpretation on the robust FE estimator. In our robust FE model (FE_rob), ODA is negative and significant at 5% while our interaction variable is positive and significant at 5%. Furthermore, the interaction variable is positive and significant in the FE_twoSLS model. The above results confirm our hypothesis that foreign aid is detrimental to financial sector development when there is no democracy but this negative impact can be reduced and even made positive by strengthening democratic institutions.

Table 4.6a Fixed effects vs random effects models. Democracy measured by *polright* from Freedom House

	FE_rob	RE_rob	FE_twoSLS	RE_twoSLS
ODA	-1.281** (-2.17)	-1.192** (-2.29)	-2.039 (-1.03)	-2.443*** (-2.89)
DEM	-1.321 (-1.23)	-1.344 (-1.46)	-1.982 (-1.57)	-1.658** (-2.46)
ODADEM12	0.267** (2.30)	0.229** (2.20)	0.500** (2.46)	0.404** (2.44)
finrefabiad	10.89 (1.06)	16.04* (1.81)	11.06 (1.28)	13.10*** (2.72)
tradop	0.224* (1.78)	0.265** (1.97)	0.221*** (4.61)	0.261*** (8.27)
durable	0.577*** (2.84)	0.471*** (3.03)	0.608*** (4.93)	0.518*** (9.34)
gnigr	-0.452*** (-4.35)	-0.458*** (-4.42)	-0.476*** (-4.74)	-0.453*** (-5.06)
inflgdpdefl	-0.002** (-2.69)	-0.002*** (-2.69)	-0.002 (-1.35)	-0.002*** (-2.90)
lat_abst		15.62 (0.78)		9.346 (0.61)
lpop	-10.97 (-0.71)	2.609 (1.53)	-11.24 (-0.57)	2.215 (1.56)
Constant	193.7 (-0.74)	-36.91 (-1.21)	198.7 (-0.61)	-25.85 (-0.99)
Observations	805	805	777	777

Hausman Test: Prob>chi2 = 0.0000

Note: t statistics in parentheses, * p<0.10, ** p<0.05, *** p<0.01, all regressions include time dummies.

To check whether our results are robust, we run the robust FE and RE regressions but with a different measure of democracy. Here we used the “*politynew*” variable from polityIV dataset as described above. Table 4.6b present the results which are similar to those obtained when we use *polright* from the Freedom House dataset. Again ODA is

negative and significant at 1% in RE_twosls , at 10% in FE_rob and FE_twosls. It is negative but not significant in FE_rob. On the other hand, the interaction variable (ODADEM10) is positive and significant at 10% in FE_rob. Given that the hausman test suggests that FE is superior to RE model we base our analysis on FE_rob (robust FE model) and find that our interaction variable stays positive and significant at 10%. Therefore, our results are robust to the change in measure of democracy. ODA is not significant but has the expected negative sign. We obtained similar results when we used liquid liability as a measure of financial development instead of private credit.

Table 4.6b Fixed effects vs random effects models. Democracy measured by *politynew* from *polityIV*

	FE_rob	RE_rob	FE_twosls	RE_twosls
ODA	-0.591 (-1.66)	-0.566* (-1.77)	-5.480* (-1.79)	-1.377*** (-4.11)
DEM	-9.841* (-1.99)	-9.549** (-2.41)	26.477 (0.99)	-11.030*** (-3.69)
ODADEM10	0.880* (1.83)	0.623 (1.5)	-7.258 (-1.20)	0.78 (1.64)
finrefabiad	10.647 (1.07)	15.914* (1.87)	2.315 (0.15)	22.903*** (4.96)
tradop	0.230* (1.78)	0.271** (1.97)	0.343** (2.53)	0.368*** (14.75)
durable	0.494** (2.43)	0.409*** (2.65)	0.724*** (3.03)	0.168*** (4.20)
Gnigr	-0.405*** (-4.31)	-0.417*** (-4.42)	-0.249 (-0.84)	-0.316*** (-2.93)
inflgdpdefl	-0.002** (-2.52)	-0.002** (-2.53)	-0.007* (-1.71)	-0.002* (-1.87)
lat_abst		14.576 (0.73)		7.539 (1.12)
lpop	-14.93 (-1.01)	2.543 (1.60)	108.365 (1.27)	3.380*** (5.11)
Constant	258.385 (1.04)	-36.981 (-1.31)	-1776.937 (-1.26)	-50.123*** (-3.78)
Observations	806	806	778	778

Hausman Test: Prob>chi2 = 0.0000

Note: t statistics in parentheses, * p<0.10, ** p<0.05, *** p<0.01, time dummies included in all regressions.

4.4.4 Dynamic panel GMM estimation

It is widely recognised that financial development depends in part on its past values (Baltagi et al., 2009; Milektov and Wintoki, 2008; Yang, 2011). This calls for the use of a dynamic model allowing the dependent variable to depend in part on its values in previous periods. Thus, the introduction of the dependent variable's lag in the model helps to control for the persistence of financial development and to account for the convergence of financial development across countries. However, this could not be done with OLS, IV 2SLS and fixed effects since it is likely to bias their estimates. In particular, according to Baltagi et al. (2009), the standard fixed effects (within) estimation would be biased because there would be correlation between the regressors and the error term since lagged financial development depends on u_{it-1} which is itself a function of the μ_i -the country fixed effects. Furthermore, there is dynamic endogeneity because values of ODA at time t will be most likely related to realizations of financial development at time $s < t$ (Milektov and Wintoki, 2008).

Thus, dynamic panel data estimation of our model would suffer from the Nickell (1981) bias which disappears only if T tends to infinity. To avoid this, Baltagi et al. (2009), Rajan and Subramanian (2008), Hansen and Tarp (2001) among others advocate for the use of the Arellano Bond GMM which basically gets rid of the country specific effects or other time invariant country specific variables by differencing the model. This differencing helps to ensure that all the regressors are stationary and eliminates any endogeneity that may arise from the correlation between the country specific effects and the right hand side regressors. Very close to the difference Arellano Bond (AB) estimator is the system GMM estimator developed by Blundell and Bond (BB). In both estimators, identification is based on first differencing and they both use lagged values of the endogenous variables as instruments. According to Rajan and Subramanian

(2008), in the AB approach, lagged levels are used as instruments for the differenced right hand side variables, while in the BB approach, the estimated system comprises the difference equation instrumented with lagged levels as in the AB estimator as well as the level equation which is estimated using lagged difference as instruments. The Blundell-Bond estimator augments Arellano-Bond by making an additional assumption, that first differences of instrumenting variables are uncorrelated with the fixed effects. This allows the introduction of more instruments, and can dramatically improve efficiency. It is known as “system GMM” because it builds a system of two equations (the original equation and the transformed one).

Both estimators have their advantages and disadvantages. Since lagged levels are typically not highly correlated with their difference counterparts, the AB estimator has been found to suffer from weak instruments problems while the BB is robust to weak instruments. On the other hand, Hauk and Wacziarg (2004) have demonstrated that the BB estimator tends to generate large upward biases in the right hand side variables and according to Rajan and Subramanian (2008), the instruments for the level equation in the BB estimator, i.e. the lagged differences of the right hand side variables are valid only if they are orthogonal to the fixed effects. Faced with this choice dilemma, Rajan and Subramanian (2008) chose to use both estimators. To follow their example we estimate our model using the Arellano Bond approach but for robustness check we also undertake the Blundell and Bond approach.

According to Hansen and Tarp (2000), removing unobserved country specific effects by differencing increases the risk of serially correlated measurement errors. This would lead to inconsistency of the GMM estimator because it may lead to correlation between the instruments and the errors. Thus, we conducted both the Arellano Bond test for zero autocorrelation in first-differenced errors and the Sargan test for over

identification restrictions. The first test helps us to test whether the differenced error term (that is, the residual of the regression in differences) is first-, and second-order serially correlated. In this test, we expect to get the first-order serial correlation of the differenced error term even if the original error term (in levels) is uncorrelated, unless the latter follows a random walk. The second-order serial correlation of the differenced residual indicates that the original error term is serially correlated and follows a moving average process at least of order one. Thus, if we fail to reject the null hypothesis of absence of second-order serial correlation, then we conclude that the original error term is serially uncorrelated.

On the other hand, the Sargan test of over identifying restrictions helps us to test the overall validity of the instruments by analysing the sample analog of the moment conditions used in the estimation process. If we fail to reject the null hypothesis then we conclude that our model is valid. Both tests statistics confirm the consistency of the GMM estimator as shown in Table 4.7. If too many instruments are used, the asymptotic theory provides a poor finite sample approximation to the distribution of the estimator (Cameron and Trivedi, 2009). Thus, following Wamboye and Adekola (2013) we restrict the maximum lags of the dependent variable to be used as instruments to one. Finally, we used 3 lags of the outcome variable as regressors although we get comparable results if we change this to 2, 4, 5 lags, etc.

Table 4.7 reports the results from the Arellano Bond estimator on the one hand and the Blundell and Bond estimator on the other with different manipulations. All of them give us comparable results. In columns 1, 2 and 3, we use the Arellano Bond GMM approach, while we use the Blundell and Bond model in columns 4, 5 and 6. In column (1), our dependent variable is private credit as a percentage of GDP. We use *polright* from Freedom House as our measure of democracy. The table shows us that

ODA is negative and significant at 5%, while the interaction variable ODADEM12 is positive and significant at 5%. The Arellano Bond test for zero autocorrelation in first differenced errors at order 2 shows that there is no serial correlation in the original errors because $p=0.09$ which is greater than 0.05. On the other hand, the test of over identification restrictions shows that our model is valid since the Sargan test gives us a chi-square with $p=0.087$ which is greater than 0.05. This means that we do not reject the null hypothesis that the population moments conditions are correct. The results also show that the turning point (the level of democracy where the impact of ODA starts becoming positive is 4.67 i.e. above the average).

In column (2), our dependent variable is again private credit % GDP but now we use a different measure of democracy, i.e. *politynew* from polity IV dataset. As previously described it ranges from 0-1 and its average in the data is 0.567. Here, ODA is again negative and significant at 10% while the interaction variable ODADEM10 ($ODA \times politynew$) is positive and significant at 10%. The test for serial correlation as well as the over identification restrictions test show that there is no serial correlation ($p=0.11 > 0.05$) and our instruments are valid ($p=0.162 > 0.05$). The turning point is 0.68 which is above the average level of democracy in our data.

In column (3), we change our dependent variable and use a different measure of financial development i.e. liquid liability as a percentage of GDP. We use *politynew* as our measure of democracy as above. In this model ODA is negative as expected but not significant. However the interaction variable ODADEM10 is still positive as expected and significant at 5%. Our tests still support the validity of the model and the turning point is still above the average at 0.58.

In column 4, we use the system dynamic GMM approach by Blundell and Bond. We use private credit % GDP as our dependent variable and *polright* from Freedom

House dataset as our measure for democracy. ODA is negative and significant at 5 %. The interaction variable ODADEM12 is, as expected positive and significant at 5%. The turning point is now 5.1 and our test for over identification and serial correlation support our model.

In column 5, with a similar approach as above, we now use private credit as our dependent variable but changes the measure of democracy to *politynew*. ODA is now negative and significant at 5%, while the interaction variable ODADEM10 is still positive and significant at 10%. Our tests continue to support the validity of our model. The turning point is again above average at 0.79.

Finally, in column 6, we use liquid liability as a percentage of GDP as our dependent variable and *polright* as our measure of democracy. ODA is negative as expected but not significant. However the interaction term ODADEM12 is still positive and significant at 10%. The Arellano bond test for serial correlation shows no evidence for serial correlation ($p=0.97>0.05$) while the Sargan test does not reject the null hypothesis that the population moments conditions are correct. The turning point is now 4.2, still above the average.

Table 4.7: Arellano Bond vs Blundell and Bond dynamic GMM estimates

<i>Variable</i>	<i>Arellano Bond(1)</i>	<i>Arellano Bond(2)</i>	<i>Arellano Bond(3)</i>	<i>Blundell Bond(4)</i>	<i>Blundell Bond(5)</i>	<i>Blundell Bond(6)</i>
Dependent variable	Private Credit %GDP		Liquid Liab. %gdp	Priv. Credit %gdp	Priv. Credit %gdp	Liquid Liab. %gdp
Democracy measure	polright	politynew	politynew	polright	politynew	polright
ODA	-0.310**	-0.206*	-0.247	-0.527**	-0.333***	-0.452
DEM (polright)	-0.604*			-0.918*		-1.978
ODADEM12	0.066**			0.103**		0.107*
tradop	-0.011	0.002	0.010	0.085***	0.092**	0.056*
finrefabiad	3.459	3.496	-1.215	-3.662**	-3.520*	1.153
durable	0.043	0.063	0.022	-0.016	0.0009	0.010
gnipcgr	-0.123*	-0.099	-0.136	-0.087	-0.066	-0.221**
inflgdpdefl	-0.0001	-0.0001	-0.0003	0.0001	0.0001	-0.0002
lpop	-2.940	-3.603	4.706	0.773	0.795	-1.059
Pcrdbofgdp L1	1.219***	1.226***		1.593***	1.624***	
Pcrdbofgdp L2	-0.604***	-0.632***		-1.109***	-1.190***	
Pcrdbofgdp L3	0.103	0.114		0.403***	0.448***	
DEM (politynew)		-1.425	-1.714		-2.376	
ODADEM10		0.302*	0.427**		0.420*	
Llgdp L1			1.184***			1.492***
Llgdp L2			-0.604***			-1.004***
Llgdp L3			0.205*			0.428***
_cons	57.379	65.612	-71.162	-8.088	-11.468	26.360
No of instruments	32	32	32	55	55	55
Average democracy	4.057	0.567	0.567	4.057	0.567	4.057
Turning point	4.67	0.68	0.58	5.1	0.79	4.2
N	665	667	650	703	704	687
AR(2) Test of serial correlation: Prob. > z	0.09	0.10	0.68	0.15	0.21	0.97
Hansen /Sargan test of overidentification : Prob.> chi2	0.08	0.16	0.31	0.97	0.98	0.99

Note: *p<.1 **p<.05 ***p<.01, GMM-type: L(2/2).pcrdbofgdp or L(2/2).llgdp

4.4.5 Further Robustness

As a further robustness check and to keep up with some section of the literature, we present in table 4.8 results from 4 year sub-period average data. This allows us to take into account the fact that data averaging smooths year on year variability in the dependent variable that is not due to the explanatory variable of interest. We present the results from robust OLS, robust FE, difference GMM and system GMM estimators. The interaction variable ODADEM10 is positive and significant in 3 out of 4 estimators i.e. robust FE, difference GMM and system GMM. It is positive but not significant with OLS. ODA is negative in all the estimates but only significant in both the GMM estimators. We get comparable results when we measure democracy by political right or when we measure FD by liquid liability to GDP.

Table 4.8: Results from 4-year average data. Democracy measured by Politynew

	OLS	FE_rob	DIFF_GMM	SYS_GMM
ODA	-0.377 (-1.23)	-0.487 (-1.58)	-0.623* (-1.66)	-0.745** (-2.04)
DEM	-11.40** (-2.49)	-11.62* (-1.79)	-12.24* (-1.91)	-12.11 (-1.64)
ODADEM10	0.576 (1.11)	1.284* (1.99)	1.383** (2.05)	1.145* (1.85)
finrefabiad	13.85 (1.57)	12.94 (1.28)	3.082 (0.32)	-5.8 (-0.39)
tradop	0.415*** (6.73)	0.223** (2.3)	0.178 (0.91)	0.103 (0.39)
durable	0.088 (1.47)	0.374* (1.76)	0.347** (2.1)	0.344* (1.86)
lpop	-0.691 (-0.53)	-28.54** (-2.24)	-28.51 (-0.93)	-7.483 (-0.91)
gnipcgr	-0.666 (-1.34)	-1.703*** (-3.38)	-1.74*** (-2.84)	-1.597** (-2.06)
inflgdpdefl	-0.003 (-1.36)	-0.006*** (-2.78)	-0.006** (-2.10)	-0.007 (-1.63)
L.pcrdbofgdp			0.106* (1.85)	0.363* (1.88)
L2.pcrdbofgdp			-0.37*** (-6.69)	-0.507*** (-4.46)
Constant	-113*** (-4.92)	2.053 (0.01)	5.701 (0.03)	-272.6* (-1.74)
Observations	226	226	123	159
R-squared	0.535	0.387		

Note: t statistics in parentheses, * p<0.10, ** p<0.05, *** p<0.01, time dummies included in all regressions. Dependent variable is private credit to GDP.

4.5 Conclusion

The objective of this chapter is to examine the relationship between ODA and financial development in recipient countries. Particularly, we are interested in checking whether the effect of ODA on financial development is influenced by the level of democracy. Using panel data for 37 countries from different parts of the globe, over the period 1980-2005 and controlling for other factors that have previously been found to influence financial development, our findings demonstrate that while ODA on its own does not generally improve financial development, it does lead to higher levels of financial development when the extent of democratisation is higher. These results confirm the theoretical model presented in chapter 3 which predicts a negative relationship between ODA and financial development through weak institutions. This means that in autocratic countries ODA is ineffective and possibly even harmful to financial development while the present evidence shows that ODA is more effective in more democratic recipient countries. Our results are robust to different econometric approaches, different measures of financial development as well as different measures of democracy.

Our findings are in line with previous studies on the aid-growth nexus (a bulk of which have found a negative or no relationship at all) as well as previous development theories that emphasize the paramount importance of political institutions in economic development. Moreover, our findings have a policy implication for both donors and recipient countries who are required to work together to stimulate democratisation in recipient countries if they really want aid to be effective in promoting economic growth. Aid disbursements should be conditioned to measurable outcomes in democratic governance.

Although our study is based on a relatively heterogeneous sample of countries from different parts of the world, we feel like a bigger and more homogeneous sample may have improved the reliability of our results. However, we were constrained by the availability of

data. Therefore, further research is recommended to explore the relationship between ODA and FD in light of the existing institutions using a more homogeneous group of countries for instance looking at countries classified according to their incomes as well as levels of aid receipts and strength of political institutions. The other area of importance would be to distinguish between various types of ODA in terms of their sources (e.g. multilateral vs bilateral) and their aim (e.g. project vs direct budget support).

Chapter 5

The impact of Foreign Capital Inflows on Credit Availability in Developing Countries

5.1 Introduction

Economists have always considered international capital flows as an essential element of economic development. The debate started in the 1950s when many capital-deficient countries relied on international capital inflows as the primary means for their economic growth. The straightforward consensus among development economists was that capital is the central engine in the economic growth process and its origin does not matter (Waheed, 2004). The role of international capital flows in promoting growth and investment was formally explained by Bacha (1990) whose three gap model illustrated how these capitals can help capital-deficient countries grow by filling their savings, foreign exchange and fiscal gaps.

Today, the mismatch between developing countries' domestic capital stock and capital requirement for sustainable economic growth continues to highlight the need for those countries to adopt policies that allow them to attract adequate amounts of international capital inflows. It is in this context that most developing countries have embarked on a series of reforms such as easing financial restrictions, strengthening macroeconomic stability and privatizing state-owned enterprises. In this vein, developing countries have liberalized capital accounts and introduced tax incentives and subsidies to attract more capital inflows. This has led to a more innovative and integrated global financial market with a direct consequence of increasing the amount of cross border capital flows at the same time diversifying the types of capitals available to capital- constrained countries.

The importance of different types of international capital inflows differs between countries. In fact there is sizeable evidence in the literature that purports the existence of a “threshold effect,” whereby a country’s absorptive capacity must exceed a certain amount in order to exploit the benefits of capital inflows (Prasad et al., 2003; Arteta et al., 2001 ; Eichengreen and Leblang, 2002).

The main goal of this chapter is to investigate the hypothesis that different types of capital inflows have different effects on credit availability in developing countries. We start by presenting a theoretical framework to identify the channels through which international capital inflows may impact on private credit. This framework brings together the gap model and the loanable funds model. Then we empirically test our hypothesis using 5-year average data for 53 developing countries covering the 1990-2013 period and disaggregating international capital inflows into their main five types namely Foreign Direct Investment (FDI), Debt securities, Equity securities, remittances and Official Development Assistance (ODA). We apply different econometric techniques including OLS, fixed effects, dynamic GMM and system GMM and conduct tests for serial correlation and over identification restrictions.

Our empirical results show that FDI, debt and equity are positively and significantly correlated with private credit in developing countries while remittances and ODA are not significant determinants of private credit in developing countries. These results are in line with a bulk of previous studies and are robust to changing the measure of private credit. They are also robust to using different estimation techniques.

This study is different from previous literature in many ways. First, contrary to the majority of previous studies that have investigated the relationship between international capital inflows and GDP growth (Mallick and Moore, 2008) or investment (Bosworth and Collins (1999) or credit booms and busts (Mendoza and Terrones, 2012; Calderon and

Kubota, 2012) or even banking crisis (Caballero,2014), our focus here is finding out how international capital inflows affect the amount of credit extended to the private sector by financial institutions in the context of the Bacha's three gap model.

Typically, the few previous studies that have investigated the role of international capital inflows in promoting credit growth have either used an aggregate measure of inflows such as net financial flows (Arslan and Taskin, 2014) or current account balance (Lane and McQuade, 2014). Even those who try to disaggregate them into different types have generally focused on one type of capital inflows i.e. private capitals in form of equity and debt (Lane and McQuade, 2014), FDI, equity and debt (Furceri et al.,2011) or remittances alone (Brown et al.,2013; Gupta et al.,2009). Despite the fact that by availing resources to government ODA reduces the need from government to borrow from the domestic private capital market which would reduce the amount available to private investors, the literature has rarely considered ODA as one of the inflows that could have an impact on the availability of capital to the private sector. Our objective is to bring these studies together and control for both private and official inflows.

Our study is more closely related to Aggarwal et al. (2011) who, with a main objective to investigate the effects of workers' remittances on aggregate levels of credits extended by local banks to the private sector among others, also controlled for FDI, portfolio equity and ODA. However, we differ from them in terms of objectives and the extent to which we disaggregate the capital inflows. While controlling for the same capital inflows (i.e. FDI, equity, remittances and ODA) we also control for debt securities. To our knowledge, no other study has investigated the effects of capital inflows on the availability of credit to the private sector by disaggregating them into their main categories namely FDI, equity, debt, remittances and ODA and this constitutes our second main contribution to the literature.

Our third contribution resides in our methodology. While previous studies such as Rey (2013) and Lane and McQuade (2014) have documented the empirical relationship between capital flows and domestic credit using various and diverse sets of countries, our analysis is based on a sample of developing countries only. However, Morrissey and Osei (2004) argue that the level and composition of capital flows differs according to the level of development of different countries while De Vita and Kyaw (2009) argue that classifying countries according to their income levels is crucial in controlling for the role of absorption capacity in determining the impact of capital inflows. Thus, although we recognise the fact that developing countries are not homogeneous or identical to one another, we argue that at least they have comparable levels of institutional strength and absorption capacities. Thus, our results should give a better picture of the impact of international capital inflows on this set of countries' ability to provide credit to private investors.

Finally, most previous studies did not account for country-specific effects. By assuming weak exogeneity of the regressors, they failed to control for simultaneity bias (see, e.g. Lane and McQuade, 2014; Frost and Tilburg, 2014). In addition to OLS regressions, in this chapter we use fixed effects and instrumental variable estimation of a dynamic panel model within a system-generalized method of moments (GMM) framework which allows us to alleviate problems of both the possible correlation between the regressors and the error term, and of endogeneity bias. Controlling of the latter is particularly important in the context of the relationship between credit availability to the private sector and capital inflows since, as suggested by Hermes and Lensink (2003) and Alfaro et al. (2004), financial sector development (widely measured by the levels of private credit to GDP) is a critical element for the effectiveness of foreign capital inflows which may imply that causality is likely to run both ways.

This chapter is organised as follows: Section 5.2 presents the theoretical framework under which international capital flows are linked to private credit in recipient countries. In presenting the theoretical framework, sub section 5.2.1 presents the three gap model while sub section 5.2.2 introduces the loanable fund model. Section 5.3 explores the literature about the interaction between foreign capital inflows and private credit while Section 5.4 presents trends in capital flows to developing countries. Section 5.5 presents our model specification and describes our data and their sources. Section 5.6 presents and analyses our empirical results while section 5.7 concludes.

5.2 The effects of international capital flows on economic growth: a theoretical framework.

This section motivates the empirical analysis by reviewing the theoretical foundations underlying the premise that capital inflows promotes economic growth by supplementing domestic savings to increase the amount of resources available for investors to borrow. Firstly, we will explore the three gap model to understand how international capital flows help capital constrained countries to bridge their savings, foreign exchange and fiscal gaps. Subsequently, the exposition of the loanable funds model will help us to translate the impact of international capital flows into credit availability.

5.2.1 The three gap model

Conceptually, the role of international capital flows in promoting economic growth is rooted in the gap model pioneered by Chenery and Strout (1966) and further explained by Bacha (1990) and Taylor (1990). The gap model analytical framework is itself based on the Harrod-Domar (Harrod, 1948; Domar, 1947) growth model. This model assumes that growth is constrained only by the availability and productivity of capital because labour is supplied in excess. Subject to a number of equality and inequality constraints, Bacha's three gap model

is an exercise in the maximization of investment (as a proxy for output growth), in a fix-price, one period model. The equality constraints are the balance-of-payments identity, the balance between income and absorption, the government budget constraint, and the equality between the flow supply and the flow demand of money. The argument goes as follows: since the amount of savings in developing countries is usually very low, foreign capital inflows are necessary to relieve the savings constraint by supplementing the insufficient domestic savings and thereby increasing investment required to attain a target growth level. This is filling the savings gap.

The gap models also purport that resources constrained countries face a foreign exchange gap, arguing that developing countries are unlikely to have enough export earnings to pay for needed import of capital goods and intermediate inputs for investment. Thus, they argued that foreign capital inflows could help fill this gap too. Moreover, Bacha (1990) and Taylor (1990) argued that given that governments of developing countries usually do not have the capacity needed to raise the revenues necessary to cover a desired level of investment, foreign capital inflows provided directly to the government could potentially relax this fiscal gap as long as they are used for investment purposes. The three ideas (savings gap, foreign exchange gap and fiscal gap) were then analysed together in what is known as the “Three gap model” (Bacha, 1990).

In the following paragraphs, we will explore how Bacha’s three gaps theoretical framework explains how each gap works and the role of foreign capital inflows. From the Harrod-Domar model, we know that output growth is a function of additions to the stock of capital (i.e. investment). That is $\dot{Y} = f(\Delta K) = f(I)$ (1) where \dot{Y} is the growth of output, K is capital stock and I is investment.

We also know that from the standard macro-economic national income identity of an open economy $Y = C + I + (X - M)$ (2) where Y is domestic output (GDP), C is private plus

government consumption, I is investment, X is exports of goods and non-factor services while M is imports of goods and non-factor services. Equation (2) can also be reorganised as $I = (Y - C) + (M - X)$ (3). This equation shows the equality between income and absorption.

5.2.1.1 Savings Gap

From the balance of payments, the excess of imports over exports is equal to foreign transfers, i.e. the difference between net capital inflows (this include FDI, equity investment, debt instruments and official transfers) , F , and net factor services to abroad , J (for developing countries which are usually net importers of capital, this mainly include workers remittances). Therefore, $M - X = F - J$ (4).

Replacing (4) in (3), we get $I = (Y - C) + (F - J)$ (5).

When income is at its potential level, Y^* and assuming private consumption is exogenous, equation (5) represents the savings constrained level of investment- IS -and, hence, the savings-constrained potential growth rate of output, if incremental capital output ratios (ICORs) are assumed to be constant. Therefore the savings gap is written as $IS = (Y^* - C) + (F - J)$ (6).

Knowing that $Y^* - C = S$ (National Income minus both private and government consumption gives us domestic savings), equation (6) means that the sources of potential investment are domestic savings and foreign transfers. Equation (6) can also be written as $IS = (Y^* - C - J) + F$ (7) and this would mean that investment is financed by savings from national income (i.e. national income minus private and public consumption of domestically produced and imported goods and non-factor services) and foreign capital inflows or $IS = S + F$ meaning that equation (1) becomes $\dot{Y} = f(\Delta K) = f(I) = f(S, F)$ (8) where S is national savings and F is international capital inflows.

In his analysis Bacha chose to use (6) and not (7) for one basic reason i.e. that the main sources of changes in J in the short-run which are mainly interest rate variations and workers

remittances, are not under the control of the government. Similarly to capital inflows, these variations are exogenous to the policy making process of the developing country. Thus, foreign transfers, $F - J$, are a decision variable beyond the control of policy makers.

Knowing that C represents both private and government consumption on the one hand and S represents both private and government savings on the other, the right hand side of (6) can further be decomposed as: $IS = Sp^* + (T - G) + (F - J)$ (9) where $Sp^* = Yp^* - C$, is private savings at the potential output level with Yp^* being the full employment level of private income, T is taxes and $T - G$ is government savings.

5.2.1.2 Foreign exchange gap

Let's use equation (4) to derive the foreign exchange gap. Assuming that imports can be divided into two types: complementary capital goods imports, M_k , and other imports, M_o . Net exports, E , is the difference between exports and other imports: $E = X - M_o$ (10). Let M_k be given by: $Mk = m.I$ (11) where $0 < m < 1$ is the import content of investment. Replacing (10) and (11) into (4) and reshuffling terms, we get $I = (1/m)[E + (F - J)]$ (12).

Introducing the critical assumption that the level of net exports, E , cannot surpass a critical value, E^* , given by world demand, the foreign exchange constrained level of investment which we write as IE - is given by $IE = (1/m)[E^* + (F - J)]$ (13). Since $m < 1$, a comparison of (9) with (13) immediately yields the Chenery result that foreign transfers have a bigger impact on the growth rate of foreign-exchange constrained economies than on saving-constrained ones.

5.2.1.3 Fiscal Gap

The argument behind this constraint is based on the fact that in many developing countries the main hindrance to growth is to be found in the government budget limitations, rather than in the foreign exchange constraints or an overall savings restriction. Knowing that total investment I is the sum of private and public investment ($I = I_p + I_g$) (14) let's assume

that there is dependence of private investment on government investment in such a way that at its maximum, the value of private investment is $I_p = k.I_g$ $k > 0$ (15).

Equation (15) represents the crowding in hypothesis according to which latecomer development is characterized by a central role for government investment in infrastructure and basic industries, which sets an upper limit for profitable private investment to occur. Substituting (14) and (15) into (5) and decomposing total savings we obtain

$$I_g = (S_p - I_p) + (T - G) + (F - J) \quad (16)$$

At this juncture, Bacha (1990) makes the critical assumption that there does not exist a market for government bonds. This assumption implies that money expansion is the only alternative for domestic financing of government budget deficits. This means that while $S_p^* - I_p$ may be positive (meaning there is potential private savings) at the potential output level it is only through seigniorage that the government is able to capture this excess savings. Seigniorage is assumed to be a function of two variables: the rate of inflation, p , and the propensity to hoard, h . We thus have: $S_p - I_p = dH/P = f(p, h)$ (17) where dH is the variation in nominal money holdings and p the price level.

Replacing (17) into (16) and the result in (14) and also replacing (15) in (14) the fiscally-constrained level of investment written as IT is given by $IT = (1 + k)[f(p, h) + (T - G) + (F - J)]$ (18).

Therefore, equation (9), (13) and (18) represent the savings gap, the foreign exchange gap and the fiscal gap respectively.

5.2.2 The loanable funds model

As mentioned above, we draw most of our understanding of how international capital flows affect investment in developing countries from Bacha (1990). However, our study mainly focuses on the effects of international capital inflows on financial market and on the availability of credit in developing countries in particular. With the three gap models in mind,

this link is also easily understood using the Loanable Fund model which illustrates how international capital flows affect the availability of credit. This model is close but slightly different from the gap model. Loanable fund market is primarily understood as the market where funds from lenders are made available to business borrowers who want to expand their economic investment.

The loanable funds model is similar to the aggregate supply-aggregate demand microeconomic model. It is a comparative statics equilibrium model that employs a supply and demand curve to locate a market clearing equilibrium price. The special price in this model is the cost of credit i.e. the interest rate. In this model, the demand curve represents the demand for credit by borrowers and the supply curve represents the supply of credit by lenders.

In the traditional loanable funds theory as presented in mainstream macroeconomics textbooks such as Mankiw (1997), the amount of loans and credit available for financing investment in a closed economy is constrained by how much saving is available. Therefore, saving is the supply while investment represents the demand for loanable funds. Hence, the law of supply and demand is applicable to the market for loanable funds. As above mentioned, the interest rate a lender earns or a borrower must pay is considered as the price for the loan. Supply is simply the amount of savings in the market that provides the money to fund the loans and demand is the level of investment seeking financing. As the interest rate on loanable funds increases, it becomes more expensive to borrow and the quantity of funds demanded will decrease. Similarly, as the interest rate for loanable funds increase, the supply of loanable funds also increases because higher interests rates makes saving more financially attractive. Eventually, the interest rate for loanable funds will reach an equilibrium i.e. the point where demand for loanable funds equals supply of loanable funds offered for investment.

This can be illustrated in figure 2 as follows.

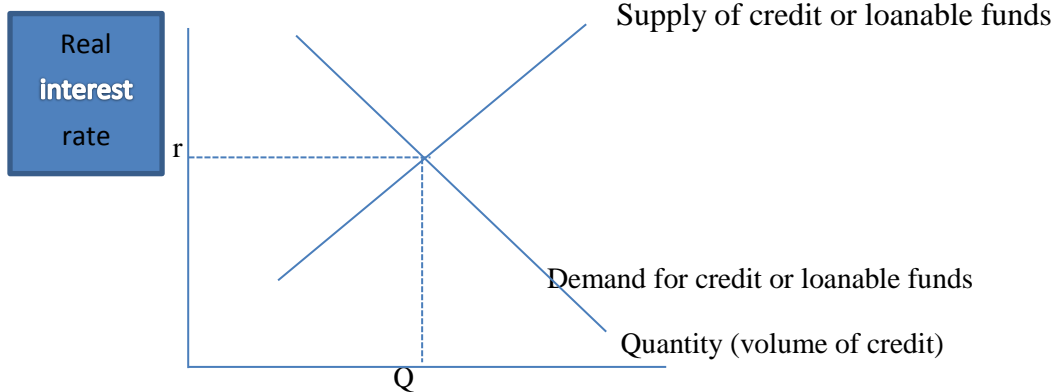


Figure 2: Loanable Fund market

Borrowers (represented by the demand curve) include consumer borrowers (credit cards, auto loans, home mortgages, instalment credit, etc.), businesses of all kinds (corporate borrowing, firm credit, trade credit, etc.) and government use of credit for all purposes (such as sale of treasury bills, notes or bonds to finance its deficit). Lenders are those savers whose savings are used by banks, credit card companies, insurance companies, pension funds, etc. to provide loans to borrowers as well as the purchasers of the interest-bearing financial assets (bonds, notes, and bills).

Like the three gap models, the loanable fund model for an open economy shows that the international capital inflows supplement domestic savings and thereby increase the amount of funds available for borrowers who want to invest.

Thus, Mankiw (1997) exposition of the loanable fund model is comparable to Bacha (1990) three gap model especially as far as the savings and the fiscal gaps are concerned. He starts from the accounting identity of a closed economy with a government: $Y = C + I + G$ (1) where Y is income, C is consumption, I is investment and G is government expenditure. To derive the economy's saving, he introduces taxes, T as follows: $S = (Y - T - C) + (T - G) = I$ where the first term $(Y - T - C)$ is "private saving" and the second $(T - G)$ "government saving". According to Mankiw (1997, p.67), the sum of private and government savings are

the “flows into the financial markets” and investment represents the flows “out of the financial markets”.

In an open economy, he derives saving by adding net exports, NX (exports minus imports which is basically the net capital inflows as represented by F-J in the three gap model above). We get $S = (Y - T - C) + (T - G) = I + NX$ which is essentially the same as (9) above.

This role of international capital flows was also supported by Bernanke (2005) who argued that since savings can cross international borders, a country’s domestic investment in new capital does not need to always be equal to its domestic savings. If a country’s savings exceed its investment during a particular year, the difference represents excess savings that can be lent on international capital markets. Similarly, if a country’s savings is less than the amount required to finance domestic investment, the country can close the gap by borrowing from the international market. This is true for private capital flows i.e. savings from foreigners. However, this is also true for ODA and remittances. By availing resources to government helping them to finance their budget deficit without borrowing from the loanable funds market, ODA at least indirectly, makes loanable funds available to the private investors by availing resources that would be otherwise borrowed by government through the sale of its bonds/treasury bills to raise funds for public investment. Consequently, ODA makes it possible that all the savings and other international capital inflows available are used by the private sector. Similarly, remittances might substitute for domestic credit as individuals who receive remittances may feel that there is no longer a need to raise funds from the loanable fund market. This reduces the pressure on the demand for loanable funds especially in developing countries where savings are not enough to meet the investment need. On the other hand, depending on remittances receivers’ propensity to save, a portion of the remittances received can also be saved and then intermediated by financial institutions which increase the supply of loanable funds.

This can be illustrated in the graphs below. In figure 3, Capital inflows move the supply of loanable funds to the right, making more credit available (from Q_0 to Q_1) and lowering the interest rate from r_0 to r_1 . SLF means supply of credit/loanable fund, DLF means demand for credit or loanable funds.

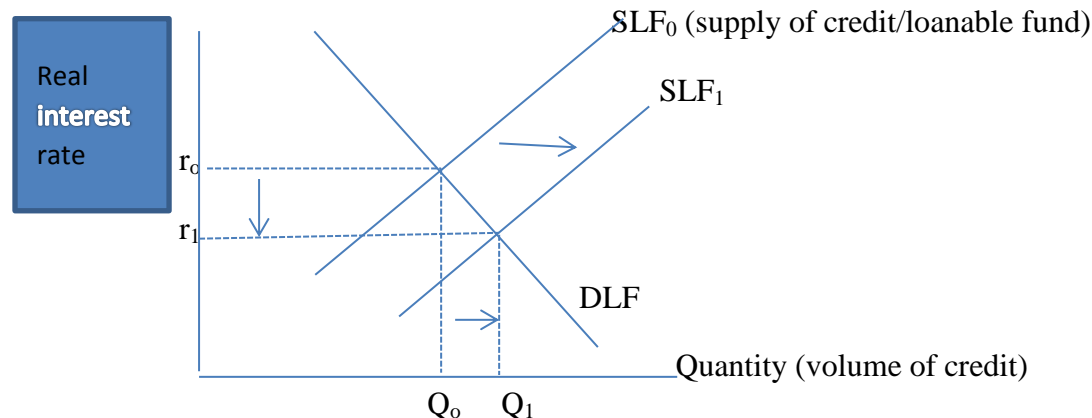


Figure 3: Capital inflows move the supply of loanable funds to the right and reduce interest rate

Let's now illustrate the crowding out effect of government deficit. Figure 4 below shows that when the government borrows from the private loanable fund market to fund its deficit, the supply of loanable fund moves to the left from SLF_0 to SLF_1 , reducing the amount of credit available to the private sector from Q_0 to Q_1 and making investment difficult because the interest rate increases from r_0 to r_1 . On the other hand, figure 5 shows that when the government borrows from the loanable fund market, demand for credit shifts outwards from DLF_0 to DLF_1 i.e. quantity demanded shifts from Q_0 to Q_1 . This pushes the interest rate up from r_0 to r_1 and makes it more costly for private investor to borrow. These two figures show that by borrowing from the loanable funds market the government effectively crowds out private investment. With rising interest rates, we would expect the demand for loans to fall. If private borrowing falls because of rising interest rates caused by government borrowing, then the deficit is said to be crowding out private borrowing. This could further mean, of course, that aggregate demand would fall because of reduced levels of private credit-financed

spending, somewhat offsetting the stimulating effects of the deficit. Official transfers affect credit availability by reducing the need of government to borrow from the loanable funds market.

Figure 4: How does government borrowing affect supply of loanable fund?

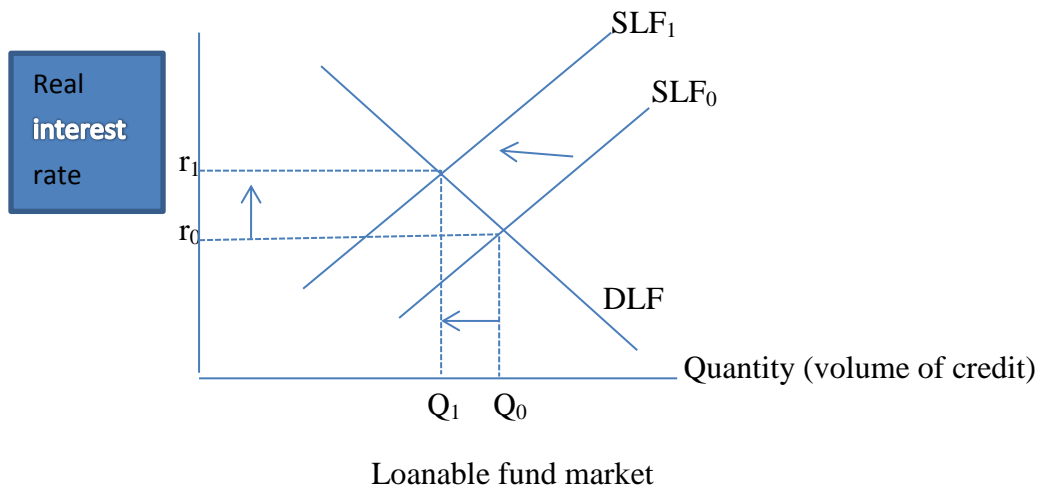
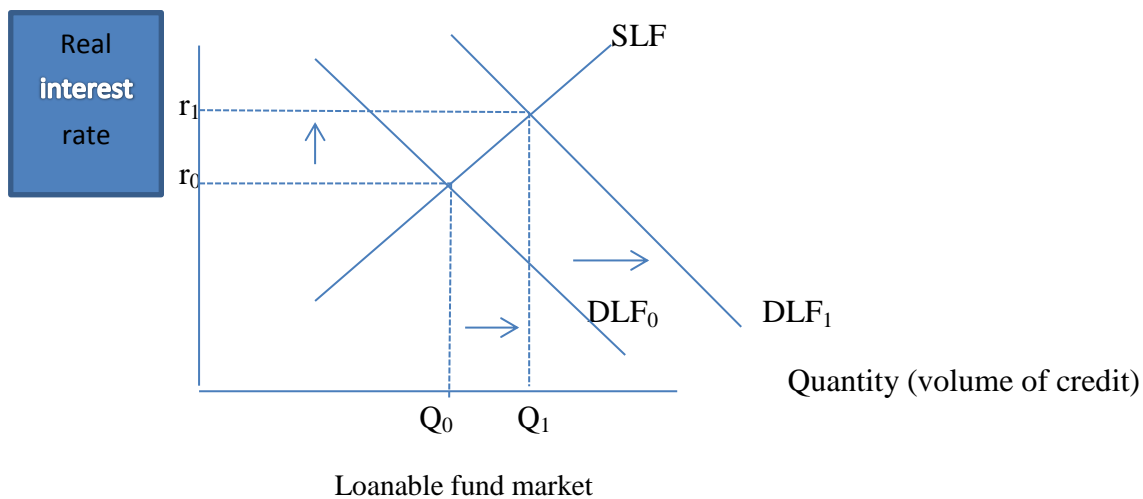


Figure 5: How does government borrowing affect demand for loanable funds?



5.3 The interaction between capital inflows and private credit: review of the literature

Common wisdom and some economic theory predict benefits from capital inflows. This is because international capital inflows are considered necessary to bridge the investment/savings (both private and public) gap by providing access to finance for credit constrained firms, promoting economic growth, smoothing inter-temporal consumption, facilitating the diffusion of technology and managerial know-how, and enabling international risk sharing (Kose et al., 2010).

However, capital inflows also have the potential to cause financial vulnerability. This is more so in developing countries where the capacity to assemble and process information relevant to financial transactions is least advanced. According to Stiglitz (2000) when information asymmetries are endemic to financial markets and transactions, then there is no reason to assume that financial liberalization, either domestic or international, will be welfare improving. In particular, rising inflows of foreign capital may lead to inflation, excessive debt expansion, currency and maturity mismatches, assets price boom, and exchange rate appreciation (Arslan and Taskin, 2014; Magud et al., 2012). This may culminate in a financial crisis and capital outflows. Actually, Lane and McQuade (2014) argue that the two main contributors to the 2008 financial crisis were the balance sheet problems associated with rapid credit growth in some countries as well as excessive external imbalances associated with excessive international capital flows. Finally, the pro-cyclicality of capital flows hampers the ability of governments to conduct counter-cyclical policies (Kaminsky et al., 2005; Reinhart and Reinhart, 2009).

Historically, the literature has shown that capital flow bonanzas often lead to sharp credit expansions in advanced and developing economies alike. Kaminsky and Reinhart (1999), Elekdag and Wu (2011), Gourinchas and Obstfeld (2011), and Schularick and Taylor

(2011) all showed that periods of large foreign capital inflows are more likely to lead to periods of rapid credit growth. However, they also showed that those periods of rapid credit growth often result into financial crisis. In fact, Cabalero (2014) shows that capital flow bonanzas more than triple the odds of a crisis and raise its probability to 14% from an unconditional probability of 4%. They also established that this effect is driven by portfolio equity and debt flows rather than FDI. While the effect of debt is channelled through excessive lending, they concluded that the effect of portfolio-equity flows is more important and it is present even in the absence of a lending boom.

However there is another strand of literature which argues that credit booms arising from capital inflow bonanzas do not always end up in systemic crises (Tornell and Westermann, 2002; Mendoza and Terrones, 2008) as there are good credit booms and bad credit booms (Barajas et al., 2009). In fact Calderón and Servén (2011) establish that in advanced countries only 4.6% of lending booms may end up in a full-blown banking crisis while 8.3% is the probability for Latin America and the Caribbean emerging markets. For non-Latin American and non-Caribbean emerging markets, the probability is 4%.

Although close to this literature, our study is different for different reasons. Not only we are not evaluating the likelihood of capital inflows resulting in financial crisis but also most of them considered flows in aggregate rather than focusing on each type of capital flow. Even those who attempted to disaggregate them mainly focused on private flows. In this chapter, we chose not to focus on the fact that capital inflows may lead to financial crisis because as Morrissey and Osei (2004, p48) rightly argue, “ the major issue facing poor developing countries is not the problems associated with volatile private capital inflows , it is the difficulty of attracting such inflows”.

International capital flows can be classified into many categories. In fact, Morrissey and Osei (2004) argue that their economic implications depend on their type i.e. whether

official (aid) or private. For the purpose of this study we will consider three main categories of capital inflows: Firstly, private and profit fetching inflows defined as flows at market terms and financed out of private sector resources. They consist of private debt, including commercial banks' lending and other private credits and private non-debt, which include foreign direct investment and portfolio equity investment; secondly, we consider private but not necessarily profit fetching inflows which are mainly made of remittances. These largely consist of monies that migrants send back to their home countries; and thirdly, we have public either profit or non-profit fetching flows mainly in form of Official Development Assistance (ODA). Whereas ODA represents assistance provided by governments and governments' institutions of developed countries to developing countries, private and profit fetching capital flows are funds from private actors seeking investment opportunities in markets throughout the world (Ierley, 2002). On the other hand remittances and ODA have often been blamed for encouraging wasteful, and in some cases, unhealthy consumption patterns by the recipients. In particular, remittances have been found to negatively impact on output by raising the reservation wage and discouraging work effort among recipient communities, and/or fuelling unproductive and inflationary speculative expenditure on real estate (Aggarwal et al., 2011).

Kawai and Takagi (2010) made a similar categorisation. Considering the risks associated with capital inflows they classified them into two main categories namely, those inflows that are driven by economic fundamental factors and those that are not driven by economic fundamental factors. They argue that with the former category, emerging markets open their capital account to provide the world with profitable investment opportunities through higher interest rates and stocks of profitable financial assets while with the latter category, since economic fundamentals do not play a role in deciding their destination, they

can easily be reversed and may even be seen as excessive relative to some sustainable or desirable levels.

A branch of literature that is close to our study encompasses studies that analyse the channels through which rapid domestic credit expansion and international capital flows are linked. These include Calderón and Kubota (2012) who use quarterly data on gross capital inflows, bank credit to the private sector and other macroeconomic and financial indicators for 70 countries from 1975q1 to 2010q4 to evaluate whether increases in gross capital flows may lead to an increase in the likelihood of credit booms. Their results show that not all types of flows have the same effect on the probability of lending booms. Using a probit analysis, they concluded that the effect of capital inflows on the likelihood of credit booms is mainly driven by surges in other investment inflows (i.e. bank loans, trade credits, currency and deposits, and other investment liabilities) and, to a lesser extent, increase in portfolio investment inflows. However, their results show that surges in FDI either have no significant impact on the incidence of credit booms or, at best, mitigate their probability of taking place.

Using a sample of 181 countries from 1980 to 2007, Reinhart and Reinhart (2009) examined the real macroeconomic and financial effects of capital flow bonanzas. They concluded that capital inflows to emerging markets lead to local currency appreciation and engender booms in asset prices (i.e. stock and housing prices). These movements in asset prices in turn encourage the expansion of domestic credit.

Furceri et al. (2011) examine the relationship between capital inflows and credit in a dynamic perspective. Specifically, they examine the evolution of credit after an initial capital inflow shock. Using an annual data for developed and emerging market economies from 1970 to 2007, they calculated the dynamic response (IRF) of domestic credit to capital inflow shocks. This enabled them to evaluate whether the short-term effects of these shocks can be reversed over the medium term.

Their computed IRFs show that a capital inflow shock results in a 2% point increase in the ratio of credit to GDP during the first 2 years following the shock. However, according to their results, this effect is reversed in the medium-term with that ratio declining by 4% point in seven years after the initial shock. Their findings also show that the impact of capital inflows on domestic credit depends on the type of flow. After comparing the impact of debt, portfolio equity and FDI they concluded that debt inflows have the largest effect on credit creation. Similarly, with a special focus on the boom period of 2003–2008, Lane and McQuade (2014) investigated the relationship between domestic credit growth and international capital flows in European countries and concluded that domestic credit growth is strongly related to net debt inflows but not to net equity inflows.

Furthermore, investigating how flexible exchange rate arrangements can reduce the impact of capital inflows on domestic credit, Magud et al. (2012) argue that surges of capital inflows in countries with less flexible exchange rate would lead to a more rapid credit growth. Although their study focuses on emerging countries, they also suggest that capital inflows may have been associated with credit expansions in the euro zone since the mid-1990s. Similarly, Reinhart and Rogoff (2009) and Gourinchas and Obstfeld (2012) argued that the impact of the recent financial crisis in advanced economies is similar to the one experienced by emerging markets in the past since credit expansions fuelled by capital inflows have been a critical element in all these crises.

According to Lane and McQuade (2014), financial systems liberalization and the rise in cross-border financial flows influence domestic credit growth through multiple channels. At a macroeconomic level, current account imbalances may affect macroeconomic variables such as the level of domestic spending, the rate of output growth, inflation, exchange rates and asset prices which can all influence equilibrium credit growth in a range of macro-financial models. However even when the current account is balanced, cross border capital flows can

still influence credit dynamics since the balance sheet mismatches of leveraged entities provide the most direct indicators of potential instability, more so than do global imbalances (Borio and Disyatat, 2011; Obstfeld 2012).

Moreover, Lane and McQuade (2014) argue that international capital flows affect the funding environment under which domestic financial institutions operate, while also altering the menu of financial assets that those institutions can hold. This is facilitated by financial integration which enables domestic banks to expand their credit to private investors since they can obtain funds from foreign depositors and international counterparties in the interbank and money markets. Domestic banks can also diversify their loanable funds by obtaining medium-term funding through international bond issues. Similarly, with financial integration, interoffice funding is also available for domestically-owned banks which are linked to overseas affiliates as well as foreign owned affiliates active in the domestic system linked to their parent banks. Furthermore, foreign portfolio equity investors and foreign direct investors are important sources of shareholder capital for domestic banks.

Based on the assumption that foreign investors provide additional capital when they set up new enterprises in local markets, developing countries have been trying to improve their policies so as to attract the maximum of foreign investment they can get as there is acute scarcity of capital for new investment. However, Kindleberger (1969), Graham and Krugman (1995), and Lipsey (2004) show that investors do not transfer their entire investment upon taking control of a foreign company. Instead, they tend to finance an important share of their investment in the local market. Furthermore, to overcome rising exchange rate volatility, many foreign investors have found ways to hedge by borrowing on local capital markets. Alfaro et al. (2014) argue that if instead of bringing scarce capital from abroad foreign firms borrow heavily from local markets, they may exacerbate domestic firms' financing constraints by crowding them out of domestic capital markets. In fact, analysing the

behaviour of mostly French multinationals operating in Côte d'Ivoire, Harrison and McMillan (2003) confirm this hypothesis and find that not only domestic firms are more credit-constrained than foreign firms, but also that borrowing by foreign firms exacerbates the credit constraints facing domestic firms.

Bruno and Shin (2014) model the linkage between capital flows and lending behaviour of banks and with a panel of 46 countries (comprising of both developed and developing countries), they provide empirical evidence to support their main model's mechanism according to which exchange rate appreciation resulting from capital inflows leads to higher leverage ratios for banks. Their model explains that there is a link between local currency appreciation and loosening of financial conditions through the build-up of leverage in the banking sector resulting from shifts in the effective credit risk faced by banks who lend to local borrowers that may have a currency mismatch. That is, when the local currency appreciates, local borrowers' balance sheets become stronger, resulting in lower credit risk and hence expanded bank lending capacity.

Closely related to our study is also Arslan and Taskin (2014) who use data for 101 countries including both developed and developing countries for the period 1970-2009 to show that there is statistically significant correlation between net capital flows and domestic credit growth. However their study differs from ours especially because they focused on aggregate net capital inflows which they obtained by subtracting aggregate capital inflows from aggregate capital outflows rather than disaggregating capital flows into their types. Similarly, using quarterly panel data from 43 advanced and emerging market economies, Frost and Tilburg (2014) show that gross capital inflows precede credit growth and credit excesses.

Although all the above studies investigated the relationship between international capital flows and credit growth, most of them aggregate the capital flows. However it is

reasonable to suspect that different types of capital inflows have different effects on credit availability. Our study aims to fill this gap.

It is often maintained that distinguishing between types of flows generates little policy insight. The advocate of this position advance two main arguments: first, capital flows are said to be fungible implying for instance that we cannot discern a differentiated impact of FDI or short-term debt flows on private or government consumption. Second, they argue that capital flow labels have become meaningless in the presence of derivatives or efforts to circumvent capital controls. However Reisen and Soto (2001), argue that different types of capital inflows potentially have different impact. This view is supported by Masson et al. (1995) who while investigating how different factors including capital inflows influence private savings showed that while the negative offset coefficient between foreign savings and domestic savings is generally around one half, the offset coefficient hides strongly different consumption responses to FDI flows versus debt-creating flows. In a similar vein, Cohen (1993) uses a sample of 34 developing debtor countries that benefited from renewed access to foreign bank credit in the 1970s, to establish that they actually experienced lower capital accumulation as compared to countries with no access to foreign credit. They showed that this was not explained by endogenous factors such as the initial stock of capital or the initial output per capita. Rather, this was a result of much of the debt-creating flows leaking into consumption. In contrast to debt-creating flows, they concluded that FDI flows stimulate domestic investment, rather than crowding it out by competing in domestic product or financial markets.

The second claim, namely that capital account labels do not reveal useful information for policy purposes, is based on a very influential paper by Claessens et al. (1995). They used quarterly data for changes in net claims of FDI, portfolio equity, and long-term and short-term debt flows, to conclude that labels do not provide any information about the volatility of

the flows. However, as also argued by Reisen and Soto (2001), this study does not address potential reversals and sudden stops on a large magnitude which are the main problems with international capital as described by Calvo et al. (2008). In this context, FDI has traditionally been regarded as the most stable and hard to reverse form of capital inflow especially because of its sunk cost nature. Similarly, official capital and remittances flows have also traditionally been viewed as relatively stable, and indeed the evidence is that they are contra-cyclical. On the other hand portfolio equity and debt are usually considered short term, they can be easily sold and as such their reversibility is high (Reisen and Soto, 2001). Thus, it makes sense to disaggregate capital inflows if one wants to clearly analyse their potential impact on economic performance.

Although a few studies among those mentioned above have tried to disaggregate the capital inflows, most have mainly focused on private and profit fetching capitals. None of these studies considers the potential impact of remittances and official flows on credit availability and growth. However a recent but flourishing literature has shown that remittances have a significant impact on credit availability in recipient countries.

Aggarwal et al. (2011) describe the ways in which remittances can affect credit availability. They argue that remittances can lead to a surge in banks' loanable funds and then higher levels of private credit as a result of deposits linked to remittances flows. In fact, remittances are theoretically supposed to increase money supply. It is this expanded supply of money in circulation that increases the stock of loanable funds, which lowers the interest rate. As investment is inversely related to interest rates, low interest rates will encourage private investors to borrow and banks will also be willing to provide loans because they have enough liquidity. However, remittances might not increase bank deposits if they are immediately consumed or if recipients do not deposit their money in banks and prefer other ways to save these funds for instance if they distrust financial institutions. On the other hand, remittances

may relax the demand for loanable fund as those who receive them may no longer have the need to borrow from the financial market. In their empirical investigation of the link between remittances and bank deposits on the one hand and between remittances and bank credit to the private sector on the other, Aggarwal et al. (2011) use data on remittance flows to 109 countries covering the period 1975-2007, to conclude that there is a strong positive and significant association between remittances and bank deposits and credit to GDP. This study is similar to ours in that they also controlled for other capital inflows i.e. foreign direct investment flows to GDP, aid flows to GDP, and portfolio flows to GDP. While they find remittances always positive and significant, their results show that FDI inflows to GDP have a positive influence on banks deposit and private credit but aid flows and portfolio flows do not appear to have a consistent effect. In a similar vein, Demirguc-Kunt et al. (2011) use municipality-level data for Mexico to show that in municipalities where a larger share of the population receives remittances, the number of branches, number of accounts, and value of deposits to GDP is higher.

Gani and Sharma (2013) is another study examining the impact of remittances on domestic credit. It is close to our study in the fact that it evaluates this impact on developing countries. They investigate the effect of remittances on domestic credit provided by the banking sector in a sample of 57 developing economies classified as low (9), lower middle (24) and upper middle (24) income countries. Their empirical results provide evidence that remittance inflows in the low and upper middle-income countries are positively and significantly associated with domestic credit provided by the banking sector. However, the key difference to our study is that they only focus on remittances while we focus on the 5 types of capital inflows.

As far as ODA is concerned, Ekanayake (2009) argue that the main role of foreign aid in stimulating economic growth is to supplement domestic sources of finance such as savings,

thus increasing the amount of investment and capital stock. A combined understanding of the three gap and loanable funds models as explained in the previous section, allows us to understand how ODA affects credit availability and then economic growth through investment. Although the three gap model was thoroughly criticised by Easterly (1999), we agree with Gomanee et al. (2005) who argue that the gap approach is still useful in identifying how aid can affect growth through investment by relaxing the three constraints identified by Bacha (1990) i.e. the savings, foreign exchange and fiscal gaps.

Firstly, as earlier demonstrated, aid transfers aimed at financing investment in countries with low savings directly fill the savings investment gap. In the loanable fund model, the effect of these aid transfers is represented by a rightwards shift in the supply curve which otherwise represents the savings. Secondly, given that aid is in the form of hard currency, it can fill the foreign exchange gap by supplementing the insufficient and often volatile amount of exports earnings. This helps foreign exchange constrained countries to import capital goods and intermediate inputs required for their investment needs. Thirdly, as official aid is mostly issued to government and sometimes in form of budget support, it can relax the government fiscal deficit by funding its spending and thus compensating for a small domestic tax base. In fact Bacha (1990) demonstrated that government fiscal behaviour represents an important channel through which aid flows can influence economic growth.

Turning to the loanable fund model, perhaps the most common shift of the loanable funds market is the crowding out effect. The crowding out effect occurs when a government runs a budget deficit i.e. it spends more money than it collects, causing the real interest rate to increase, and private investment to decrease because it becomes crowded out. That is, when a government runs a deficit, it must borrow money to pay for its debt and this is commonly done through the sale of bonds. This effect can be analysed by looking at either the demand or the supply curve for loanable funds. Both approaches have a similar outcome of reducing

the amount of funds available for private investors to borrow and increasing the interest rate. Firstly government's sale of bonds increases the demand curve which shifts outwards as presented in figure 5 in the previous section. On the other hand, people respond by buying government bonds, consequently absorbing the debt, with their personal savings. This causes the supply of loanable funds (representing savings) to decrease and shift leftwards. The leftward shift of the loanable funds supply curve or the outwards shifts of its demand curve create a new equilibrium point at a higher interest rate. At this higher interest rate, businesses refrain from borrowing (and private credit declines). Consequently, investment decreases due to the new higher price of the loan. This ultimately leads to a slowdown in the economy, as growth occurs at a slower pace or does not occur at all.

Therefore, providing a government with payments in form of aid obviously reduces the need for that government to compete with the private sector for the scarce loanable funds and as such increases the chances for the latter to get a loan, at least indirectly. Despite these clear transmission mechanisms indicating how ODA can affect private credit, we are not aware of any study that has directly tackled this issue. Our study intends to introduce this new debate.

The above summary of the literature shows how the debate about the impact of foreign capital inflows on private credit continues to be an issue that needs closer attention. Similarly, there is no agreement around how to use different types of capital inflows either in aggregate or separately, private and official in investigating the effects of capital inflows on private credit. Based on the three gap and loanable funds theoretical frameworks, our study draws from all the above mentioned studies to investigate the impact of capital inflows on private credit focusing on developing countries as well as controlling for 5 main types of capital inflows i.e. FDI, debt securities, equity securities, remittances and ODA.

5.4 Trends in capital flows to developing countries

The last two decades have witnessed a significant increase in capital flows. According to Fulceri et al. (2012), the size of annual cross-border flows of private capitals increased from about 5% of world GDP in the mid-1990s to about 20% in 2007. After reaching historical highs in mid-2007, international capital flows collapsed during the financial crisis. After this acute phase receded, global cross-border capital flows recovered, but with high levels of volatility (Milesi-Ferretti and Tille, 2011; OECD, 2011).

Across different regions, emerging economies in Asia continue to receive the bulk of net private capital inflows, accounting for about 60 per cent of the total in 2014, increasing from 51 per cent in 2013. China alone absorbed about \$500 billion. Emerging economies in Latin America accounted for 24 per cent, Africa and Western Asia combined for 8 per cent, and emerging economies in Europe for 7 per cent (United Nations, 2015).

In 2014, net private inflows to emerging economies declined by about 6 per cent from 2013, to a level of \$1,160 billion, compared with the previous peak of \$1,256 billion in 2012. Among different types of private capital flows, portfolio equity inflows rebounded significantly in 2014 from a sharp decline in 2013, to reach about \$140 billion, driven by a renewed search for higher yield. By mid-2014, these flows increased significantly to Asia and Latin America, especially to countries such as Brazil, India, Indonesia and Mexico, but also to other markets such as South Africa. By contrast, portfolio debt inflows continued to decline in 2014, reaching the level of \$310 billion from \$390 billion in 2013. However, despite this decline, debt inflows are noticeably higher than the pre-crisis peak levels. Foreign direct investment (FDI) inflows have remained the most stable and relevant source of financing for developing countries. With a peak in 2007 of \$445 billion, a slight increase in 2008 to \$472 billion and a sharp decline in 2009 to \$330 billion, before returning and then exceeding pre-crisis level from 2010 to 2013. FDI maintain a relatively solid path across

regions, standing at around \$550 billion for the past three years and accounting for about half of the total net inflows to emerging economies (United Nations, 2015).

Aid to developing countries grew steadily from 1997 to a first peak in 2010. It fell in 2011 and 2012 as many governments in donor countries took austerity measures and reduced aid budgets. According to OECD (2014), development aid rose by 6.1% in real terms in 2013 to reach the highest level ever recorded, despite continued pressure on budgets in OECD countries since the global economic crisis. Donors provided a total of USD 134.8 billion in net official development assistance (ODA), marking a rebound after two years of falling volumes, as a number of governments stepped up their spending on foreign aid. However, net ODA from DAC countries stood at 0.3% of gross national income (GNI) still far below the targeted ODA/GNI ratio of 0.7%.

Remittances appear to be a more stable source of external finance than other inflows. They are also less correlated with the business cycle than private capital flows (FDI, Equity and Debt securities). Prior to the Global Financial Crisis, total remittances were growing at an average annual rate of around 20 per cent from a base of approximately USD 200 billion in 2003. However, 2009 saw the rate of growth decrease sharply with an annual growth rate of negative 5 per cent for the year. However, growth in the sector has subsequently moved back into positive territory.

Since 2000, total remittances have averaged about 60 percent of the size of total FDI. Worldwide remittances to developing countries increased from USD 123 billion in 2000 to USD 351 billion in 2012. Compared to ODA, over the same period, ODA flows (concessional, cross-border, bilateral and multilateral) rose from USD 84 billion to USD 132 billion. While the share of ODA in total developing countries' external finance fell from 20% in 2000 to 14% in 2012, the share of total worldwide remittances increased from 29% to 37%. The World Bank estimates that worldwide remittances to developing countries will

continue to increase and will reach \$454 billion in 2015 and USD 540 billion by 2016 (World Bank, 2013a). In table 5.1 below, we present the trends of foreign capitals as per our dataset from 1990 to 2013. Data has been averaged in 5-year sub periods. We also present the average for the entire period, according to our dataset. The trends are also presented graphically in figure 6 below.

Table 5.1 Trends in capital inflows (ratios of GDP) to developing countries by sub-period

Time	FDI	DEBT	EQUITY	REM	ODA
1990-1994	1.42	0.37	0.39	3.77	8.63
1995-1999	2.71	0.28	0.32	3.61	5.94
2000-2004	2.52	0.33	0.13	4.58	5.25
2005-2009	4.19	0.42	0.27	4.96	4.65
2010-2013	4.42	0.99	1.04	4.44	4.41
Entire period	3.05	0.48	0.44	4.23	5.72

Figure 6: Trends of capital inflows to developing countries from 1990 to 2013

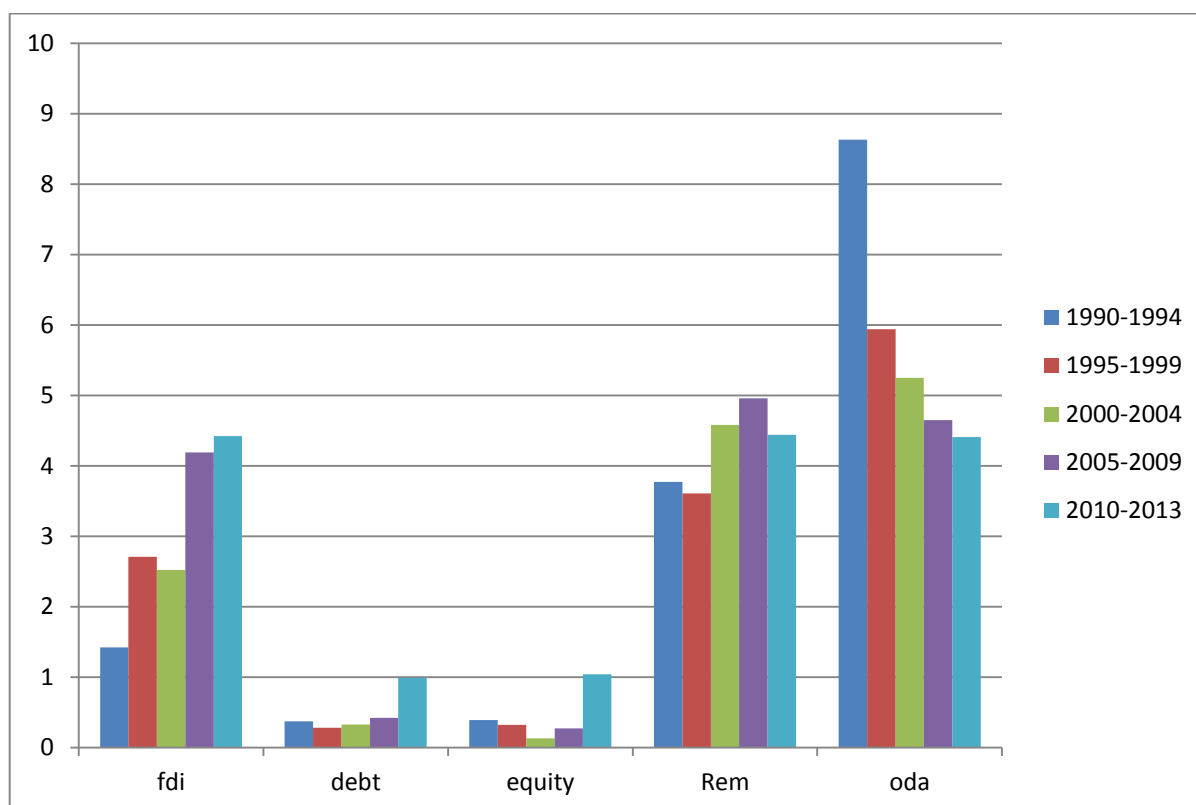


Figure 6 shows that from 1990 to 2004, ODA was the main source of international capital flows to low and middle income countries closely followed by remittances and FDI in third place. Debt and equity instruments were the least important. However, since 2005, remittances have overtaken ODA becoming the most important source of capital inflows for these countries. The most important feature of ODA inflows, according to this data, is that its share of GDP has been consistently decreasing to the point of being overtaken by both remittances and FDI during the 2010-2013 sub-period. Figure 6 also shows that since 1990, remittances constitute the second largest and more stable source of capital inflows for developing countries, becoming even the most important from 2010 to 2013. Evaluated at 3.77% GDP during the 1990-1994 sub-period, remittances constituted 4.44 % GDP during 2010-2013 sub-period while for the entire period, remittances averaged 4.23% GDP. Even during the period covering the 2008 crisis, remittances were more stable and actually increased to reach 4.96 % GDP. This is consistent with previous literature. In fact (Yang, 2008a) argue that relative to private capital flows, remittances tend to be stable and increase during periods of economic downturns and natural disasters.

Our data shows that FDI have consistently been the third source of capital inflows for low and middle income countries. However, after the 2008 financial crisis especially since 2010, FDI to low and middle income countries have dramatically increased to become the second source of capital during the 2010-2013 sub-periods closely after remittances. According to Dorsey et al. (2008) pull and push factors can explain this. Pull or demand driven factors are positive changes happening in low and middle income countries that attract foreign capitals. These are effective policies directly affecting investment including privatization, trade liberalization policies and other policies affecting the ease and cost of starting and continuing business operations, improved macroeconomic policies, political stability, etc. Similarly push or supply driven factors such as the decline in yield on

investments in advanced and emerging market economies led to a search for new and higher yielding opportunities outside of traditional investment markets. Trends in FDI can also be explained by the expansion of south-south trade where more developing countries have become source of FDI to their peers. These include notably China, India and UAE as well as the growing inter-regional FDI from South Africa, Kenya and Nigeria (United Nations, 2013b). There has also been some diversification away from previous concentration in extractive industries towards service, including tourism and financial sector (Tyson et al., 2014).

Equity and Debt instruments constitute a small percentage of GDP in low and middle income countries. This is understandable since most of these countries do not have fully and effectively functioning stock markets. Figure 6 also shows that debt and equity inflows are very volatile but their importance keeps increasing as developing countries integrate the global financial market and become richer. For instance, recent surge can be explained by low income countries including Tanzania, Rwanda, Uganda, Kenya, Mozambique among others issuing sovereign bonds totalling USD 1.7 billion in 2013 (Hou et al., 2014). This also confirms recent studies such as (IMF 2013; World Bank 2014) which document the fact that the quantitative easing policies adopted by developed countries following the 2008/2009 global financial crisis led to large inflows of capitals to developing and emerging countries.

5.5 Model specification, data and sources

5.5.1. Model specification

This chapter investigates the hypothesis that different types of international capital inflows have different impacts on credit to the private sector in developing countries. There is evidence in the literature showing that to be able to exploit the benefits of capital inflows a country's absorptive capacity must exceed a certain threshold (Prasad et al., 2003; Arteta et

al., 2001). This may also reflect the role of human capital in translating capital inflows into productive activities (Borensztein et al., 1998) or the possibility that foreign capital inflows are attracted only to countries with a sufficient degree of development, governance or rule of law. Although developing countries do not constitute a perfectly homogeneous group, we argue that their absorptive capacity and their performance in the above mentioned conditions are comparable. So our study focuses on a group of 53 developing countries assuming that it is reasonable to make prediction based on countries classified as developing rather than using a sample of countries with very different levels of absorption capacity and other economic and governance characteristics.

We conducted our analysis using 5-year sub-period averaged data which is typical in the literature. This also allowed us to avoid different difficulties associated with using annual data such as measurement errors and business cycle fluctuations. Despite knowing that annual data is not very helpful in our case, we nevertheless used it to conduct the same analysis. Although they give us basically comparable results we chose to present our results from 5-year averaged data because we are of the opinion that they are more credible.

We empirically examine the link between capital inflows and private credit by estimating a number of variants of the following static model equation:

$$\text{PRIVCREDIT}_{i,t} = \beta_1 \text{INFLOWS}_{i,t} + \beta_2 \mathbf{X}_{i,t} + \mathbf{u}_{i,t} \quad (1)$$

Where i refers to the country and t refers to the time period from 1990 to 2013. $\text{PRIVCREDIT}_{i,t}$ represents domestic private credit in country i at time t , $\text{INFLOWS}_{i,t}$ represents net capital inflows classified into five categories namely foreign direct investment, equity securities, debt securities, remittances and official development assistance all as a percentage of GDP. $\mathbf{X}_{i,t}$ is a vector of explanatory variables that include gross domestic savings, inflation, capital openness, GDP growth, real exchange rate and broad money growth. $\mathbf{u}_{i,t}$ is a term that contains country and time specific fixed effects as well as the error

term i.e. $u_{it} = \mu_i + \varepsilon_t + v_{it}$ where the v_{it} are assumed to be independent and identically distributed with mean zero and variance σ_v^2 .

To be in line with the literature, we start our analysis of the static model using pooled OLS and fixed effects regressions. However, OLS assumes homogeneity among the countries across time, an assumption that seems unrealistic in our case. Similarly, it is reasonable to suspect that country-specific effect is correlated with at least one of the explanatory variables. If this is the case, then OLS results are inconsistent. Thus, we improve on this by estimating a fixed effect model which transforms the data by subtracting the time series mean of each variable thereby eliminating the country specific effects. Furthermore, some of the explanatory variables in a cross-country regression are likely to be endogenous. In such cases, an estimation using ordinary least squares (OLS) would yield biased and inconsistent estimates and given the country-specific effects, neither the instrumental variable (IV) nor the fixed effect techniques alone would solve both problems that lead to biased and inconsistent results. Therefore we improve our analysis by adopting a GMM dynamic panel methodology à la Arellano and Bond (1991) which controls for country-specific effects, accounts for the potential endogeneity of the explanatory variables and allows us to incorporate the dynamic nature of credits. Indeed the GMM technique allows us to use the lagged value of the credits as the dependent variable on the right hand side which accounts for the persistence of private credit but would lead to biasness and inconsistency if used with fixed effect or OLS regressions. This method is also known to be suitable for models like ours where the number of cross sections (n) is relatively larger compared to the number of time periods such as in our 5-year averaged dataset. The dynamic model we estimate using GMM is as follows:

$$\text{PRIVCREDIT}_{i,t} = \gamma \text{PRIVCREDIT}_{i,t-1} + \beta_1 \text{INFLOWS}_{i,t} + \beta_2 \mathbf{X}_{i,t} + u_{i,t} \quad (2) \text{ where}$$

$\text{PRIVCREDIT}_{i,t-1}$ is the one period lag of private credit (PRIVCREDIT).

The Generalised Method of Moments (GMM) estimator is implemented by first-differencing the model to eliminate the fixed effects. The model then addresses the correlation between the differenced lagged dependent variable and the induced error term, which produce a consistent estimator and efficient parameter estimates (Arellano and Bond 1991). This is often called the difference GMM estimator and it uses the lagged levels as instruments for the differenced right side variables. Specifically by first differencing, we remove both the constant term and the individual effect and therefore we estimate the following equation:

$$\Delta \text{PRIVCREDIT}_{i,t} = \gamma \Delta \text{PRIVCREDIT}_{i,t-1} + \Delta \text{INFLOWS}_{i,t} \beta_1 + \Delta \text{X}_{i,t} \beta_2 + \Delta v_{i,t} \quad (3)$$

A potential weakness in the Arellano–Bond estimator was revealed in later work by Arellano and Bover (1995) and Blundell and Bond (1998). They argued that lagged levels are rather poor instruments for first differenced variables, especially if the variables are close to a random walk. This would bias the estimates. To deal with this limitation, they proposed the System GMM estimator which combines the difference estimator with an estimator in levels in a system of both first-differenced and levels equations. The equation in levels uses the lagged differences of the explanatory variables as instruments under two conditions: (1) that there is no serial correlation in the errors; and (2) that the differences of the explanatory variable and the errors are uncorrelated although the country-specific effect and the levels of the explanatory variables may be correlated in the levels equation. The inclusion of a levels equation also allows the use of information on cross-country differences, which is otherwise impossible when using the difference estimator (Lartey, 2007).

Finally, to check whether the GMM estimator is consistent or not we need to test the validity of our instruments. We therefore employ two specification tests namely the test of over-identifying restrictions based on the Hansen J statistic also called Sargan test and a test for second-order serial correlation in the error term. The Hansen test of over-identifying

restrictions has the null that the instruments appear exogenous, and the Arellano-Bond test for second-order serial correlation has the null that there is no second-order serial correlation in the error term.

5.5.2 Data and sources

Our study focuses on the impact of capital inflows on credit availability in low and middle income countries (usually referred to as developing countries). The choice of these countries was mainly motivated by the availability of data. We started with all developing countries as candidates to our sample. However, for many developing countries, data for equity and debt inflows is not available. Given that the period under study is 1990-2013, we averaged the data in 5 non-overlapping five-year sub-periods covering 1990-2013 (i.e. sub-periods 1990-1994, 1995-1999, 2000-2004, 2005-2009 and 2010-2013). The last sub-period covers only 4 years as data for 2014 is not yet available for most of our variables. We retained countries for which we could get data for at least 3 sub-periods. That is how we ended up with a sample made of 53 countries³.

This averaging helps us to recognise the fact that our sample is made of developing countries whose data collection systems cannot be fully trusted, a fact that may lead to measurement errors. Data sub-period averaging is also useful in smoothing year on year variability in the dependent variable that is not due to the explanatory variable of interest. Therefore, we did not use annual data to draw our conclusions because annual data may not be helpful to account for business cycle fluctuations. Five years is thought to be long enough to eliminate business-cycle effects, but short enough to capture important changes that occur

³ Argentina, Bangladesh, Belarus, Belize, Benin, Botswana, Burkina Faso, Cameroon, Colombia, Congo, Costa Rica, Côte d'Ivoire, Dominican Republic, Ecuador, Egypt, El Salvador, Gabon, Ghana, Guatemala, Honduras, India, Indonesia, Jamaica, Jordan, Kenya, Lesotho, Malawi, Malaysia, Mali, Mauritius, Mexico, Morocco, Mozambique, Namibia, Niger, Nigeria, Pakistan, Panama, Paraguay, Peru, Philippines, Rwanda, Senegal, Sierra Leone, South Africa, Swaziland, Tanzania, Thailand, Togo, Tunisia, Uganda, Venezuela, and Zambia.

over time for a particular country (Bailliu, 2000). That is why we conducted our analysis using 5-year sub-period averaged data which is typical in the literature.

In this section, we shortly explain data sources and measurement units of each variable used in the empirical analysis. Table 5.2 reports the summary statistics of the variables covering the whole set of countries.

5.5.2.1 Response variable

Domestic credit to private sector by banks (dprivcredgdp): As in Lane and McQuade (2014), Calderon and Kubota (2012) and Arslan and Taskin (2014) we measure credit as the deposit money bank claims on the private sector. The raw data in local currency is taken from line 22d of the IMF's International Financial Statistics (IFS) May 2015 which measures claims on the private sector by commercial banks and other financial institutions that accept transferable deposits such as demand deposits. The variable is then changed in US dollars using period average exchange rate from AF-ZF--- NC/US\$, period average line of the IFS data and then expressed as a percentage of GDP (IFS line 99b) as in Djankov et al.(2007).

For robustness check, we use *domestic credit to private sector by financial institutions* as a percentage of GDP (*pcrfinwdi*) from World Development Indicators (WDI). It refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivables, that establish a claim for repayment. The financial corporations include monetary authorities and deposit money banks, as well as other financial corporations. These also include corporations that do not accept transferable deposits but do incur such liabilities as time and savings deposits. Other financial corporations include for instance finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies.

5.5.2.2 Independent variables

5.5.2.2. 1 Net capital inflows

Foreign Direct Investment (fdigdp): Foreign direct investment data was obtained from line 78bed of IMF, IFS dataset (May 2015). This represents the flow of direct investment capital in the reporting economy. In IFS tables, it is referred to as “Direct investment in representative economy, not included elsewhere (n.i.e)”. It represents increase in net inward investment by non-residents and includes equity capital, reinvested earnings, other capital and financial derivatives associated with intercompany transactions between affiliated enterprises. Foreign direct investment is defined by the IMF as representing net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. We use net inflows (i.e. new investment inflows less disinvestment) in the reporting economy from foreign investors. The raw data is in USD. The FDI-to-GDP ratio is used to take into account the effect of the country size.

Equity Securities as a percentage of GDP (equigdp): Raw data on equity securities was obtained from line 78bmd of IMF, IFS dataset (May2015). They include net inflows from shares, stocks, participation and similar documents (for example, depository receipts) that are not recorded elsewhere. Like FDI, equity securities also denote ownership since equity involves raising money by selling interests in a business concern. While FDI involves active management and control of the entity in which the owner has invested and is more difficult to pull out or sell off, equity securities represent passive holdings of ownership in an economic entity which does not entail active management and do not represent a controlling stake. Unlike FDI, it is very easy to sell off the equity securities and pull out of the business. The raw data was in million USD but we expressed it as a percentage of GDP to take into account the size of the economies.

Debt Securities as a percentage of GDP (dbtgdgdp): Raw data was obtained from line 78bnd of IMF, IFS dataset (May 2015). They include non-residents purchase of bonds, debentures, commercial papers, promissory notes and other tradable non-equity securities. They are used as forms of obtaining credit and entitle the holder i.e. the lender to receive principal and interest payments. As above, the raw data was in million USD but we expressed it as a percentage of GDP to take into account the size of the economies.

Personal Remittances as a percentage of GDP (remgdgdp): Data are the sum of two items defined in the sixth edition of the IMF's Balance of Payments Manual: personal transfers and compensation of employees. Personal transfers consist of all current transfers in cash or in kind made or received by resident households to or from non-resident households. Personal transfers thus include all current transfers between resident and non-resident individuals. Compensation of employees refers to the income of border, seasonal, and other short-term workers who are employed in an economy where they are not resident and of residents employed by non-resident entities.

The effect of remittances on private credit is ambiguous. First of all, since remittances relax individuals' financing constraints, they may lead to lower demand for credit and as such have a dampening effect on credit market development. Secondly, a rise in remittances may not lead to a rise in credit to private sector if these funds are immediately consumed or they are not banked for instance when recipients do not trust financial institutions or they are used to finance unproductive and inflationary speculative expenditure on real estate or simply if banks are reluctant to lend and prefer to hold liquid assets. However on the positive side, flows of remittances increase the amount of money in circulation which increases the supply of loanable funds with the effect of reducing the interest rates. This encourages investors to demand more credit.

We used the WDI database as it has more data than the IFS database especially for countries in our sample. An important shortcoming of empirically using the existing data to test the impact of remittances on private credit is the potential for endogeneity biases arising from measurement errors. According to Aggarwal et al (2014) and Reinke (2007) officially recorded remittance are measured with errors. In particular, balance of payment data on remittances usually record more accurately remittances sent through the banking system and usually ignores those sent via non-banking institutions and informal channels such as friends. In fact Freund and Spatafora (2008) estimate that unrecorded remittances range from 50 to 250% of official statistics on remittances. Similarly, Reinke (2007) argues that there is a problem using aggregate remittances data as the concepts and the methodologies used are not applied uniformly across all countries.

Official development assistance as a percentage of GDP (odagdp): Net official development assistance (ODA) consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in recipient countries. It includes net disbursements of aid, grants and loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent). The raw data was in current USD, we expressed it as a percentage of GDP. The data is from WDI.

5.5.2.2.2 Control variables

To be in line with the literature, in the \mathbf{X} matrix of equation (1) we control for the other variables that are known to influence private credit. These are:

Gross domestic savings as a percentage of GDP (gdsgdp). Our theoretical exposition showed that foreign capital inflows contribute to availability of capital by supplementing domestic resources represented by both public and private savings. Thus in our regression we have to

control for the domestic savings and we expect a positive relationship. The data was obtained from the WDI database and it is calculated as GDP less final consumption expenditure (total consumption).

Inflation, GDP deflator (annual %) (*inflation*) as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency. The data is from WDI dataset. Inflation is meant to account for macroeconomic instability. Since inflation discourages financial intermediation (Boyd et al.,2001) and erodes the nominal value of existing and future debts contracts, we expect it to be negatively related to private credit.

Capital openness index (ka_{open}): We use the Chinn-Ito index to measure capital openness which is based on Chinn and Ito (2008) and updated occasionally. The data covers the full period for all countries in our sample. The index is scaled to lie between zero and one. A higher value of the index indicates greater financial openness. The relevant theoretical argument for including this variable is that, the liberalization of international capital flows, especially in capital deficient countries, deepens domestic financial intermediation and provides the necessary conditions for the expansion of the domestic banking sector. However, the empirical research has so far provided inconclusive evidence as far as the effects of capital openness on private credit are concerned. Potential reasons for the lack of consistent empirical results are that financial openness is effective only under certain conditions and that average effects may hide important heterogeneities in the extent to which different subsets of an economy are affected. For instance Chinn and Ito (2006) find that financial openness contributes to equity market development, but only if a threshold level of general development of legal systems and institutions has been attained. On the other hand, Fischer and Valenzuela (2013) find that financial openness has a positive effect on private credit in

economies characterized by a competitive banking sector prior to financial liberalization. However, their results also show that this effect is weaker and even becomes negative in economies with imperfect banking competition.

GDP growth (annual %) (gdpgr): Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. The data is from WDI.

We expect a positive relationship between economic growth and bank lending. In fact, GDP growth measures the country's overall performance. According to Aysan et al. (2010) high growth signifies high consumption and investment which can translate to higher demand for credit by both firms and households. Higher growth attracts investors and can therefore lead to expansion of banking activities.

Broad money growth (annual %) (brmoneygr): Broad money (IFS line 35L..ZK) is the sum of currency outside banks; demand deposits other than those of the central government; the time savings, and foreign currency deposits of resident sectors other than the central government; bank and traveller's checks; and other securities such as certificates of deposit and commercial paper. We expect a positive relationship between broad money growth and private credit. This is because an expanded supply of money in circulation increases the availability of loanable funds which lowers the interest rate and as such facilitates private credit.

Real effective exchange rate (REER) measures the real value of a country's currency against the basket of the trading partners of the country. The data is from Darvas (2012a) dataset as this has longer time series than other standard alternatives such as WDI. We expect the private credit to be positively related to REER, since the appreciation of the real effective

exchange rate is associated with strong capital inflows and with a greater incentive to borrow in foreign currency (Frost and Tilburg, 2014).

5.5.3 Descriptive statistics

In table 5.2, we present descriptive statistics for our variables. We observe considerable overall, within and between variations among all the variables. This justifies the use of panel estimation techniques.

Table 5.2 Summary of variables

Variable	Variation	Mean	Std. Dev.	Min	Max
dprivcredgdp	overall	31.692	28.976	2.432	148.310
	between		27.845	4.062	129.664
	within		8.321	4.558	63.119
pcrfinwdi	overall	31.801	31.031	2.432	152.542
	between		29.979	4.062	146.330
	within		8.739	-5.894	63.228
fdigdp	overall	3.054	3.662	-4.173	30.233
	between		2.270	0.528	11.166
	within		2.886	-4.962	24.074
debtgdp	overall	0.478	1.471	-6.063	8.100
	between		0.722	-1.841	2.512
	within		1.267	-3.672	6.955
equigdp	overall	0.435	2.716	-1.182	35.881
	between		1.089	-0.028	7.446
	within		2.419	-6.978	28.871

remgdp	overall	4.280	7.350	0.003	62.289
	between		6.836	0.041	44.955
	within		2.689	-16.238	21.614
odagdp	overall	5.717	7.612	-0.116	53.200
	between		7.071	0.041	29.195
	within		2.949	-7.156	29.723
gdsgdp	overall	15.641	14.486	-48.792	56.387
	between		13.783	-40.887	49.887
	within		4.769	-2.370	45.805
inflation	overall	22.150	108.836	-3.273	1356.980
	between		53.235	1.579	282.161
	within		95.154	-250.038	1104.185
ka_open	overall	0.419	0.299	0.130	1.000
	between		0.252	0.156	1.000
	within		0.161	-0.204	0.884
gdpgr	overall	2.118	2.433	-7.612	9.051
	between		1.256	-0.276	4.719

	within		2.089	-8.625	8.035
<i>brmoneygr</i>	overall	24.072	85.549	-7.780	1362.540
	between		38.815	6.833	284.240
	within		76.393	-259.044	1102.373
<i>reer</i>	overall	104.171	18.809	52.267	208.000
	between		11.235	76.862	150.463
	within		15.133	40.183	192.778

Note: The following abbreviations are used to represent the variables in this chapter. Domestic credit to private sector as a percentage of GDP (*dprivcredgdp*), domestic credit to private sector by financial institutions (*pcrfinwdi*), FDI as a percentage of GDP (*fdigdp*), Debt Securities as a percentage of GDP (*debtgdp*), Equity Securities as a percentage of GDP (*equigdp*), Personal Remittances as a percentage of GDP (*remgdp*), Official development assistance as a percentage of GDP (*odagdp*), gross domestic savings as a percentage of GDP (*gdsgdp*), inflation, capital openness index (*ka_open*), GDP growth (*gdpgr*), Broad money growth (*brmoneygr*) and Real exchange rate (*reer*).

Table 5.3: Correlation between variables

	dprivcredgdp	fdigdp	debtgdp	equigdp	remgdp	odagdp	gsgdp	inflation	ka_open	gdpgr	reer	brmoneygdp
dprivcredgdp	1											
fdigdp	0.030	1										
debtgdp	0.131	0.056	1									
equigdp	0.219	0.011	0.358	1								
remgdp	-0.072	0.059	-0.126	-0.067	1							
odagdp	-0.363	0.233	-0.140	-0.080	0.086	1						
gsgdp	0.203	-.073	-0.003	-0.045	0.160	-0.498	1					
inflation	-0.091	-.047	0.045	0.013	-0.064	-0.087	-.074	1				
ka_open	-0.001	0.003	0.057	0.068	-0.052	-0.301	0.061	0.017	1			
gdpgr	-0.081	0.215	0.034	-0.027	-0.064	0.161	0.264	-0.036	-0.042	1		
reer	0.058	-.050	0.069	0.069	-0.094	-0.181	-.059	0.205	0.120	0.004	1	
brmoneygdp	0.760	0.038	0.097	0.200	0.132	-0.352	0.378	-0.120	0.160	-0.002	0.044	1

Table 5.3 shows that there is a positive correlation between private credit and private profit fetching capital inflows i.e. FDI, Debt and Equity. However the data show that remittances and ODA are negatively correlated with private credit. Furthermore, the data shows that there is a positive correlation between domestic savings and private credit. The correlation between private credit and broad money growth is high at 0.76. This makes sense as the theory would predict that the more money circulates in an economy the more funds are available for investors to borrow. The observation of the values in table 5.3 shows that we should not worry about multicollinearity.

5.6 Empirical results and analysis

In analysing the impact of international capital inflows on economic growth, various econometric methodologies have been used in the literature. We try to remain in line with the existing literature by using different methodologies to make sure we overcome various shortcomings associated with the popular methodologies such as OLS. Thus, in addition to running three versions of pooled OLS regressions we also apply fixed effects, then dynamic GMM à la Arellano Bond (1991) and finally the system GMM à la Blundell and Bond (1998). In addition, to control for common shocks and trends across countries, we conduct our estimation adding time dummies. All our results are heteroscedasticity robust.

All the results are presented in table 5.4 below. The table summarises the results from different estimators of different versions of equation 1 described in the previous section. Although all the estimators include the controls described in the previous section as well as the year dummies, table 5.4 only reports the coefficients for different capital inflows.

We start our analysis using the OLS regressions but with only capital inflows as regressors in model OLS1 (column 1 of table 5.4). As can be seen, the model shows that FDI, Debt and Equity are positively related to private credit to GDP with FDI and Equity's coefficient being positive and significant at 5% and 1% respectively while the coefficient for Debt is positive but not significant. The same model shows that ODA and Remittances are negatively but not significantly related to private credit. In column 2 of table 5.4, in model OLS 2 we include gross domestic savings (*gdsgdp*) as a regressor in order to remain in line with our theoretical model prediction that the amount of resources available to borrow by investors in any economy is mainly made of the country's savings that are supplemented by capital inflows from abroad. As can be seen, the coefficients for FDI, debt securities and equity securities are positive and significant at 5%, 10% and 1% respectively. ODA remains negative and not significant while Remittances become positive but not significant. Model OLS2 predicts that a one point increase in private credit would results from 0.55 point increase in FDI or 1.5 point increase in debt or 0.78 point increase in equity.

A first obvious concern with the models specifications OLS1 and OLS2 is that they do not control for various macroeconomic factors that previous literature has identified as determinants of private credit. Thus in model OLS3, we expand the set of regressors to include inflation, index of capital openness, growth of GDP, broad money growth and real exchange rate. The model shows that FDI, Debt and equity are positively associated with private credit but only FDI and Equity are significant at 10% and 1% respectively. Remittances remain positive but not significant while ODA remain negative and not significant. All the newly introduced controls namely gross domestic savings, inflation, an index of capital openness, GDP growth, real exchange rate, broad money growth and time dummies enter with expected signs.

The above results suggest that higher inflows of private and profit fetching capitals are positively and significantly associated with an increase in private credit. They also demonstrate that an increase in both remittances and ODA inflows are not significantly associated with an increase in private credit. These results remain consistent throughout our analysis. In fact these results can be rationalised in many ways. For instance various studies have shown how remittances reduce recipients' incentive to work and as such lead to poor economic performance (Chami et al.2005) or how by lifting recipients' financing constraints, remittances may lower their demand for credit resulting in lower credit to private sector (Aggarwal et al. 2010). Similarly if remittances and ODA are immediately consumed or in the case of ODA are simply used to finance increased government spending they may not have any positive impact on private credit. In the same vein, although no previous studies have examined the impact of ODA on private credit, various studies have shown how ODA creates dependency mentality among recipients and is actually detrimental to recipient economy's performance given its potential to encourage poor governance and corruption, to crowd out private investment and to cause Dutch disease (Friedman,1958; Bauer,1972; Svensson, 2000). On the other hand, private capital inflows are generally found to increase the availability of private credit by altering the funding environment facing domestic banks and non-banks while also changing the menu of financial assets that domestic banks and non-banks entities can hold (Lane and McQuade, 2014). They have also been found to fuel credit booms (Mendoza and Terrones, 2012; Calderon and Kubota, 2012).

To control for unobserved country specific characteristics, we also estimated the model using the fixed effects. Column 4 of Table 5.4 presents our robust results in model FE_rob. Like in pooled OLS, the fixed effect estimator shows that FDI, Debt and

Equity are positively related to private credit. FDI and Equity are significant at 5% while debt is significant at 10%. Here remittances and ODA are also positively related to private credit but only ODA is significant at 10%.

We now turn to dynamic GMM in column 5 of table 5.4 that we implemented using the Stata *xtabond* command. Our results show that FDI, debt and equity are all positively related to private credit. They are significant at 1%, 10% and 10% respectively. The GMM model predicts that a one point increase in private credit would result from 0.56 point increase in FDI or 1.7 point increase in debt or 0.12 point increase in equity. Remittances are negatively but not significantly related to private credit while ODA is positively but not significantly related to private credit. For consistent estimation, the *xtabond* estimator requires that the error v_{it} be serially uncorrelated. The Arellano-Bond test for zero autocorrelation in first difference errors show that the null (i.e. no autocorrelation) is not rejected at order 2 since $p=0.23$ which is greater than 0.05. Similarly, we used the Sargan test of over identification restrictions to test the validity of our instruments. The null hypothesis that the population moments conditions are correct is not rejected because $p=0.68$ which is greater than 0.05.

Finally, in column 6 of table 5.4, we present the results of the system GMM model. Here, FDI, Debt and Equity are all positively related to private credit. However, only FDI and Debt are significant at 10% and 1% respectively. Like in the other models, remittances and ODA are not significantly related to private credit. The Arellano-Bond test for zero autocorrelation in first difference errors show that the null is not rejected at order 2 since $p=0.32 > 0.05$. Similarly, the Sargan test of over identification restrictions shows that our instruments are valid since $p=0.33 > 0.05$.

Table 5.4 Credit availability and different types of capital inflows. Dependent variable is Domestic credit to private sector by banks

	(1)	(2)	(3)	(4)	(5)	(6)
Regressors	OLS1	OLS2	OLS3	FE_rob	GMM	SY_GMM
fdigdp	0.611** (2.09)	0.549** (1.97)	0.397* (1.88)	0.664** (2.42)	0.564*** (2.93)	0.416* (1.86)
debtgdp	1.342 (1.64)	1.489* (1.82)	1.596 (1.37)	1.595* (1.83)	1.734* (1.81)	2.104*** (2.81)
equigdp	0.725*** (5.53)	0.782*** (5.73)	0.684*** (3.79)	0.506** (2.33)	0.124* (1.82)	0.13 (0.35)
remgdp	-0.021 (-0.08)	0.147 (0.52)	0.162 (0.46)	0.096 (0.25)	-0.038 (-0.14)	-0.183 (-0.53)
odagdp	-0.71 (-1.46)	-0.497 (-1.11)	-0.152 (-0.41)	1.426* (1.99)	0.613 (1.12)	0.413 (0.69)
gdsgdp		0.262 (1.3)	0.303 (1.29)	0.154 (0.81)	0.162 (0.83)	0.021 (0.08)
L.dprivcredgdp					0.230** (2.11)	0.957*** (7.85)
Constant	34.68*** (5.67)	28.77*** (4.35)	26.76*** (2.77)	18.61** (2.04)	10.06 (1.26)	-15.72 (-1.09)
Observations	149	149	145	145	83	129
AR (2) Test of serial Correlation: Prob.>chi2					0.23	0.32
Hansen/Sargan Test of over identification: Prob.>chi2					0.68	0.33

Note: t statistics in parentheses, significance levels: * p<0.10, ** p<0.05, *** p<0.01. Private credit measured as domestic credit to private sector (*dprivcredgdp*) provided by deposit money banks as a percentage of GDP. Models OLS3, FE_rob, GMM and SY_GMM include *inflation*, *ka_open*, *gdpgr*, *brmoneygr*, *reer* as additional regressors. They also include time dummy variable for each five-year sub period to control for period specific effects. All the results are heteroscedasticity robust.

For robustness check, we undertook the same analysis but using a different measure of private credit. In table 5.5 below, we use *domestic credit to private sector by financial institutions* as a percentage of GDP (*pcrfinwdi*) from World Development Indicators (WDI) as our dependent variable. This measure is even more comprehensive than *Domestic credit to private sector* (*dprivcredgdp*). While Domestic credit to private sector (*dprivcredgdp*) measures only deposit money bank claims on the private sector, *domestic credit to private sector by financial institutions* as a percentage of GDP (*pcrfinwdi*) refers to financial resources provided to the private sector by monetary authorities and deposit money banks, as well as other financial corporations.

From model OLS1 in column 1 and model OLS2 in column 2 of table 5.5, the coefficients estimates show that FDI, Debt and Equity have a positive sign and they are significant at 1%, 5% and 10% respectively in both specifications. On the other hand, remittances have a positive sign while ODA bears a negative sign but they are both not significant. When we control for other variables that the literature has identified as determinants of private credit in model OLS3 in column 3 of table 5.5, still FDI, Debt and Equity bear a positive sign and they are all significant at 5%. Here, remittances and ODA are positive but not significant. Column 4 of table 5.5 presents robust results from a fixed effect estimator FE_rob. Like before, FDI, Debt and Equity are positive and significant at 1%, 10% and 5% respectively. ODA becomes positive and significant at 5% while remittances remain positive but not significant. In column 5, the difference GMM estimator gives us FDI, Debt and Equity positively related to private credit but only FDI is significant at 1%. Remittances and ODA are also positive but again not significant. However, the tests for serial autocorrelation confirms that there is no serial correlation as $p=0.3 > 0.05$ and the test of over identification restrictions confirms the validity of our instruments as $p=0.5 > 0.05$. Finally, in column 6, we present the results

of the system GMM estimator. Here while FDI, Debt and Equity are positively related to private credit, only debt is significant at 10%. Remittances become negative while ODA is still positive but none of them is significant. The tests for serial autocorrelation confirms that there is no serial correlation as $p=0.45 > 0.05$ and the test of over identification restrictions confirms the validity of our instruments as $p=0.18 > 0.05$.

Table 5.5 Credit availability and different types of capital inflows. Dependent variable is domestic credit to private sector by financial institutions

Regressors	(1) OLS1	(2) OLS2	(3) OLS3	(4) FE_rob	(5) GMM	(6) SY_GMM
fdigdp	0.690*** (3.9)	0.593*** (3.31)	0.449** (2.19)	0.596*** (2.9)	0.615*** (3.61)	0.308 (0.87)
debtgdp	1.823** (2.05)	2.043** (2.32)	2.386** (2.03)	2.325* (1.96)	2.061 (1.51)	2.362* (1.87)
equigdp	0.332* (1.78)	0.326* (1.81)	0.426** (2.10)	0.481** (2.25)	1.212 (0.86)	0.885 (0.44)
remgdp	0.114 (0.4)	0.363 (1.3)	0.422 (1.39)	0.383 (1.15)	0.133 (0.67)	-0.086 (-0.30)
odagdp	-0.388 (-0.85)	-0.096 (-0.25)	0.514 (1.12)	1.788** (2.67)	0.495 (0.94)	0.551 (0.84)
gdsgdp		0.367* (1.85)	0.460* (1.76)	0.309 (1.47)	0.122 (0.63)	-0.037 (-0.15)
L.pcrfinwdi					0.122 (0.6)	0.909*** (10.35)
Constant	33.11*** (5.85)	24.91*** (4.68)	11.02 (1.11)	5.249 (0.46)	8.267 (0.71)	-17.75 (-1.30)
Observations	147	147	143	143	80	126
AR(2) Test of serial correlation Prob.>chi2					0.3	0.45
Hansen/Sargan Test of over identification: Prob.>chi2					0.5	0.18

Note: t statistics in parentheses, significance levels: * p<0.10, ** p<0.05, *** p<0.01. Private credit measured as domestic credit to private sector by financial institutions as a percentage of GDP (*pcrfinwdi*). Models OLS3, FE_rob, GMM and SY_GMM include *inflation*, *ka_open*, *gdpgr*, *brmoneygr*, *reer* as additional regressors. They also include time dummy variable for each five-year sub period to control for period specific effects. All the results are heteroscedasticity robust.

From the above results, we can conclude that the more private and profit fetching capital inflows developing countries attract, the more their economies can provide credit to the private sector. This is good news as more and more developing countries have intensified liberalisation policies to attract more international capital inflows. On the other hand these results indicate that remittances and ODA which are not primarily motivated by profit have no significant effect on private credit. While it is not good news for developing countries that remittances and ODA are not very useful in promoting private sector credit, they are nevertheless in line with a bulk of previous research (e.g. Oke et al., 2011, Chami et al., 2005). Moreover, these results can be seen as encouraging developing countries that have endeavoured to focus more on trade rather than aid. Profit fetching capital inflows are attracted by market conditions and the only way developing countries can sustainably walk out of the aid trap vicious circle is by strengthening those reforms that make their markets more competitive.

5.7 Conclusion

In this chapter, we investigated the hypothesis that different types of foreign capital inflows have different effects on private credit in developing countries. We start by presenting a brief exposition of the three gap model as well as the loanable fund theoretical frameworks according to which international capital inflows should be beneficial to resource constrained countries because they supplement the insufficient domestic savings and help those countries fill their savings, fiscal and foreign exchange gaps. Then we empirically tested this theory using 5-year average data for 54 developing countries covering the 1990-2013 period and disaggregating foreign capital inflows into their main five types namely FDI, debt securities, equity securities, remittances and ODA. We applied different econometric techniques including OLS,

fixed effects, difference GMM and system GMM and conducted tests for serial correlation and over identification restrictions.

Our empirical results show that private and profit fetching capital inflows i.e. FDI, debt and equity are positively and significantly correlated with private credit in developing countries. On the other hand, our results show that remittances and ODA are not significant determinants of private credit in developing countries. These results are in line with a bulk of previous studies and are robust to changing the measure of private credit. They are also robust to using different estimation techniques.

These results have policy implication and reinforce the position of the many researchers and politicians who believe that reforms that facilitate trade should be prioritised since hand-outs have never been an effective way of achieving economic transformation. Rather than focusing on attracting free money in form of ODA or even remittances (except compensation from services rendered to foreigners), developing countries should continue and actually intensify market reforms that attract more private capitals. This should not be an insurmountable task for governments in developing countries as it is well known that the countries that attract the most private capital inflows do so thanks to their favourable investment climate, which includes such elements as a stable political regime, good prospects for economic growth, liberal and predictable government regulation, and easy convertibility of the national currency.

This study has introduced a debate of knowing which types of capitals inflows (private and profit fetching vs official and non-profit fetching) are individually most important in promoting credit to private sector. Although we have focused on a sample of developing countries, perhaps further research should be conducted recognising the fact that developing countries are also different among themselves. Thus, our results could be complemented by future research comparing the above impact in different

income countries within the developing countries category i.e. separating low income, lower-middle income and upper-middle income countries to evaluate whether the impact is different according to this income classification. We were not able to conduct such analysis as we faced data availability constraints. Dividing our sample further into more homogeneous sub samples, would have given us very small samples from which reliable inference cannot be made.

Chapter 6

Conclusions

In four main chapters, this thesis focuses on three different topics in economics with a common theme, financial development. First, paying particular attention to the importance of quality of institutions and financial reforms in promoting financial development, we investigate the much publicised opinion that government ownership of banks leads to their subsequent unsoundness. Second, given the contradictions in the literature about the effectiveness of official development assistance on economic growth and the emergence of a literature comparing aid to natural resources as far as their impact on economic growth is concerned, this thesis introduces a new kind of debate linking ODA, financial development and democracy. We propose a theoretical model which demonstrates how by promoting incentives for rent-seeking, foreign aid weakens contract enforcement institutions. As the chances of being reimbursed shrink, owners of capital become reluctant to lend their funds out to potential investors thereby leading to poor financial development as financial markets are no longer able to intermediate available resources and allocate them to their best uses. Then thirdly, an empirical investigation of the role of democracy in enhancing the effectiveness of aid in promoting financial development is conducted. Fourthly, we empirically investigate the hypothesis that different types of international capital inflows have different effects on credit availability in developing countries. The main conclusions of the four chapters are summarised below. Moreover, we briefly comment on our results' policy implications and recommend possible areas of further investigation.

In chapter two, we use LLS dataset to re-examine their conclusions that government ownership of banks is associated with subsequent financial instability.

After reproducing their findings, we control for quality of institutions and financial reform to conclude that actually LLS results are fragile and suffer from omitted variable bias. Further, we control for endogeneity using various instrumental variable approaches including LIML which is credited to work well even when instruments are weak. In addition, we conduct various robustness checks including changing the measurements of quality of institutions and financial development to conclude that if any relationship between government ownership of banks and financial development exists at all, it is positive. Finally we construct a new dataset covering the period 2001-2011 and use it to test the validity of our findings. We also widen the definition of soundness of banks as well as government ownership of banks and control for foreign ownership of banks. After various robustness checks we concluded that government ownership per se does not lead to poor financial development as alleged by LLS. In fact, we show that in an environment where there is greater quality of institutions such as control of corruption and more efficient bureaucracy, state ownership of banks may be beneficial to financial development.

This chapter has some weaknesses that are inherent with its objectives and design. By trying to be close and comparable to LLS study, we inherited almost all their weaknesses especially in the first part of the analysis where we discuss the fragility of their results. However, given different econometric techniques we used as well as collecting a recent dataset and conducting a similar study, we are confident that our results are robust.

The above conclusions have policy implications especially in the aftermath of the 2008 financial crisis. For developed countries that have acquired control of banks through bailout following the crisis, rather than worrying too much about the fact that they own these banks and rather than rushing to reprivatize them, they should be more

concerned by how they strengthen regulatory institutions and find a way to effectively deal with shoddy and corrupt deals in the financial markets before full scale re-privatization. For governments in developing countries which still own banks, our findings suggest that they should conduct financial reforms and prioritize the building of strong institutions that would provide checks and balances if they want their financial sector to develop and serve as a stimulus to their economic development.

In chapter three, we propose a theoretical model, the first of its kind, predicting how, when there is no democracy in recipient country, official development assistance leads to greater levels of corruption and weaker contract enforcement institutions. This in turn prevents capital owners from lending their capital to producing firms which results in poor financial development outcomes. The model intuitively shows that if governments in recipient countries know that donors attach a strong importance on democracy they will choose not to be corrupt. They will opt to strengthen contract enforcement institutions which will encourage the owners of capital to lend it out, thereby making financial development possible. This model also predicts that when democratic institutions are weak, official development assistance weakens recipient government's efforts to collect taxes.

This study is the first to propose a theoretical framework showing the impact of aid on financial development. Although modified to fit the purpose of aid, this framework is based on a similar model about natural resources. Further research is recommended to explore the impact of relaxing some of the strong assumptions that we made and to incorporate more features that are specific to aid. Indeed, it is true that aid and revenues from natural resources are comparable in many ways, but they are also fundamentally different in the ways they are used and acquired. It is recommended for

instance that further studies investigate how the model's predictions would change by modifying how aid is entered.

The above theoretical model was then empirically tested in chapter four by investigating the hypothesis whether the relationship between official development assistance and financial development depends on the level of democracy in recipient countries. Using a panel data for 37 recipient countries for the period 1980-2005, controlling for various factors of financial development as recommended in the literature, we innovatively use an interaction variable between ODA and democracy and adopts various econometric approaches (Pooled OLS and IV 2SLS, fixed effects as well as dynamic GMM) to show that ODA on its own does not generally improve financial development. Our findings show that ODA is harmful to financial development when given to autocratic regimes. However improving democracy reduces the negative effect of ODA whose total effect eventually becomes positive. These results are robust to changes in measurements for democracy and financial development.

To our knowledge, this study is the first of its kind in the ODA-financial development-democracy nexus as no previous study has investigated the impact of ODA on financial development in the light of existing institutional quality. These findings have policy implications for both donors and governments in ODA recipient countries: although aid is ineffective in promoting financial development, its harmfulness can be reduced by increasing democracy. Thus, donors and recipient countries should work together to strengthen democratic institutions which would provide necessary checks and balances resulting in less harmful and probably effective aid.

This chapter attempted to fill the gap in the literature relating to the impact of democracy on aid effectiveness in promoting financial development. The findings show

that there is a positive and significant effect of democracy on aid effectiveness in promoting financial development. However, given that this is the first time such an investigation is conducted, it is clear that further research is needed to firmly establish the causal linkages between the three factors of interest. Perhaps a similar study could be conducted on a more homogeneous group of countries as the heterogeneity between the countries in our study and the size of our sample may have affected our results. The other area of importance would be to distinguish between various types of ODA in terms of their sources (e.g. multilateral vs bilateral) and their aim (e.g. project vs direct budget support).

Finally, after exploring channels through which international capital inflows impact on credit availability by combining the theoretical understanding of the gap model and the loanable funds model, chapter 5 investigates the hypothesis that different types of foreign capital inflows have different impacts on the availability of credit in developing countries.

We use 5-year average data for 53 developing countries covering the 1990-2013 period and we disaggregate international capital inflows into their main five types i.e. Foreign Direct Investment (FDI), debt, equity, remittances and official Development Assistance (ODA). We apply various econometric techniques including OLS, fixed effects, dynamic GMM and system GMM. Our findings show that private and profit fetching capitals inflows i.e. FDI, debt and equity are positively and significantly associated with private credit in developing countries while remittances and ODA are not significant determinants of private credit in developing countries.

These results have policy implications. Without denying the importance of remittances and ODA to developing countries, our results suggest that rather than focusing on attracting free money, developing countries should intensify market reforms

that attract more private capitals. This could be done by implementing policies that create a favourable and competitive investment climate.

This chapter has introduced a debate of knowing which types of capitals inflows (private and profit fetching vs official and non-profit fetching) are individually most important in promoting credit to private sector. We focused on a sample of developing countries. Perhaps one of our weaknesses would be making an assumption that developing countries constitute a homogeneous group of countries. We made this assumption because we faced data availability constraints. We therefore suggest that further research should be conducted recognising the fact that developing countries are also different among themselves. They could be divided into different categories such as low income, lower-middle income and upper-middle income countries and research could investigate how different the impacts of various types of capital inflows are in those different categories of countries. This debate can also be enriched by considering individual case studies or perhaps more similar countries by grouping them by region such as sub-Saharan Africa.

References

- Abiad, A., Detragiache, E., and Tressel, T. (2008), “A New Database of Financial Reforms,” IMF Working Paper No. 08/266, Washington, International Monetary Fund
- Acemoglu, D., Johnson, S., and Robinson, J. A. (2001), “The Colonial Origins of Comparative Development”, *American Economic Review* 91(5), 1369–401
- Acemoglu, D., and Robinson, J. (2012). “Why Nations Fail: The Origins of Power, Prosperity and Poverty”. 1st ed. , New York: Crown Publishers.
- Acemoglu, D., Johnson, S., and Robinson, J. (2005), “Institutions as a fundamental cause of long-run growth”. In P. Aghion, & S. Durlauf (Eds.). *Handbook of economic growth* (Vol. 1A, pp. 385–472). Amsterdam: Elsevier.
- Acemoglu, D., Johnson, S., Robinson, J., and Yared, P. (2008), “Income and Democracy”, *American Economic Review* 98, 808–42
- Acemoglu, D., Naidu, S., Restrepo, P., and Robinson, A.J. (2014), “Democracy does cause growth”, National Bureau of Economic Research, Inc, working paper, No. 20004
- Aggarwal, R., Demirguc-Kunt, A., and Peria, M.S.M. (2011), “Do Workers Remittances Promote Financial Development? *Journal of Development Economics*, 96 (2), 255-264
- Aghion, P., Fally, T., and Scarpetta, S. (2007), “Credit constraints as a barrier to the entry and post-entry growth of firms”, *Economic Policy*, 22(52), 731-779
- Alejandro, M., Ugo, P., and Yanez, M. (2005) “Bank Ownership and Performance: Does Politics matter?” Central Bank of Chile, Working Paper No 356
- Alesina, A., and Rodrik, D. (1994), “Distributive politics and economic growth”, *Quarterly Journal of Economics*, 109(2), 465–90
- Alesina, A., and Dollar, D. (2000), “Who Gives Foreign Aid to Whom and Why?” *Journal of Economic Growth*, Springer, 5(1), 33-63
- Alia, D.Y., and Anago, R.K. (2014), “Foreign aid effectiveness in African economies: Evidence from a panel threshold framework”, WIDER Working Paper 2014/015, UNU–WIDER, Helsinki
- Alfaro, L., Chanda, A., Kalemli-Ozcan, S. and Sayek, S. (2004), FDI and economic growth: the role of local financial markets, *Journal of International Economics*, 64, 89–112.
- Al-Khouri, R. S. (2007), “Financial sector development and sustainable economic growth in regionally co-integrated emerging markets”, *Advances in Financial Economics* 12, 345–360

Allen, F., Carletti, E., Cull, R., Qian, J., and Senbet, L. (2010), “The African Financial Development Gap”, University of Maryland/University of Pennsylvania working paper

Allen, F., Carletti, E., Cull, R., Qian, J., Senbet, L., and Valenzuela, P. (2013), “Resolving the African financial development gap: cross-country comparisons and a within-country study of Kenya”. Policy Research working paper No. WPS 6592 Washington D.C. - The World Bank.

Allen, F.; Jackowicz, K., and Kowalewski, O. (2013), “The Effects of Foreign and Government Ownership on Bank Lending Behavior During a Crisis in Central and Eastern Europe”, Wharton Financial Institutions Centre, Working Paper, No: 13-25

Allen, W., and Wood, G. (2006), “Defining and achieving financial stability”, *Journal of Financial Stability* 2, 152-172

Altunbas, Y., Evans, L., and Molyneux, P. (2001), “Bank ownership and efficiency”, *Journal of Money, Credit and Banking* 33(4), 926-954

Anderson, T.W., and Rubin, H. (1950), “The asymptotic properties of estimates of the parameters of a single equation in a complete system of stochastic equations”. *Annals of Mathematical Statistics* 21, 570–582

Andrianova, S., Demetriades, P. O., and Shortland, A. (2008), “Government ownership of banks, institutions, and financial development”, *Journal of Development Economics* 85, 218-252

Andrianova, S., Demetriades, P. O., and Shortland, A. (2009), “Is Government Ownership of Banks Really Harmful to Growth?” Unpublished Working Paper

Andrianova, S., Demetriades, P.O., and Shortland A., (2012), “Government Ownership of Banks, Institutions and Economic Growth”, *Economica* 79, 449–469

Arellano, C., Bulir, A., Lane, T., and Lipschitz, L.(2009), “The Dynamic Implications of Foreign Aid and its Variability”, *Journal of Development Economics* 88, 87—102

Arellano, M., and Bond, S. (1991), “Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations”, *Review of Economic Studies* 58(2), 277– 297

Arestis, P., Demetriades, O.P., and Luintel, K.B (2001), “Financial Development and Economic Growth: The Role of Stock Markets”, *Journal of Money, Credit and Banking*, 33(1), 16-41

Arndt C., Jones, S., and Tarp, F.(2013a), “Assessing foreign aid’s long-run contribution to growth in development”, WIDER Working Paper 2013/072, UNU–WIDER, Helsinki

Arslan, Y., and Taskin, T. (2014), International Evidence on the Interaction between Cross-Border Capital Flows and Domestic Credit Growth, *Iktisat Isletme ve Finans*, 29, issue 341, 37-56

Arteta, C., Eichengreen, B., and Wyplosz, C. (2001), “When Does Capital Account Liberalization Help More Than It Hurts?” NBER Working Paper No. 8414.

Aslaksen, S. (2007), “Oil, Democracy and Country Fixed Effects”, Department of Economics, Norwegian University of Science and Technology.

Asongu, S. A.(2011d), “Law and finance in Africa”, MPRA Paper No. 34080.

Atkinson, A. B., and Stiglitz, J.E. (1980), “Lectures on Public Economics”, London, Mc- Graw Hill.

Aysan,A. F., Husnu,D.C., and Murat,D (2010) “Macroeconomic, Sector Specific and Bank Specific Determinants of Net Interest Rate Margin: What Matters More for an Emerging Market Economy?” EcoMod 2010 Paper

Ayyagari, M., Demirgüç-Kunt,A., and Maksimovic,V. (2011), “Firm Innovation in Emerging markets:The Role of Finance, Governance, and Competition”, Journal of Financial and Quantitative Analysis 46, 1545-80.

Bacha, E. L. (1990), “A Three-Gap Model of Foreign Transfers and the GDP Growth Rate in Developing Countries,” Journal of Development Economics, 32, 279–296.

Bailliu,J. (2000), “Private capital flows, financial development, and economic growth in developing countries”, Bank of Canada, Working Papers 2000-15

Bali moune-Lutz, M. (2012), “Do institutions and social cohesion enhance the effectiveness of aid? New Evidence from Africa”, Journal of International Commerce, Economics and Policy, 3(01), 1-19.

Baltagi, B.H., Demetriades, P., and Law, S.H. (2009), “Financial development and openness: Evidence from panel data”, Journal of Development Economics 89, 285-296.

Bandyopadhyay, S., and Vermann E. K. (2013), “Donor Motives for Foreign Aid”, Federal Reserve Bank of St. Louis Review, 95(4), 327-36.

Banerjee, A. (1997), “A Theory of Misgovernance”, Quarterly Journal of Economics, 112, 1289-1332.

Barajas, A., Dell’Ariccia,G., and Levchenko,A (2009). “Credit Booms: the Good, the Bad, and the Ugly”, Washington, DC: IMF, manuscript.

Barro, R. (1991),“Economic Growth in a Cross-section of Countries”, Quarterly Journal of Economics 06 (2), 407–43.

Barro, R. (1996), “Democracy and Growth” ,Journal of Economic Growth 1(1),1–27.

Barth, J.R., Caprio Jr, G., and Levine, R. (2000), “Banking Systems Around the Globe: Do Regulation and Ownership Affect Performance and Stability?” in *Frederic S. Mishkin, editor, Prudential Supervision: What Works and What Doesn’t*, University of Chicago Press, 2001.

Barth, J.R., Caprio Jr, G., and Levine, R. (2004), “Bank Regulation and Supervision: what works best?” , Journal of Financial Intermediation, 13,205-248.

- Barth, J.R., Caprio Jr, G., and Levine, R. (2006), "Rethinking Bank Regulation: Till Angels Govern", Cambridge University Press.
- Bauer, P. (1991), "The Development Frontier: essays in applied economics", Hemel Hempstead: Harvester/Wheat sheaf
- Bauer, P. (1972), "Dissent on Development", Cambridge: Harvard University Press.
- Baum, C. F., Schaffer, M. E., and Stillman, S. (2003), "Instrumental variables and GMM: Estimation and testing". *Stata Journal* 3, 1–31.
- Bearce, D. (2009). "Why foreign aid may be less effective at promoting growth in more democratic countries." Unpublished Manuscript.
- Beck, T., and Demirgüç-Kunt, A. (2009), "Financial Institutions and Markets Across Countries and over Time: Data and Analysis", World Bank Policy Research Working Paper No. 4943
- Beck, T., and Levine, R. (2004), "Stock Markets, Banks and Growth: Panel Evidence", *Journal of Banking and Finance*, 28, 423–442.
- Beck, T., Demirgüç-Kunt, A., and Levine, R. (2003), "Law, endowments and finance". *Journal of Financial Economics* 70, 137–181.
- Beck, T., Hesse, H., Kick, T., and Westernhagen, N.V. (2009), "Bank Ownership and Stability: Evidence from Germany", Bundesbank Working paper, forthcoming.
- Beck, T., Levine, R., and Loayza, N. (2000), "Finance and the sources of growth", *Journal of Financial Economics* 58, 261–300.
- Beck, T., and Peria, M.S.M (2007), "Foreign Bank Acquisitions and Outreach: Evidence from Mexico," World Bank Policy Research Working Paper, No. 4467.
- Beck, T., Demirgüç-Kunt, A., and Levine, R. (2000), "A New Database on Financial Development and Structure", *World Bank Economic Review* 14, 597-605.
- Becker, G. (1983), "A theory of competition among pressure groups for political influence". *Quarterly Journal of Economics*, 98(3), 371-400.
- Bekaert, G., Harvey, C., and Lundblad, C. (2005), "Does financial liberalization spur economic growth"? *Journal of Financial Economics* 77, 3–55.
- Benedek, D., Crivelli, E., Gupta, S., and Muthoora, P. (2012), "Foreign Aid and Revenue: Still a Crowding Out Effect?" IMF Working Paper 12/186 (Washington: International Monetary Fund).
- Bernanke, B. (2005), "The Global Saving Glut and the U.S. Current Account Deficit," 2005 Remarks made at the Sandridge Lecture, Virginia Association of Economics, Richmond, Virginia, 10th March 2005. Accessed on 20th May 2015 at <http://www.bis.org/review/r050318d.pdf>
- Bhagwati, J. (1995), "Democracy and Development: new thinking on an old question", *Indian Economic Review*, 30(1), 1-18.

- Bhattacharyya, S., and Hodler, R. (2010), “Do Natural Resources Hinder Financial Development? The Role of Political Institutions”, Working Paper, Centre for the Study of African Economies, University of Oxford.
- Bhattacharyya, S., and Hodler, R. (2014), “Do Natural Resource Revenues Hinder Financial Development? The Role of Political Institutions”. *World Development* 57, 101–113
- Blanchard, O., and Shleifer, A. (2000), “Federalism with and without political centralization: China versus Russia”, NBER working paper No. 7616.
- Blundell, R., and Bond, S. (1998), “Initial Conditions and moments restrictions in dynamic panel data model”, *Journal of Econometrics* 87,115-143
- Blundell-Wignall, A., Atkinson P.E., and Lee, S.H. (2009), “The Current Financial Crisis: Causes and Policy Issues”, *OECD Financial Market Trends*, No 96, Vol. 2009/1.
- Bongini, P., Claessens, S., and Ferri, G. (2001), “Political Economy of Distress in East Asian Financial Institutions”, *Journal of Financial Services Research*, 19 (1), 5-25.
- Bonin, J.P., Hasan, I., and Wachtel,P. (2004), “Bank performance, efficiency and ownership in transition countries”, *Journal of Banking and Finance* 29, 31-53
- Boone, P. (1996), “Politics and the effectiveness of foreign aid”, *European Economic Review*, 40(2), 289–329
- Bosworth, B.P., and Collins, S.M. (1999). “Capital flows to developing economies: implications for saving and investment”, *Brookings Papers on Economic Activity*, 1, 143-180.
- Borio, C. and Disyatat,P. (2011), “Global Imbalances and the Financial Crisis: Link or No Link?”, *BIS Working Paper* No. 346.
- Boutton, A., and D’Orazio, V. (2013), “Buying Blue Helmets: Western Aid Allocation & UN Peacekeeping Troop Contributions”, *Pennsylvania State University*.
- Boyd, J.H., Levine, R., and Smith, B.D. (2001), “The Impact of Inflation on Financial Sector Performance”, *Journal of Monetary Economics*, 47 (2), 221-248.
- Braun, M., and C. Raddatz (2008), “The Politics of Financial Development: Evidence from Trade Liberalization”, *Journal of Finance*, 63 (3), 1469-1508.
- Bräutigam, D., and Knack,S. (2004), “Foreign aid, institutions, and governance in Sub-Saharan Africa”, *Economic Development and Cultural Change* 52 (2), 255-285.
- Bräutigam, D. (2000),“Aid, Dependence, and Governance”. Stockholm: Almqvist and Wiksell International.
- Brown, S. (2005), “Foreign Aid and Democracy Promotion: Lessons from Africa.” *The European Journal of Development Research* 17(2),179-198.

Brown, R.P.C, Carmignani,F., and Fayad,G. (2013), “Migrants’ Remittances and Financial Development: Macro- and Micro-level Evidence of a Perverse Relationship”, *The World Economy*, 36 (5),636-660.

Bruno, V., and Shin, S.H.(2014).Cross-Border Banking and Global Liquidity. Princeton University,mimeo.http://www.princeton.edu/~hsshin/www/capital_flows_global_liquidity.pdf

Burnside, C., and Dollar, D. (2000), “Aid, policies, and growth”, *American Economic Review*, 90, 847–868.

Bush, G, W. (2002), “Remarks at the Inter-American Development Bank”, March 14. Online by Gerhard Peters and John T. Woolley, The American Presidency Project. <http://www.presidency.ucsb.edu/ws/?pid=64974> .accessed 20 February 2014

Caballero, J. A.(2014). “Do surges in international capital inflows influence the likelihood of banking crises?” *The Economic Journal*, DOI: 10.1111/ecoj.12172

Calderón, C., and Servén,L. (2011), “Macro-Prudential Policies over the Cycle in Latin America”, Washington, DC: The World Bank, manuscript.

Calderón, C., and Kubota, M.(2012), “Gross Inflows Gone Wild: Gross Capital Inflows, Credit Booms and Crises”, *The World Bank Policy Research Working Paper* 6270.

Calvo, G.A., Izquierdo, A., and. Mejía. L.F. (2008). “Systemic Sudden Stops: The Relevance of Balance-Sheet Effects and Financial Integration.” NBER Working Paper 14026. Cambridge, United States: National Bureau of Economic Research.

Cameron, A., and Trivedi, P.K. (2009), “Microeconometrics Using Stata”, TX: Stata Press.

Caprio, G., and Peria, M.S.M.(2000), “Avoiding Disaster: Policies to Reduce the Risk of Banking Crises”, Paper presented at the conference on Monetary and Exchange Rate Policies: Options for Egypt, Cairo, November 19–21

Caprio, G., and Summers, L. (1993), “Finance and its Reform: Beyond Laissez-Faire”, *Policy Research Working Paper* 1171. World Bank, Washington, D.C

Caprio, G., Levine, R., and Barth,J. (2008),“Bank regulation and supervision”, Permanent URL:<http://go.worldbank.org/SNUSW978P0>, accessed May 2013

Carter, P. (2013), “Does Foreign Aid Displace Domestic Taxation?” *Journal of Globalization and Development*, 4, 1-47.

Chami, R., Fullenkamp,C., and Samir,J (2005). “Are Immigrant Remittance Flows a Source of Capital for Development.” *IMF Staff Papers* 52, 55-81.

Chauvet, L., and Guillaumont, P. (2002), “Aid and growth revisited: policy, economic vulnerability and political instability”. Paper presented at the ‘Annual Bank Conference of Development Economics’, Oslo

Chenery, H.B., and Strout, A.(1966), “Foreign Assistance and Economic Development”, *The American Economic Review*, 56, 679–733.

- Chinn, M. D., and Ito, H. (2006), “What matters for financial development? Capital controls, institutions, and interactions”, *Journal of Development Economics* 81(1), 163-192.
- Chinn, M., and Ito, H. (2008), “A new measure of financial openness”. *Journal of Comparative Policy Analysis* 10 93), 307-320.
- Choi, M. J., Gutierrez, E., and Peria, M. S.M. (2014). “Dissecting foreign bank lending behavior during the 2008-2009 crisis”. Bank of Korea WP, 7.
- Choi, I. (2001), “Unit root tests for panel data”. *Journal of International Money and Finance* 20: 249–272.
- Chopra, A. (2007), “Opening up to Foreign Banks: Harnessing the Benefits and Avoiding the Pitfalls,” Mimeo, International Monetary Fund.
- Claessens, S., Feijen, E., and Laeven, L. (2008), “Political connections and preferential access to finance: the role of campaign contributions”, *Journal of Financial Economics* 88, 554–580.
- Claessens, S., and Laeven, L. (2003), “Financial Development, Property rights, and growth”, *Journal of Finance*, 58, 2401–2436.
- Claessens, S., Dooley, M.P., and Warner, A. (1995), “Portfolio Capital Flows: Hot or Cold?”, *World Bank Economic Review*, 9(1), 153–174
- Claessens, S. (2006), “Competitive Implications of Cross-Border Banking,” in *CrossBorder Banking: Regulatory Challenges*, Gerard Caprio, Douglas D. Evanoff and George G. Kaufman (Eds.). World Scientific Publishing, New Jersey, pp. 151-82.
- Clague, C., Keefer, P., Knack, S., and Olson, M. (1996), “Property and Contract Rights in Autocracies and Democracies”, *Journal of Economic Growth*, 1, 243-76.
- Clarke, G., Cull, R., Peria, M.S.M., and Sánchez, S. (2003), “Foreign Bank Entry: Experience, Implications for Developing Countries, and Agenda for Further Research,” *World Bank Research Observer*, Vol. 18, pp. 25–40
- Clemens, M., Radelet, S., and Bhavnani, R. (2004), “Counting Chickens When They Hatch: Timing and the Effects of Aid on Growth.” CGD Working Paper 44. Revised September 6, 2011. Washington, D.C.: Centre for Global Development
- Clist, P., and Morrissey, O. (2011), “Aid and Tax Revenue: Signs of a Positive Effect since the 1980s”. *Journal of International Development* 23, 165-180.
- Coelho, C. A., De Mello, J. M.P., and Rezende, L. (2013), “Do Public Banks Compete with Private Banks? Evidence from Concentrated Local Markets in Brazil”, *Journal of Money, Credit and Banking*, 45, 1581–1615
- Cole, S. (2007), “Fixing Market Failures or Fixing Elections? Elections, Banks and Agricultural Lending in India”, mimeo, Harvard Business School

- Collier, P. (2006), "Is Aid Oil? An Analysis of Whether Africa Can Absorb More Aid", *World Development* 34(9), 1482-97.
- Collier, P., and Hoeffle, A. (2004), "Greed and Grievance in Civil War", *Oxford Economic Papers* 56(4), 563–95.
- Collier, P. (1997), "The failure of conditionality", in C. Gwin & J. Nelson, eds, *Perspectives on aid and development*, London: Overseas Development Council, 51–77.
- Collier, P., and Gunning, J. (1995). "War, Peace and Private Portfolios", *World Development*, 23 (2), 233-241.
- Collier, P. (2007). "The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It". Oxford University Press, Oxford.
- Cohen, D. (1993), "Convergence in the Closed and Open Economy", in A. Giovannini (ed.), *Finance and Development: Issues and Experience*, Cambridge: Cambridge University Press.
- Cull, R., and Peria, M.S.M. (2011). "Foreign Bank Participation in Developing Countries: What Do We Know about the Drivers and Consequences of this Phenomenon?" in *Encyclopedia of Financial Globalization*, Gerard Caprio (ed.), Amsterdam: Elsevier.
- Dalgaard, C. J., Hansen, H. and Tarp, F. (2004), "On the empirics of foreign aid and growth", *Economic Journal*, 114, 191–216.
- Darvas, Z. (2012a) "Real effective exchange rates for 178 countries: a new database", Working Paper 2012/06, Bruegel.
- Davidson, J. (2000), "Econometric Theory", Blackwell, Oxford.
- De Haan, J., Siemann, C.L.J. (1996), "New evidence on the relationship between democracy and economic growth", *Public Choice* 86, 175-198.
- Demetriades, P. O., and Khaled A.H. (1996), "Does Financial Development Cause Economic Growth? Time-series Evidence from 16 Countries", *Journal of Development Economics*, 51, 387-411
- Demetriades, P.O., and Andrianova, S. (2004), "Finance and Growth: What We Know and What We Need to Know," in C. Goodhart, (ed) *FD and Economic Growth: Explaining the Links*, 38– 65, Palgrave Macmillan: Basingstoke and New York.
- Demirgüç-Kunt, A., and Detragiache, E. (1999), "Financial Liberalization and Financial Fragility", in Boris Pleskovic and Joseph E. Stiglitz, eds., *Annual World Bank Conference on Development Economics*, 1997. Washington, DC: World Bank, pp. 303–331.
- Demirgüç-Kunt, A., and Detragiache, E. (1998), "The Determinants of Banking Crises in Developing and Developed Countries", *IMF Staff Papers*, 45 (1), 81-109.

- Demirgüç-Kunt, A., and Detragiache, E. (1997), “The Determinants of Banking Crises: Evidence from Industrial and Developing Countries”, World Bank Policy Research Working Paper 1828. Washington, D.C.
- Demirgüç-Kunt, A., Lopez-Cordova, J. E., Pería, M.S.M., and Woodruff, C. (2011). “Remittances and Banking Sector Breadth and Depth: Evidence from Mexico” *Journal of Development Economics*, 95 (2), 229–241
- Detragiache, E., Gupta, P., and Tressel, T. (2005), “Finance in Lower-Income Countries: An Empirical exploration”, IMF Working Paper 05/167
- Detragiache, E., Gupta, P., and Tressel, T. (2008), “Foreign Banks in Poor Countries: Theory and Evidence,” *Journal of Finance*, 63, 2123-160.
- De Vita, G. and Kyaw, K.S (2009), ‘Growth Effects of FDI and Portfolio Investment Flows to Developing Countries: A Disaggregated Analysis by Income Levels’. *Applied Economic Letters* 16(3), 277-283
- Djankov, S., McLiesh, C., and Shleifer, A. (2007), “Private Credit in 129 Countries”, *Journal of Financial Economics*, 84(2), 299-329.
- Djankov, S., Montalvo, J.G., and Reynal-Querol, M. (2005a), “The Curse of Aid”, Universitat Pompeu Fabra, Working Paper.
- Djankov, S., Montalvo, J.G., and Reynal-Querol, M. (2008), “The Curse of Aid”, *Journal of Economic Growth*, 13(3), 169–94.
- Dollar, D., and Kraay, A. (2003), “Institutions, trade and growth”. *Journal of Monetary Economics* 50(1): 133–162.
- Domar, E. (1947), “Expansion and Employment”, *American Economic Review*, 37, 34–55
- Dorsey, T., Tadesse, H., Singh, S., and Brixiova, Z. (2008), “The landscape of capital flows to low-income countries”, IMF Working Paper 08/51 (Washington, D.C.: International Monetary Fund)
- Doucouliafos, H., and Ulubasoglu, M. A. (2008), “Democracy and Economic Growth: A Meta Analysis”, *American Journal of Political Science*, 52(1), 61-83.
- Doucouliafos, H. and M. Paldam (2008), “Aid effectiveness on growth: A meta study”. *European Journal of Political Economy* 24, 1-24.
- Dowling, J.M., and Hiemenz, U. (1985), “Biases in the Allocation of Foreign Aid: Some New Evidence”, *World Development*, 13(4), 535-41.
- Dudley, L., and Montmarquette, C. (1976), “A Model of the Supply of Bilateral Foreign Aid”, *American Economic Review*, 66(1), 132-142
- Durbin, J. (1954), “Errors in variables”, *Review of the International Statistical Institute* 22, 23-32.

- Dutta, N., Lesson, P.T., and Williamson, C.R. (2013), “The Amplification Effect: Foreign Aid’s Impact on Political Institutions”, *Kyklos* 66(2), 208–228.
- Easterly, W. (1999). “The Ghost of Financing Gap: Testing the Growth Model Used in the International Financial Institutions”. *Journal of Development Economics* 60 (2), 423-438
- Easterly, W. (2005), “Can Foreign Aid Save Africa?”, Address at the Clemens Lecture Series of Saint Johns University.
- Easterly, W., and Levine, R. (1997), “Africa’s Growth Tragedy: Policies and Ethnic Divisions”, *Quarterly Journal of Economics*, 112(4), 1203-1250.
- Easterly, W. (2003), “Can Foreign Aid Buy Growth?” *Journal of Economic Perspectives* 17(3), 23–48.
- Easterly, W., Levine, R., and Roodman, D. (2003), “New Data, New Doubt: Revisiting Aid, Policies and Growth”, Washington, DC, United States: Centre for Global Development. Mimeographed document.
- Easterly, W., and Pfutze, T. (2008), “Where Does the Money Go? Best and Worst Practices in Foreign Aid”, *Journal of Economic Perspectives*, 22 (2), 29-52
- Easterly, W. (2006), “The White Man’s Burden: Why the West’s Efforts to Aid the Rest Have Done So Much Ill and So Little Good”, New York: The Penguin Press
- Eichengreen, B. (2004), “Financial Instability,” prepared for the Copenhagen Consensus project, May 2004, and in *Bjorn Lomborg (ed.), Global Crises, Global Solutions*. Cambridge University Press
- Ekanayake, E. M., and Chatrta, D. (2010), “The Effect of Foreign Aid on Economic Growth in Developing Countries”, *Journal of International Business and Cultural Studies*, 3, 1-13
- Ekiring, R. (2000), “Impact of Foreign Aid on poverty Alleviation in Developing Countries: With an Application to Uganda”, Maastricht School of Management, The Netherlands
- Elbadawi, I. A. (1999), “External Aid: Help or Hindrance to Export Orientation in Africa”, *Journal of African Economies* 8(4), 578-616.
- Elekdag, S., and Wu, Y. (2011), ‘Rapid Credit Growth: Boon or Boom-Bust?’, IMF Working Paper No. 11/241 (Washington: International Monetary Fund).
- Faccio, M. (2006), “Politically Connected Firms”, *American Economic Review*, 96 (1), 369-386
- Feyzioglu, T., Swaroop, V., and Zhu, M. (1998), “A Panel Data Analysis of the Fungibility of Foreign Aid”, *World Bank Economic Review* 12 (1), 29–58.
- Fischer, R., and Valenzuela, P. (2013), “Financial Openness, Market structure and private credit: An empirical investigation”, *Economic Letters* 121, 478-481.

Freedom House (2014), "Freedom in the World 2014 Methodology", accessed a <http://www.freedomhouse.org/report/freedom-world-2014/methodology#.UwnqBfJFCM9> on 05 /01 2014 at 3:00pm

Freeman, J. R. (1989), "Systematic Sampling, Temporal Aggregation, and the Study of Political Relationships", *Political Analysis* 1, 61-98.

Friedman, M. (1958), "Foreign Economic Aid", *Yale Review*, 47 (4), 501-516.

Frost, J., and Tilburg, R. (2014), "Financial Globalization or Great Financial Expansion? The impact of capital flows on credit and banking crises". Netherlands Central Bank, Research Department, DNB W P No:441.

Frot, E., and Santiso, J. (2011), "Herding in aid allocation", *Kyklos* 64 (1), 54-74.

Freund, C.L., and Spatafora, N. (2008), "Remittances, Transaction Costs, and Informality." *Journal of Development Economics*, 86, 356-366.

Fungáčová, Z., Herrala, R., and Weill, L. (2013), "The Influence of Bank Ownership on Credit Supply: Evidence from the Recent Financial Crisis", *Emerging Markets Review* 15, 136-147

Furceri, D., Guichard, S., Rusticelli, E., (2012), "The effect of episodes of large capital inflows on domestic credit", *N. Am. J. Econ. Finance* 23 (3), 325-344.

Gani, A., and Sharma, B. (2013), "Remittances and Credit Provided By the Banking Sector in Developing Countries", *International Review of Business Research Papers*, 9 (3), 85-98

Garcia, M.T., and Fernández, R.M.D. (2008), "Risk-taking behaviour and ownership in the banking industry: The Spanish evidence", *Journal of Economics and Business* 60, 332-354.

Gerschenkron, A. (1962), "Economic Backwardness in Historical Perspective", Cambridge: Belknap Press of Harvard University Press.

Ghardallou, W., and Boudriga, A. (2013), "Financial Development and Democracy: New evidence" *Laboratoire d'Economie d'Orléans and University of Carthage*.

Ghardallou, W., and Boudriga, A. (2008), "Financial Development and Democracy: Does the Institutional Quality Matter", *Laboratoire d'Economie d'Orléans and University of Carthage*.

Ghura, D. (1998), "Tax Revenue in Sub-Saharan Africa: Effects of Economic Policies and Corruption", *IMF Working Paper* 98/135, Washington

Gomanee, K., Girma, S., and Morrissey, O. (2005), "Aid and growth in Sub-Saharan Africa: accounting for transmission mechanisms", *Journal of International Development* 17(8), 1055-1075.

Green, W.H. (2008), "Econometric Analysis", 6th ed. Upper Saddle River, NJ: Prentice Hall.

- Gupta, S., Clements, B., Pivovarsky, A., and Tiongson, E.R. (2004), "Foreign Aid and Revenue Response: Does the Composition of Aid Matter?" Chapter 14 in *S. Gupta, B. Clements, and G. Inchauste (ed.), Helping Countries Develop: The Role of Fiscal Policy*. Washington, International Monetary Fund.
- Gupta, S., Catherine, A.P. and Wagh, S. (2009). "Effect of Remittances on Poverty and Financial Development in sub-Saharan Africa", *World Development*, 37(1), 104-115
- Gourinchas, P.O., and Obstfeld, M.(2011), "Stories of the Twentieth Century for the Twenty First", *American Economic Journal*, 4 (1), 226 – 265.
- Graham, E., and Krugman, P. (1995), "Foreign Direct Investment in the United States", Washington, DC: Institute for International Economics.
- Haber, S., North, D., and Weingast, B. (2007), "Political Institutions and Financial Development", Stanford University Press, Stanford, CA.
- Haber, S (2008), "Political Institutions and Financial Development: Evidence from the Political Economy of Bank Regulation in Mexico and the United States," in *S. Haber, D. North and B. Weingast (eds.) Political Institutions and Financial Development*. Stanford: Stanford University Press.
- Haggard, S. (1997), "Democratic Institutions and Economic Policy", in *Christopher Clague (ed.), Institutions and Economic Development*. Baltimore: Johns Hopkins University Press.
- Hall, A. R. (2005), "Generalized Method of Moments", Oxford, Oxford University Press.
- Hall, A.R., Rudebusch, G.D., and Wilcox, D.W. (1996), "Judging Instrument Relevance In Instrumental Variables Estimation", *International Economic Review* 37 (2), 283-298.
- Hansen, H., and Tarp, F. (2000), "Aid effectiveness disputed", *Journal of International Development* 12, 375–398.
- Hansen, H., and Tarp, F. (2001), "Aid and growth regressions", *Journal of Development Economics* 64, 547-570
- Hansen, L.P. (1982), "Large Sample Properties of Generalized Method of Moments Estimators" *Econometrica* 50, 1029–1054.
- Hansen, L.P. (2007), "Generalised Method of Moments estimation", Department of Economics, University of Chicago.
- Harford, T., and Klein, M.(2005), "Aid and the resource curse", *Public Policy Journal*, 291,1-4
- Harrington, J. (1992), "The Commonwealth of Oceana and A System of Politics", ed. J. G.A. Pocock, Cambridge, UK: Cambridge University Press.
- Harrison, A., and McMillan, M. S. (2003), "Does Foreign Direct Investment Affect Domestic Firms' Credit Constraints?" *Journal of International Economics* 61, 73-100.
- Harrod, R. (1948), "Towards a Dynamic Economics", London: Macmillan.

Hauk, W. R.Jr., and Wacziarg,R. (2004),“A Monte Carlo Study of Growth Regressions”, Stanford University mimeograph.

Hausman, J. A. (1978), “ Specification tests in econometrics”, *Econometrica* 46, 1251-1271.

Heckelman, J. C., and Powell, B. (2010), “Corruption and the institutional environment for growth”. *Comparative Economic Studies* 52, 351–378

Helliwell, J.F. (1994), “Empirical linkages between democracy and economic growth”, *British Journal of Political Science*, 24, 225– 248.

Hellmann, T., Murdock, K., and Stiglitz, J.E. (2000), “Liberalization, Moral Hazard in Banking and Prudential Regulation: Are Capital Requirements Enough”? *American Economic Review*, 90(1), 147-65.

Herger, N., Hodler, R., and Lobsiger, M. (2008), “What determines Financial Development? Culture, Institutions, or Trade”, *Review of World Economics* 144 (3), 558– 587.

Hermes, N., and Lensink, R. (2003), “Foreign direct investment, financial development and economic growth”, *Journal of Development Studies*,40, 142–63.

Herzer,D., and Grimm,M. (2012), “Does foreign aid increase private investment? Evidence from panel cointegration”, *Applied Economics* 44(20), 2537-2550.

Hjertholm,P., and White,H. (2000), “Survey of Foreign Aid: History, Trends and Allocation”, Department of Economics, University of Copenhagen, Discussion Paper 00/04

Hou, Z., Keane,J., Kennan,J., Massa, I., and Te Velde, D. (2014). “Global monetary shocks: Impacts and policy responses in Sub-Saharan Africa”. ODI Shock Watch Bulletin. Available at <http://www.odi.org.uk/>

Huntington, S. (1968), “Political order in changing societies”, New Haven:Yale University Press, New Haven.

ICRG (2009), “International Country Risk Guide”, East Syracuse, NY: Political Risk Services.

Ierley,D (2002). Private Capital Flows as a Springboard for World Bank Reform, *Journal of International Law*, 23(1).1-25

Inspectorate of Government, 3rd National Integrity Survey, Final report (2008). Available at <http://www.igg.go.ug/static/files/publications/third-national-integrity-survey-report.pdf> accessed 27/06/2013

International Monetary Fund (2013),”Global impact and challenges of unconventional monetary policies”, IMF Policy Paper, October.

International Centre for Assets Recovery (2014) accessed on 08/04/2014 at

<http://www.assetrecovery.org/kc/node/52f770df-a33e-11dc-bf1b-335d0754ba85.0;jsessionid=DBB5658F142E753A44EBC6FD16A73BCB>

Isham, J., Kaufmann, D., and Pritchett, L. (1997), "Civil Liberties, Democracy, and the Performance of Government Projects", *The World Bank Economic Review* 11(2), 219–242.

Islam, N. (2002), "Regime changes, economic policies and the effects of aid on growth". Paper presented at the conference 'Exchange Rates, Economic Integration and the International Economy', 17-19 May, Ryerson University, Canada.

Juselius, K., Framroze-Møller, N., and Tarp, F. (2014), "The Long-Run Impact of Foreign Aid in 36 African Countries: Insights from Multivariate Time Series Analysis", *Oxford Bulletin of Economics and Statistics* 76 (2), 153-184

Kallon, M.K. (2014). "Foreign Aid and the Dutch Disease: Evidence from Sierra Leone", Presentation at the CSAE Conference 2014: Economic Development in Africa, Center for the Study of African Economies, University of Oxford.

Kalyvitis, S., and Vlachakia, I. (2012), "When does more aid imply less democracy? An empirical examination", *European Journal of Political Economy* 28, 132–146

Kaminsky, G.L., Reinhart, C.M., Vegh, C.A. (2005). "When it rains, it pours: procyclical capital flows and macroeconomic policies". In: Gertler, M., Rogoff, K. (Eds.), *NBER Macroeconomics Annual 2004*. Cambridge, MA, The MIT Press, pp. 11-82.

Kaminsky, G., and Reinhart, C. (1999). "The Twin Crises: The Causes of Banking and Balance of Payments Problems", *The American Economic Review*, 89(3), 473 – 500.

Kanbur, R. (2000). Aid, Conditionality and debt in Africa. In F. Tarp (Ed.), *Foreign aid and development: Lessons learnt and directions for the future*. New York: Routledge.

Karras, G. (2006), "Foreign aid and long-run economic growth: empirical evidence for a panel of developing countries", *Journal of International Development* 18(7), 15–28.

Katada, S.N. (1997), "Two Aid Hegemons: Japanese-US Interaction and Aid Allocation to Latin America and the Caribbean", *World Development* 25, 931-45

Kaufmann, D., Kraay, A., and Mastruzzi, M. (2010). "The worldwide governance indicators: Methodology and analytical issues". World Bank Policy Research Working Paper No. 5430, Washington, DC: The World Bank.

Kawai, M., and Takagi, S. (2010). "A Survey of the Literature on Managing Capital Flows". In *Managing Capital Flows*, edited by Masahiro Kawai and Mario B. Lamberte. Cheltenham, UK and Northampton, MA: Edward Elgar. pp. 46–72.

Khilji, N. M., and Zampelli, E.M. (1994), "The fungibility of U. S. military and non-military assistance and the impacts on expenditures of major aid recipients", *Journal of Development Economics* 43, 345-362.

- Khwaja, A. I., and Mian, A. (2005), “Do Lenders Favour Politically Connected Firms: Rent Provision in an Emerging Financial Market”, *Quarterly Journal of Economics*, volume 120 (4),1371-1411.
- Kindleberger, C. P. (1969), *American Business Abroad*, New Haven, CT: Yale University Press.
- King, R., and Levine, R. (1993b), “Finance and Growth: Schumpeter Might Be Right”, *Quarterly Journal of Economics*, 108 (3), 717-37
- Klapper, L., Laeven, L., and Rajan, R. (2006), “Entry regulation as a barrier to entrepreneurship”, *Journal of Financial Economics*, 82 (3), 591– 629.
- Knack, S. (2001), “Aid Dependence and the Quality of Governance: Cross-Country Empirical Tests”. *Southern Economic Journal* 68 (2), 310–329
- Knack, S. (2004), “Does Foreign Aid Promote Democracy?” *International Studies Quarterly* 48, 251–246.
- Knack, S. (2009), “Sovereign Rents and the Quality of Tax Policy and Administration”, *Journal of Comparative Economics*, Elsevier, 37(3), 359–71
- Knack, S., and Keefer, P. (1995), “Institutions and Economic Performance: Cross-Country Tests Using Alternative Measures”, *Economics and Politics* 7,207-227.
- Kohler, U., and Kreuter F. (2009), “Data Analysis Using Stata” , 2nd ed., Stata Press
- Kornai, J.(1979),“Resource-constrained versus demand-constrained systems”, *Econometrica* 47, 801-819.
- Kosack, S. (2003), “Effective aid: How democracy allows development aid to improve the quality of life”, *World Development* 31(1), 1–22.
- Kose, M. A., Prasad, E.S., Rogoff, K.S., and Wei, S.J. (2010).“Financial Globalization and Economic Policies”. In *Handbook of Developing Economics*, Volume 5, ed. Dani Rodrik and Mark Rosenzweig, pp.4283-4362. The Netherlands: North-Holland.
- Lane, P., and McQuade, P. (2014), *Domestic Credit Growth and International Capital Flows*. *Scandinavian Journal of Economics*, 116(1), 218-252.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R.W.(1997), “Legal Determinants of External Finance”, *Journal of Finance* 52(3), 1131-1150.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R.W.(1998), “Law and Finance”, *Journal of Political Economy* 106(6), 1113-1155.
- La Porta, R., Lopez-de-Silanes, F., and Shleifer, A.(2002), “Government ownership of banks”, *Journal of Finance* 57, 265-301.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. (2000). “Investor protection and corporate governance”. *Journal of Financial Economics*, 58(1–2), 3–27

- Lartey, E., (2007). "Capital Inflows and the Real Exchange Rate: An Empirical Study of Sub-Saharan Africa" *Journal of International Trade & Economic Development*, 16(3), 337–57.
- Law, S.H., and Habibullah, M.S. (2009), "The determinants of financial development: Institutions, openness and financial liberalization", *South African Journal of Economics* 77 (1), 45-58.
- Leff, N. (1964), "Economic Development through Bureaucratic Corruption." *American Behavioral Scientist* . 82: 337-41.
- Levine, R., and Renelt, D. (1992), "A Sensitivity Analysis of Cross-Country Growth Regressions", *American Economic Review* 82(4), 942-63.
- Levine, R., and Zervos, S. (1998), "Stock Markets, Banks and Economic Growth", *The American Economic Review*, 88 (3), 537-558
- Levine, R., Loayza, N., and Beck, T., (2000), "Financial intermediation and growth: Causality and causes", *Journal of Monetary Economics* 46, 31–77.
- Levine, R., and Zervos, S. (1996), "Stock market development and economic growth", *World Bank Economic Review* 10, 323–340.
- Levin, A., Lin, C.-F., and Chu, C.S. J. (2002), "Unit root tests in panel data: Asymptotic and finite-sample properties". *Journal of Econometrics* 108, 1–24.
- Levy, V. (1988), "Aid and growth in sub-Saharan Africa: the recent experience", *European Economic Review* 32(9), 1777-1795.
- Lewis, W. A. (1950), "The Principles of Economic Planning", G. Allen & Unwin, London.
- Lindgren, G. (2006), "The Economic Costs of Civil War", in *Göran Lindgren (ed.), Studies in Conflict Economics and Economic Growth*, Uppsala: Uppsala University.
- Lipsey, R. E. (2004), "Home and Host Country Effects of FDI", in *Challenges to Globalization*, ed. by Robert E. Baldwin and L. Alan Winters (Chicago, University of Chicago Press), pp. 333–79.
- Lof, M., Mekesha, T.J., and Tarp, F. (2015), "Aid and Income: Another Time-series Perspective". *World Development* 69, 19–30
- Luintel, K., and Khan, M. (1999), "A quantitative reassessment of the finance-growth nexus: Evidence from a multivariate VAR", *Journal of Development Economics* 60, 381–405.
- Mahoney, P. G. (2001), "The Common Law and Economic Growth: Hayek Might Be Right", *Journal of Legal Studies* 30 (2), 503–25.
- Mallick, S., and Moore, T. (2008). "Foreign Capital in a Growth Model", *Review of Development Economics* 12, 143-59.

- Maizels, A., and Nissanke, M.K. (1984), “Motivations for Aid to Developing Countries”, *World Development* 12(9), 879-900.
- Magud, N.E., Reinhart, C.M., and Vesperoni, E.R. (2012). “Capital Inflows, Exchange Rate Flexibility, and Credit Booms.” IMF Working Paper WP/12/41.
- Mankiw, G. (1997), “Macroeconomics”, 3rd edition, Worth Publishers, New York.
- Marshall, M.G., Gurr, T.R., and Jagers, K. (2012), “Polity IV project: political regime characteristics and transitions, 1800-2012”. Integrated Network for Societal Conflict Research (INSCR), Centre for International Development and Conflict Management (CIDCM), University of Maryland.
- Masson, P.R., Bayoumi, T., and Samiei, H. (1995), “International Evidence on the Determinants of Private Saving”, International Monetary Fund Working Paper 95/51
- McDonald, C., and Schumacher, L. (2007), “Financial Deepening in Sub-Saharan Africa: Empirical Evidence on the Role of Creditor Rights Protection and Information Sharing”, IMF Working paper, WP/07/203, Washington.
- McGillivray, M., Feeny, S., Hermes, N., and Lensink, R. (2006), “Controversies over the impact of development aid: it works, it doesn’t, it can, but that depends”, *Journal of International Development*, 18(7), 1031–1050.
- McKinnon, R.I. (1973), “Money and Capital in Economic Development”, Brookings Institution, Washington, DC.
- Mekasha, T., and Tarp, F. (2013), “Aid and growth: What meta-analysis reveals”. *Journal of Development Studies*, 49, 564-583.
- Mendoza, E.G., and Terrones, M.E. (2008). “An anatomy of credit booms: Evidence from macroaggregates and micro data.” NBER Working Paper 14049
- Mendoza, E.G., and Terrones, M.E. (2012), “An Anatomy Of Credit Booms and Their Demise,” NBER Working Paper No. 18379.
- Miletkov, M., and Wintoki, M.B (2009), “Legal Institutions, Democracy and Financial Sector Development”, *Advances in Financial Economics* 13, 171-196.
- Milesi-Ferretti, G.M., and Tille, C (2011), “The Great Retrenchment: International Capital Flows during the Global Financial Crisis”, *Economic Policy* 26(66), 285-342.
- Mishkin, F. (1999), “Global Financial Instability: Framework, Events, Issues”, *Journal of Economic Perspectives*, 13 (4), 3-20.
- Moore, M. (1998), “Death without Taxes: Democracy, State Capacity, and Aid Dependence in the Fourth World”. In *G. White and M. Robinson (eds), Towards a Democratic Developmental State*. Oxford, Oxford University Press.
- Morck, R., Yavuz, D.M., and Yeung, B. (2011), “Banking system control, capital allocation, and economy performance”, *Journal of Financial Economics*, 100(2), 264-283.

- Morrissey, O. (2001), "Does aid increase growth?", *Progress in Development Studies*, 1(1), 37-50.
- Morrissey, O., and Udomkerdmongkol, M. (2012). "Governance, private investment and foreign direct investment in developing countries". *World Development*, 40(3), 437-445
- Morrissey, O., and Osei, R.(2004), "Capital flows to developing countries: trends, volatility and policy implications", *Institute of Development Studies Bulletin* 35: 40-49.
- Morrissey, O. (2013). "Aid Conditionality", in *The New Palgrave Dictionary of Economics*, Online Edition. Accessed On 10/05/2015 at http://www.dictionaryofeconomics.com/article?id=pde2013_A000263
- Morrissey, O. (2015). "Why do Economists Disagree so much on Aid Effectiveness? Aid Works (in mysterious ways)", Initial Draft paper for presentation at the IMF-CFD Conference on Financing for Development, Geneva 15-17 April 2015
- Morrissey, O., and Torrance, S. (2015), "Aid and Taxation", Chapter 38 in M. Avin and B. Lew (eds), *Handbook of Foreign Aid*, Edward Elgar (forthcoming)
- Morrison, K. M. (2007), "Natural Resources, Aid, and Democratization: A Best-Case Scenario", *Public Choice* 131, 365-386.
- Morrison, K.M (2009). "Oil, Non-Tax Revenue, and the Redistributive Foundations of Regime Stability." *International Organization* 63(1):107–138
- Mosley, P. (1980), "Aid, savings, and growth revisited", *Oxford Bulletin of Economics and Statistics* 42(2), 79-96.
- Mosley, P., Hudson, J., and Horrell, S. (1987), "Aid, the public sector and the market in less developed countries", *Economic Journal*, 97(387), 616-641.
- Moss, T., Pettersson, G., and Van de Walle, N. (2008), "An Aid-Institutions Paradox? A Review Essay on Aid Dependency and State Building in Sub-Saharan Africa" in W. Easterly (ed.) *Reinventing Foreign Aid*, Cambridge, MA: MIT Press, 255-281.
- Moyo, D. (2009), "Dead aid: why aid is not working and how there is a better way for Africa", New York, Farrar, Straus and Giroux.
- Munck, G.L., and Verkuilen, J. (2002), "Conceptualizing and measuring democracy: Evaluating alternative indices", *Comparative Political Studies*, 35(1), 5–34.
- Myrdal, G. (1968), "Asian Drama", Pantheon, New York.
- Mutsamura, K (2009), "Where Kitu Kidogo is cheaper than facing the Law", *Inter Press Service*, December 22. Accessed 08/04/2014 at <http://ipsnews.net/news.asp?idnews=49792>
- Nager, A. B. (2013), "The Curse of Windfall Income: How Foreign Aid and Natural Resource Dependence Constrains Growth". Washington University in St Louis, *Electronic Theses and Dissertations*, Paper 1111.

Neumayer, E.(2001d), “ Do human rights matter in bilateral aid allocation? A quantitative analysis of 21 donor countries”, Mimeo, London School of Economics.

Nickel, S. (1981), “Biases in Dynamic Models with Fixed Effects”, *Econometrica* 49, 1417-1426

North, D. (1990), “Institutions, Institutional Change and Economic Performance”, Cambridge, Cambridge University Press.

North, D., and Weingast, B.(1989), “The Constitution of Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth Century England”, *Journal of Economic History* 49(4), 803–831.

Nyoni, T. S. (1998), “Foreign Aid and Economic Performance in Tanzania”, *World Development* 26(7), 1235-1240.

Obstfeld, M. (2012). “Does the Current Account Still Matter?”, *American Economic Review*, American Economic Association, vol. 102(3), 1-23

OECD (2008), “Is it ODA?” Factsheet, November.

[OECD Glossary of statistical terms, Official Development Assistance \(ODA\)](#) accessed May 2013

OECD (2011), “International capital flows: Structural reforms and experience with the OECD Code of Liberalisation of Capital Movements: Report from the OECD to the G20 Sub-Group on Capital Flow Management”. Accessed on 10th April 2015 at <http://www.oecd.org/economy/48972216.pdf>

OECD (2014). “Aid to developing countries rebounds in 2013 to reach an all-time high”. Accessed on 14 April 2015 at <http://www.oecd.org/newsroom/aid-to-developing-countries-rebounds-in-2013-to-reach-an-all-time-high.htm>

Öhler, H., Nunnenkamp, P., and Dreher, A. (2010), “Does conditionality work? A test for an innovative US aid scheme”, Kiel Working Paper 1630, Institute for the World Economy, Kiel.

Oke, B. O., Okpala, P., and Uadiale M.(2011). “Impact of Workers’ Remittances on Financial Development”. *International Business Research*, 4 (4) , 218 – 225.

Olson, M. (1982), “The rise and decline of nations”, New Haven, CT: Yale University Press.

Papanek, G. F. (1972), “The effect of aid and other resource transfers on savings and growth in less developed countries”, *Economic Journal*, 82 (327), 935–950.

Papanek, G.F.(1973), “Aid, foreign private investment, savings, and growth in less developed countries”, *Journal of Political Economy*, 81(1), 120-130.

Perotti, E. (2002), “Lessons from the Russian Meltdown: The Economics of Soft Legal Constraints”, *International Finance*, 5(3), 359-399.

- Perotti,E., and Vorage,M. (2010), “Bank Ownership and financial stability”, Tinbergen Institute, Discussion Paper, TI 201 0-022/2
- Pischke, J.S., (2010),“Labor Economics for research Students: Weak Instruments”, LSE
- Prasad, E.S., Rogoff, K., Wei,S.J.,and Kose,M.A (2003), “Effects of Financial Globalization on Developing Countries: Some Empirical Evidence,” Occasional Paper 220, International Monetary Fund.
- Przeworski, A., and Limongi,F, (1993), “Political Regimes and Economic Growth”, Journal of Economic Perspectives 7, 51-69.
- Rajan, R. G., and Zingales, L. (1998), “Financial Dependence and Growth”, American Economic Review 88, 559–586.
- Rajan, R. G., and Zingales, L. (2003), “The Great Reversals: The Politics of Financial Development in the Twentieth Century”, Journal of Financial Economics, 69, 5 – 50.
- Rajan, R.G., and Subramanian, A. (2008), “Aid and Growth: What does the Cross Country Evidence Really Show?” Review of Economics and Statistics 90, 643-665.
- Rajan, R.G., and Subramanian,A, (2005), “What Undermines Aid’s Impact on Growth?” IMF Working Paper 05/126, Washington, DC
- Rajan, R.,G., and Subramanian,A. (2007), “Does Aid Affect Governance?” AEA Papers and Proceedings, 97(2), 322-27
- Rajan, R.G., and Subramanian, A. (2011), “Aid, Dutch disease, and manufacturing growth”, Journal of Development Economics, 94(1), 106-118
- Rao,V.(1984), “Democracy and economic development”, Studies on Competitive International Development 19, 67-81.
- Reiche, R. (1995), “Development aid, savings and growth in the 1980s: a cross-section analysis”. Savings and Development, 19 (3), 279-296
- Reinhart, C.M., and Reinhart, V.(2009). “Capital Flow Bonanzas: An Encompassing View of the Past and Present.” In: Frankel, J.A., and C. Pissarides, Eds., NBER International Seminar on Macroeconomics 2008. Chicago, IL: University of Chicago Press for NBER, pp. 9-62
- Reinhart, C., and Rogoff, K. (2009), “This Time It’s Different: Eight Centuries of Financial Folly”, Princeton University Press, Princeton, September).
- Reinke, J. (2007). “Remittances in the Balance of Payments Framework: Current Problems and Forthcoming Improvements.” Irving Fisher Committee (IFC) on Central Bank Statistics Bulletin N. 27. Bank for International Settlements.
- Reisen, H.,and Soto, M. (2001), “Which Types of Capital Inflows Foster Developing-Country Growth?” International Finance, 4: 1–14. doi: 10.1111/1468-2362.00063

- Remmer, K.(2004),“Does Foreign Aid Promote the Expansion of Government?” American Journal of Political Science 48(1), 77–92.
- Reyna, O.T (2014),”Panel Data Analysis: Fixed and Random Effects (Using stata 10 .x Version 4.1)”, Data and Statistics Services, Princeton University <https://dds.Princeton.edu/training> accessed on 10 February 2014
- Riddell, R. (2007), “Does foreign aid really work?”, Oxford University Press, USA.
- Robinson , J. (1952), “The Rate of Interest and Other Essays”, Macmillan, London.
- Rodrik, D., Subramanian, A., and Trebbi, F. (2004), “Institutions rule: the primacy of institutions over geography and integration in economic development”, Journal of economic growth, 9(2), 131-165.
- Roe, M J., and Siegel, J.I. (2009), “Finance and Politics: A Review Essay Based on Kenneth Dam's Analysis of Legal Traditions in The Law-Growth Nexus”, Journal of Economic Literature 47 (3),781–800.
- Ross, M,L. (2001), “Does Oil Hinder Democracy?” World Politics, 53,325-61
- Ross, M.L. (2006), “Is Democracy good for the poor?”, American Journal of Political Science 50 (4),860-874
- Rostow, W.W. (1990), “The Stages of Economic Growth: A Non-Communist Manifesto”, Cambridge Press, Cambridge.
- Ruttan, V.W. (1996), “United States Development Assistance Policy”, Baltimore: Johns Hopkins University Press.
- Sackey, H.A. (2001), “External Aid Inflows and the Real Exchange Rate in Ghana”. Nairobi, The Regal Press.
- Sachs, J.D., and Warner, A.M.(1995. revised 1997, 1999),“Natural resource abundance and economic growth”, National Bureau of Economic Research Working paper No. 5398, Cambridge, MA.
- Sachs,J.D., and Warner A.M. (1997b), “Sources of slow growth in African economies.” Journal of African Economies 6, 335-376.
- Sachs, J.D., and Warner, A.M. (1999),“The big push, natural resource booms and growth”. Journal of Development Economics 59, 43-76.
- Sachs, J.D., and Warner, A.M. (2001), “Natural Resources and Economic Development: The curse of natural resources”, European Economic Review 45, 827-838
- Sagasti, F. (2005), “Official development assistance: background, context, issues and prospects”, Background paper to meeting on 'Improving Official Development Assistance', Amman (Jordan), 10–11 November
- Schumpeter, J. (1912), “The Theory of Economic Development”. Harvard University Press, Cambridge. (Translated by Redvers Opie).

- Schularick, M., and Taylor, A.(2009), “Credit Booms Gone Bust: Monetary Policy, Leverage Cycles and Financial Crises, 1870 – 2008”, NBER Working Paper No. 15512
- Sedelmeier, U. (2008), “After Conditionality: Post-Accession Compliance with EU Law in East Central Europe”, *Journal of European Public Policy* 15 (6), 806-825.
- Shaw, E.S. (1973), “Financial Deepening in Economic Development”, Oxford Univ. Press, New York.
- Shehzad, C.T., and De Haan, J. (2008), “Financial Liberalization and Banking Crises”, mimeo
- Shleifer, A. (1998), “State vs. Private Ownership”, *Journal of Economic Perspectives* 12, 133-150.
- Shleifer, A., and Vishny, R. (1994), “Politicians and firms”, *Quarterly Journal of Economics* 109, 995-1025.
- Shortland, A. (2012), Web blog accessed 30 May 2012 at <http://www.developmentandtransition.net/Article.35+M541dffff90e.0.html>
- Smith, A. (2006), “Pernicious Foreign Aid? A Political Economy of Political Institutions and the Effect of Foreign Aid”, Working Paper: New York University
- Smith, A. (2008). “The Perils of Unearned Income.” *Journal of Politics* 70(3):780–793.
- Sogge, D.(2002), “Give and Take, What is the Matter with Foreign Aid?” Published by The University Press Ltd., Red Crescent Building, Dhaka
- Stern, N. (2002), “Making the case for aid”, in ‘*World Bank, A case for aid: building a consensus for development assistance*’. Washington: World Bank.
- Stiglitz, J. (2002), “Overseas Aid is Money Well Spent”, *Financial Times*, April 14
- Stiglitz, J. E. (1989), “Financial Markets and Development”, *Oxford Review of Economic Policy* 5, 55-68.
- Stiglitz, J. (2000), “Capital Market Liberalization, Economic Growth and Instability”, *World Development* 28, 1075-1086
- Stiglitz, J. E. (1993), “The role of the state in Financial Markets”, *Proceedings of the World Bank Annual Conference on Economic Development*, Washington D.C. International Bank for Reconstruction and Development/World Bank, pp. 19-56.
- Stock, J.H., and Yogo, M. (2005), “Testing for weak instruments in linear IV regression. In *Identification and Inference for Econometric Models: Essays in honour of Thomas Rothenberg*, ed. D.W.K. Andrews and J.H Stock.80-108, Cambridge: Cambridge University Press.
- Svaleryd, H., and Vlachos, J. (2002), “Markets for Risk and Openness to Trade: How are they Related”, *Journal of International Economics*, 57, 369 – 395.
- Svensson, J.(1999), “Aid, growth and democracy”, *Economics and Politics* 11(3),275–297.

Svensson, J. (2000), "Foreign Aid and rent-seeking", *Journal of International Economics* 51, 437-461

Svensson, J. (2003), "Why Conditional Aid Doesn't Work and What Can Be Done About It", *Journal of Development Economics* 70 (2), 381-402.

Tavares, J., and Wacziarg, R. (2001), "How democracy affects growth". *European Economic Review* 45, 1341-1378

Taylor, L. (1990), "A Three-Gap Model", In '*F. D. McCarthy (ed) Problems of Developing Countries in the 1990s*'. World Bank, Washington DC: 55-90.

Frean, A. (2015), "Foreign aid doesn't do much good, says Nobel economist", *The Times*, 17th October. Accessed on 23rd October 2015 at:
<http://www.thetimes.co.uk/tto/business/economics/article4588394.ece?shareToken=c7abe4e7b55b9a1cc3824af2111e2fa8>

Thornton, J. (2014), "Does foreign aid reduce tax revenue? Further evidence", *Applied Economics*, 46(4), 359-373.

Tilly, C. (1990), "Coercion, Capital, and European States", New York: Blackwell.

Tornell, A., and Westermann, F. (2002), "Boom-bust cycles in middle-income-countries: Facts and explanation." *IMF Staff Papers* 49 (Special Issue), 111-155

Tresselt, T., and Detragiache, E. (2008), "Do Financial Sector Reforms Lead to Financial Development? Evidence from a New Dataset", *IMF Working Paper* WP/08/265.

Tyson, J., Griffith, J.S and te Velde, D.W. (2014), "Post-crisis trends in private capital flows to developing countries". Accessed on 16th April 2015 at
<http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9110.pdf>

Uganda National Integrity Report (2008), Inspectorate of Government, Republic of Uganda. Accessed on 20th June 2013 at
<http://www.igg.go.ug/static/files/publications/third-national-integrity-survey-report.pdf>

United Nations (2015), "World Economic Situation and Prospects 2015-2016", Accessed on 10th April 2015 at

http://www.un.org/en/development/desa/policy/wesp/wesp_archive/2015wesp_chap1.pdf

United Nations, (2013b), "Follow-up to and implementation of the Monterrey Consensus and Doha Declaration on Financing for Development". Report of the Secretary-general to the General Assembly. Sixty-eighth session, item 18 of the provisional agenda, 2002 International Conference on Financing for Development and the 2008 Review Committee. Accessed at www.un.org on 16th April 2015

Van de Sijpe, (2013a), "Is foreign aid fungible? Evidence from the education and health sectors". *World Bank Economic Review*, 27 (2), 320-356

Van Wijnbergen, S. (1986), "Macroeconomic Aspects of the effectiveness of Aid: On the Two-Gap Model, Home Goods Disequilibrium, and Real Exchange Rate Misalignment", *Journal of International Economics* 21(1-2), 123-36.

Van de Walle, N. (2005), "Overcoming Stagnation in Aid-Dependent Countries", Washington, DC: Center for Global Development.

Vins, O. (2008), "How Politics Influence State-owned Banks - The Case of German Savings Banks", Working Paper No. 191, Johann Wolfgang Goethe University, Frankfurt.

Waheed, A. (2004), Foreign Capital Inflows and economic growth of developing countries: A critical Survey of Selected empirical studies. *Journal of Economic Cooperation* 25, (1), 1-36

Wall, H. J. (1995), "The Allocation of Official Development Assistance", *Journal of Policy Modeling*, 17(3), 307-14.

Wamboye, E., and Adekola, A. (2013), "Foreign Aid, Legal Origin, Economic Growth and Africa's Least Developed Countries", Munich Personal RePEc Archive Working Paper No. 47846

Wellink, A.H.E.M, (2009), "The Future of Supervision," Speech given at a FSI High Level Seminar, Cape Town, South Africa, January 29, accessed on 15 June 2015 at

<http://www.dnb.nl/en/news/newsand-archive/speeches-2009/dnb212415.jsp> and-
[archive/speeches-2009/dnb212415.jsp](http://www.dnb.nl/en/news/newsand-archive/speeches-2009/dnb212415.jsp)

Wen, W. (2010), "Ownership Structure and Banking Performance: New Evidence in China". Universitat Autònoma de Barcelona Departament D'economia de L'empresa

Werker, E., Ahmed, F. Z., and Cohen, C. (2009), "How is Foreign Aid Spent? Evidence from a Natural Experiment", *American Economic Journal: Macroeconomics*, 1(2), 225-244.

White, H., and Wignaraja, G. (1992), "Exchange Rates, Trade Liberalisation and Aid: The Sri Lankan Experience", *World Development* 20(10), 1471-80.

Whitehead, A. (2002), "Meta-Analysis of Controlled Clinical Trials". Chichester, UK: Wiley.

Wittman, D. (1989), "Why democracies produce efficient results", *Journal of Political Economy*, 97(6), 1395-1424.

Wood, R.E. (1986), "From Marshall Plan to Debt Crisis: Foreign Aid and Development Choices in the World Economy", Berkeley: University of California Press.

World Bank (1992a), "World Bank Structural and Sectoral Adjustment Operations: the Second OED Review". Operations Evaluation Department report 10870. Washington D.C. World Bank.

World Bank (1998), "Assessing aid: what works, what doesn't and why". USA: Oxford University Press.

World Bank (2001), “Finance for Growth: Policy Choices in a Volatile World”, Oxford: University Press.

World Bank (2013a), “Migration and Development Brief 21: Migration and Remittance Flows: Recent Trends and Outlook, 2013-16”, The World Bank, Washington, DC.

World Bank (2014), “Global Economic Prospects, Coping with Policy Normalization in High-Income Countries”, Volume 8, January 2014, The World Bank, Washington, DC

Wu, D.M. (1974), “Alternative tests of independence between stochastic regressors and disturbances: Finite sample results”, *Econometrica* 42, 529-546

Yang, B. (2011), “Does Democracy foster financial development? An Empirical analysis”, *Economics Letter*, 112, 262-265

Yang, D.(2008a). “Coping with Disaster: The Impact of Hurricanes on International Financial Flows, 1970-2002,” *The B.E. Journal of Economic Analysis & Policy*, 8, Article 13.

Yeyati, L. E., Micco, A., and Panizza, U. (2004), “Should the Government be in the Banking Business? The Role of State-Owned and Development Banks”, Research Working Paper 517 Inter-American Development Bank

Younger, S.D. (1992), “Aid and the Dutch Disease: Macroeconomic Management When Everybody Loves You”, *World Development* 20(11), 1587–97.