AMERICAN UNIVERSITY OF BEIRUT

THE HIDDEN FACES OF CRONYISM: THE ACCUMULATION OF PUBLIC DEBT

by
DANA TOUFIC SERHAL

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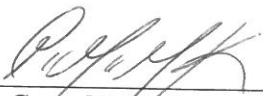
by:
DANA TOUFIC SERHAL

Approved by:

_____

Dr. Nisreen Salti; Associate Professor   Advisor
Economics

_____

Dr. Hossein Radmard; Assistant Professor   First Reader
Economics

_____

Dr. Casto Martin Montero Kuscevic, Assistant Professor   Second Reader
Economics

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AN ABSTRACT OF THESIS OF

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This paper aims at examining the potential effect of cronyism in the banking sector on public debt. Through the combination of models and cronyism indices constructed in 2006, I evaluate the potential channels through which public debt is affected by cronyism. I use data on sixty-six countries for the year 2015. Findings show that cronyism has a negative association with public debt. Yet, a closer look shows that although the cost of borrowing might decrease the size of lending increases which could lead to the escalation of public debt.

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CHAPTER I:

INTRODUCTION

Ever since the end of the civil war and the peg of the exchange rate to the USD in 1994, Lebanon has been witnessing a significant rise in its public debt. Although the country has faced many socio-political downturns, which have hindered its growth and stability, the mismanagement of the public debt has been a cause for concern.

Lebanon bore a debt-to-GDP ratio of more than 140% in 2015, with an estimate of 161.5% in 2016 (CIA, 2014), that is among the highest rates in the world, and the highest rate in the MENA region (Figure 1 in Appendix), a GDP growth averaging around 1.6% since the year 2011 and a current account in deficit reaching USD 8.2 Billion Furthermore, the country's risk for investment and business is C rated[1] according to Coface.

Nevertheless, Lebanon is often described as financially stable, and its banking sector is competitive despite all national and international political and economic crises. For instance, during the 2008 financial crisis, Lebanon was among the top performers, which increased the overall confidence in this sector leading to an exponential increase in bank deposits, originating primarily from the remittances of the Lebanese diaspora. However, since the services sector englobes almost 70% of the Lebanese GDP, where the financial sector generates a major portion, it seems illogical to have almost no effect on GDP growth and no decline in public debt.

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[1]C-rating according to Coface is given to describe the following: "A very uncertain political and economic outlook and a business environment with many troublesome weaknesses can have a significant impact on corporate payment behavior. Corporate default probability is high".

Upon looking more closely at the banking sector structures as well as at the public debt structures, we notice the following: first, the overall banking assets amount to almost 580% of the Lebanese GDP in 2015 (USD 47 Billion). Second, the banking system is largely affiliated directly or indirectly to the politicians. In his paper, Chaaban (2016) shows that individuals who are politically affiliated control over 43% of the total banks assets in the year 2014. In addition, out of the top 10 banks that control 90% of the total assets, one bank enjoys a direct connectedness where one of its shareholders is a current member of the government, four banks have on their board shareholders who were previous public officials, and eight banks have shareholders who have one or more of members of their family who is a current or former politician. Furthermore, among the top 20 banks that control about 99% of the assets, only two banks have no links to politicians (Figure 2 in appendix). Finally, Chaaban states that eight families (figure 3 appendix) control shares worth 7.3 USD Billion in the financial sector.

On the other hand, having examined the Lebanese macroeconomic indicators, I find a noticeable positive correlation between Lebanese domestic bank credit and public debt over the period 2000 to 2015 (Figure 3 appendix), whereas there is no clear correlation between GDP growth and public debt (Figure 4 appendix).

Therefore, there is a need to explore this topic more broadly, in an attempt to establish a possible causation effect of cronyism in the banking sector on public debt. The results derived from this paper are important for policy implications and for determining targets for policy-makers who are responsible for debt management.

Thus, this paper evaluates the effect of cronyism in the banking sector on public debt. This topic is particularly relevant in developing countries, where domestic borrowing to finance public debt has witnessed a noticeable increase over the years

relative to external borrowing. I look at cronyism in the banking sector, and at the effect of the banking system on public debt. The findings can be summarized as follows: cronyism seems to be negatively associated with public debt. Cronyism is also associated with a lower cost of borrowing, the size of lending to governments from these banks increases with the increase in their total assets.

A. Public Debt

The level of public debt is one of the factors that shape a country's macroeconomic performance. Though the term "public debt" is commonly used, its definition and the indicators that are included in determining its levels vary widely in practice (R. D. IMF, Claudia Dziobek, and Carlos A. Gutiérrez Mangas, 2012). In the most general form, the Debt Guide expresses public debt as being the value that includes all liabilities that are debt instruments, where debt instruments are defined to be "financial claims that require payment(s) of interest and/or principal by the debtor to the creditor at a date, or dates in the future" and are classified into six categories: debt securities,[2] loans, other accounts payable,[3] special drawing rights (SDRs),[4] currency

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[2] Debt securities take the form of bills, commercial papers, and bonds that include interest and principal payments.

[3] Accounts payable "represent trade credits and advances and miscellaneous other items due to be paid or received"(IMF, 2011).

[4] SDRs are created by the IMF to support its members with their existing reserves assets. According to the IMF, this instrument is included in the definition of public debt, however most of the countries' SDRs are held by the central banks and thus are not included in the calculation of government debt (IMF, 2011).

and deposits,[5] insurance, pension, and standardized guarantee schemes (IPSGS)[6] (IMF, 2011).

Governments seeking to finance their debt have the option to deal with external or internal lenders, depending on the country's relative default risk. Governments' decisions depend on the cost and risk associated with each option. According to Beaugrand, Loko and Malchila (2002), many factors determine the choice between internal and external debt financing. Internal debt financing, where governments borrow funds domestically, is thought to be a less serious commitment in case of sovereign default. On the other hand, when external debt is adopted, domestic banks benefit from a larger monetary base to lend private investors, which would result in a lower crowding-out effect. Although external debt financing might seem to be more attractive for developing countries since the short-run costs seem to be relatively low, the costs associated with country risk appear to be high, where countries become more susceptible towards default risk (Beaugrand, 2002). Thus, most developing countries' debt structures are reliant on internal debt financing as shown by Panizza (2008) in his paper about domestic and external public debt in developing countries (Figure 5 in appendix).

Hence, one can claim that domestic financial intermediaries play a crucial role in the determination and management of public debt, especially in developing economies.

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[5] Currency consists of fiduciary money that are issued by the Central Bank that determines its nominal values. Deposits are claims "on deposit-taking corporations (including the central bank) and, in some cases, general government and other institutional units" (IMF, 2011).

[6] IPSGS "comprise non-life insurance technical reserves, life insurance and annuities entitlements, pension entitlements, claims of pension funds on pension manager; and provisions for calls under standardized guarantee schemes" (IMF, 2011)

In recent years, many countries have experienced a rise in their public debt levels that was one of the drivers towards a fiscal crisis. For instance, the aftermath of the world financial crisis in 2008 has translated into the government debt crisis in Greece, where the public debt-to-GDP ratio reached 130% based on World Bank data, a rate well above the debt sustainability rate (60% based on IMF recommendations[7]).

As part of the Euro zone, the Greek government was forced to implement strict austerity measures that triggered riots and massive protests. In fact, like Greece, many countries have failed in correcting their public debt levels. The result is an unsustainable debt, which is one of the main determinants of a country's sovereign default risk. The consequences of sovereign default include reputational costs resulting in absolute financial exclusion and legal sanctions, as well as international trade exclusion that would also induce a currency crisis through currency devaluation, a crash in the domestic banking sector and political shakiness(E. B. a. U. Panizza, 2008). Thus, debt management is key for assuring the country's economic, political and social stability.

B. The banking system

Banks' major revenue originates from the size of loanable funds. The quantity of loans supplied by a bank depends on the size of its deposits on one hand, and on the reserves ratio required by the Central Bank.

Banks' affairs are mainly controlled by the Board of Directors (BOD), who is elected by shareholders. Like any other profit-seeking institution, the Board of

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[7] Based on the IMF's analysis, countries face a risk of debt unsustainability if: debt-to-GDP ratio exceeds 60% for developed and 50% for emerging economies; and if public financing needs exceed 15% of GDP for developed and 10% for emerging economies (Tiwari, 2013)

Directors' role is to maximize profits, minimize costs and alleviate risks, while strictly binding to the legal regulations imposed by the Central Bank and other regulatory institutions.

However, in many cases, members of the Board of Directors and major shareholders are themselves current or former politicians, or are directly or indirectly politically connected. This phenomenon is described as crony capitalism. Since most developing and some developed countries use domestic banks to finance their debt, public debt in these economies might be affected by the presence of crony capitalism, whereby, the policy-makers who decide on the levels of public borrowing are themselves directly or indirectly affiliated to the decision-makers of the lenders that are the domestic commercial banks.

This form of cronyism is particularly relevant to developing economies, as it is noticed that in some countries that show macroeconomic fragility, the banking sector is booming exponentially (Hardie, 2011).

CHAPTER II:

LITERATURE REVIEW

There is an ample amount of literature that explores the determinants of public debt in emerging economies, but none of the papers evokes the particularity of the domestic banking system in the presence of cronyism.

Haslag and Pecchenino (2005)in their paper about crony capitalism and financial system stability evaluate the general presence of cronies in investment decisions and not solely in the banking sector. They propose that when a crony system exists in a government, it could lead to economic growth in some cases and financial crises in others. According to them, at first sight, cronyism appears to boost economic growth and increase GDP since it encourages investors to engage in riskier projects, which ultimately would lead to greater return. However, those projects are undertaken on the condition that governments ensure a guaranteed loan. Guaranteed loans are part of the loans requested from the bank that governments promise to pay back in case of losses. If the government is unable to fulfill its obligations, the overall financial system is in danger. They declare that crony systems benefit only those in power "who are expected to stay in power" and any shakiness of this status quo drains the whole financial system. On the other hand, in his paper about crony capitalism and sovereign default, Vaugirard (2005) considers that crony capitalism ensures the service of the debt by the government to maintain and preserve the power in their hands and therefore to keep the status quo, but this happens at the expense of the working class that pays taxes. He implies that cronyism hinders growth and a fair income distribution. In fact, he explains that cronyism leads to the misallocation of scarce resources and thus limits the efficiency of investment and production. Furthermore, he suggests that in the

presence of crony systems, transparency declines, which causes a lack of confidence in the government. As a way to fight political uncertainty, the government attempts to pay the service on the debt by raising taxes that are of a larger burden on a smaller scale of the population as cronies are exempted from paying those obligations. The previous mentioned papers do not really discuss cronyism in the banking sector specifically.

Dinç(2004) focuses on the political influence on government-owned banks in emerging economies. He shows empirically that government-owned banks increase their lending size during elections years by using a cross-country analysis and by controlling for macroeconomic and bank-specific factors. He exposes how government-owned banks are used by politicians to distribute rent to their supporters where lending by these banks increase during election years by 11%. These results were only seen in emerging economies. In fact, his findings "demonstrate that the ownership of banks matters for financial systems".

To examine the effect of cronyism in the banking system as a whole, a broader study needs to be carried on for all banks and not just for government-owned banks. In fact, I base my paper on the findings of Braun and Raddatz (2010)who look at banks' and bankers' connectedness with politicians, and build a cronyism index for the year 2006 for more than 75 countries with diverse socio-political and economic backgrounds. Their aim is to analyze the way "bank connectedness" which they also refer to as cronyism, affects the banking system. Their findings are the following: first, banks that are politically affiliated are larger, more profitable, and are less exposed to default risk than non-connected banks. Second, they conclude that nationwide, the higher the cronyism in the banking sector, the lower is the level of economic development especially in countries where governments are more corrupt, less

accountable and have more power. In fact, the links between banks and politicians allow them to enjoy higher profits without undertaking risky projects, which would result in deterring the financial development on the one hand, and incurring social costs on the other. Finally, they show that when banks are politically connected, they benefit from this fact to loosen the strict banking regulations imposed on them. Still, Braun and Raddatz could not demonstrate a causal effect, but rather only a strong and significant correlation. In my paper, I utilize the bank-specific cronyism index constructed, and test its potential causal effects on public debt.

The above literature tackles the diverse ways cronyism affects financial institutions, which is the question tackled in the first part of my paper. A second objective of this project is to study this effect on public debt. Various papers give different reasons as to why commercial banks hold public debt, especially in emerging economies, where the country risk is relatively higher.

Bolton and Jeanne(2011) explain that when economies are financially integrated through a deep banking sector, holders of debt are more exposed to sovereign default risk because of the contagion effect channeling into different financial markets. According to them, debt in developing countries is mostly held by banks. This is due to the shallowness of their financial systems. Whereas in developed countries, investors and banks hold government papers as they are considered safe assets, so they use these government financial instruments to diversify the risk on their portfolios. Their contribution consists of considering government debt instruments as collateral between banks. Therefore, the safety of government debt is positively correlated with bank loans, investments and thus economic growth. This will in turn, lead to an ease in servicing the debt from taxes collected. Although this diversification

may be beneficial ex-ante, it can be more costly ex-post. In fact, by considering the case of the Euro zone, the authors show, that a loss in credibility of the debt in one of the countries would affect the whole integrated financial system due to contagion. They find that in financially integrated systems, safe governments supply too little "safe haven debt" whereas riskier countries supply too much risky debt, thus the equilibrium leads to a riskier financial system. Their results are important to mention as they accentuate on the importance to observe the financial sector dynamics when analyzing the potential causes of public debt.

Abbas and Espinoza (2016) analyze the reasons for which developing countries hold government securities. Using a cross-country analysis for 70 emerging and low-income countries for the year 2005, the findings are the following: first, government securities are considered as risky assets by banks. Nevertheless, commercial banks voluntarily buy these bonds as they provide higher returns since bonds in developing countries are short-term in nature, which decreases the risk of holding them. However, this fact results in the crowding-out of investment, as the government takes a large portion from the available loanable funds pool of banks. Second, the increase in the reserves requirement imposed by the central bank is inversely correlated with demand for government bonds, which would shift lending towards the private sector.

Hauner (2008) builds a cross-country model comprising 73 middle-income countries and finds that, in contrast to the idea of a "safe asset", banks in emerging economies become rationally "lazy banks", because lending to the government makes banks more profitable but inefficient. The paper shows that up to a threshold, holding government securities affects financial development positively through the "safe asset"

approach. Yet, after a certain point, the relationship is reversed because of the "lazy bank" approach. When the banking sector lends largely to the public, this will imply fewer available loans to the private sector, which will decrease investment and in turn GDP growth. Actually, Hauner finds that there exists a strong negative correlation between GDP growth and public debt, which means that when banks are "lazy", it will hinder financial development, which will in turn lead to a higher public debt, thus creating a vicious circle in the economy. Haunder also associates the great amount of debt held by commercial banks with financial repression. He believes that when governments impose a ceiling on the credit rate to the private sector, it is more profitable to hold government securities. Thus, the commercial banks are not motivated to develop their financial system of deposits and credit.

Ozkan, Kipici and Ismihan (2010) develop a game theory model to determine the effect of financial intermediation on the cost of borrowing for the government. The model involves three players: fiscal policy-makers to represent the government, monetary policy-makers to represent the central bank, and financial intermediaries to represent domestic commercial banks. The results of this model are the following: first, the greater the size of the banking sector and the greater its competitiveness, the lower is the cost of borrowing for the government. Second, the greater the deposit in banks, the lower is the cost of borrowing for the government. Third, the higher the cost of obtaining funds that is, the higher the illiquidity risk, the lower is the demand for government securities, which leads to a greater cost of borrowing for governments. Fourth, the higher the reserves ratio imposed by central banks, the higher is the cost of borrowing. Fifth, the more independent is the central bank, the higher is the cost of

borrowing for the government. Therefore, I base the second part of my research on the

last mentioned paper where I intend to test its results.

CHAPTER III:

ECONOMETRIC ANALYSIS

A. Data

This analysis is carried out on a dataset comprising sixty-six countries observed in the year 2015. The World Economic Situation and Prospects (WESP) classifies the countries of the world into three different categories: developed economies, economies in transition, and developing economies. Another classification according to GNI per capita[8] is also introduced by the WESP based on 2011 data where it sorts countries into High-income, Upper-middle, Lower-middle, and Low-income countries ((DPAD), 2014). For simplicity, I use the term "Developed" to refer to high-income countries (twenty-five countries), and "Emerging" to refer to the upper-middle and lower-middle income countries (forty-one countries).

The aim of this paper is to test the effect of cronyism in the banking sector on public debt mainly in emerging economies where both of these features tend to be more common. For this reason, I utilize the banking sector-specific cronyism index generated by Braun and Raddatz (2010) for the year 2006.

In an attempt to find linkages between politicians and banks board members, Braun and Raddatz extract data on names of politicians from the country reports of the Economic Intelligence Unit from the period 1996-2005, whereas the board members names are extracted from Orbis Bank Focus for the year 2005. The methodology for creating the banking sector-specific cronyism index involves four steps through which

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[8] The WESP uses thresholds for GNI per capita generated by the World Bank: A country is classified as a low-income country if the GNI per capita is below USD1,005, lower-middle income country if the GNI per capita is between USD 1,006 and USD3,975, upper-middle income country if the GNI is between USD3,976 and USD12,275 and high-income country if the GNI per capita is above USD12,276

the researchers apply record-linkage algorithm with three different methods (the bigram metric measure[9], the Levenshtein measure[10] and the longest common subsequence measure[11]) to find matching names after standardizing the way of writing them. Each pair of compared names has a score value between zero and one that measures the probability of the two names being identical. Only pairs with a minimum value of 0.8 on at least one of these methods were classified as matching and were visually checked. Three main variables are created toconstitute the cronyism index: FRACBANKS, SHAREASSETS and FRACBANKERS and are calculated twice, once for all banks (government-owned, mixed and private banks) and the second time for fully private banks only.

FRACBANKS measures the fraction of connected banks, and is calculated by

$$\frac{Number\ of\ banks\ with\ at\ least\ one\ politician^{12}\ on\ BOD}{Total\ number\ of\ banks\ with\ info about\ BOD}$$

In fact, this variable proves a major political connection for a bank when at least one politician is on its board. Although the number might be relatively small, the importance lies within the position that these politicians are filling in the banking institutions. This variable is described by Braun and Raddatz (2010) as "the measure of institutional connection between banking and politics".

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[9] "The bigram metric counts the number of consecutive matching pairs of characters between two strings" Braun and Raddatz (2010)

[10] "The Levenshtein measure counts the minimal number of edits required to convert one string into the other. Allowable edit operations are the deletion of a single character, the insertion of a single character, and the substitution of one character for another" Braun and Raddatz (2010)

[11] "The Longest common subsequence counts the number of consecutive characters that are present in two strings, and keeps the largest number" Braun and Raddatz (2010)

[12] Politicians being on the Board of Directors can also be former politicians who were politicians at some point in time between 1996 and 2005 and later occupy a seat in the Board of Directors

SHAREASSETS measures the share of assets of connected banks, and is

calculated by $\frac{Total\ assets\ in\ banks\ with\ a\ politician\ on\ BOD}{Total\ assets}$

This variable shows the difference in the degree of connectedness between smaller and

larger banks on one hand, and the likely effects of connectedness on another, as it

calculates the available assets owned by cronyism. The higher the share of assets

controlled by cronies, the greater the possible effect of cronyism on public debt.

According to the authors, the variable SHAREASSETS proved to be strongly and

positively correlated with FRACBANKS at 1% level of significance.

FRACBANKERS measures the fraction of connected bankers and is

calculated by $\frac{Number\ of\ names\ matched}{Number\ of\ bank\ directors}$

This variable describes the extent to which politicians occupy bank boards in a country.

Out of the 154 countries for which this index is calculated, 72 countries

present zero matches found and are dropped from the sample[13] due to their judged

unreliability (Braun & Raddatz, 2010). My data sample includes those countries that

are retained in the cronyism dataset but excludes low-income countries that are mainly

sub-Saharan African due to their limited supply of financial data. This amounts to

sixty-six countries.

To observe the interaction between the cronyism index and public debt, I base

my study on the model developed by Ozkan et. al (Ozkan et al., 2010)who aim at

examining the effect of private banking institutions on public borrowing in emerging

economies. In fact, the authors address their findings particularly in analyzing the

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[13] The dropped-out countries presented a low degree of reliability according to the International Monetary Fund's Special Data Dissemination Standard (IMF 2009) and / or very few banks (median number of banks with no matches is 5 compared to 16 for the banks with at least one match). (Braun and Raddatz, 2010)

effects of public debt in emerging economies as they consider that these countries heavily rely on internal borrowing to finance their activities. The four main results of the model that I will be testing are:

- *"The more competitive the banking sector, the lower is the cost of borrowing"*

- *"The deeper the deposit market, the lower is the cost of public borrowing"*

- *"The greater the cost of illiquidity, the lower the demand for government bonds, and, therefore, the higher the terms of borrowing to the government"*

- *"The higher the reserve requirement, the higher is the cost of public borrowing"*

Once tested, I aim at estimating the direct effect on public debt through the variables described in the model, where I include public debt as the dependent variable.

B. Regressions and results

"*Result 1: The more competitive the banking sector, the lower is the cost of borrowing*" (Ozkan et al., 2010). To test this statement, I extract the number of active banks in 2015 from Orbis bank Focus for all the countries in my sample and I calculate the Herfindahl-Hirschman Index (HHI)[14] that scores the competitiveness in the banking sector in a given country. This test is repeated four times each corresponding to the change in one or more of the key variables(without cronyism index; with cronyism index: FRACBANKS and an interaction variable between Fracbanks and total commercial bank deposits; SHAREASSETS and an interaction variable between SHAREASSETS and total commercial bank deposits; FRACBANKERS and an

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[14] The HHI for country "i" is calculated by taking the sum of the squared share of each bank in the banking sector in "i". Thus, I take the HHI on deposits and on assets respectively. This index ranges from close to zero to 10,000, zero being perfectly competitive and 10,000 being a monopoly.

interaction variable between FRACBANKERS and total commercial bank deposits).

On the other hand, I extract data on the interest rates on government bonds for all

countries in my sample to represent the government securities issued for the year 2015.

These data are extracted from the International Financial Statistics (IFS)

database and Bloomberg. Since these instruments have different maturity dates, I take

the average yield for simplicity.

The basic regression can be stated as:

(1) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1\ Number\ of\ banks + \beta_2\ HHI\ on\ deposits +$
$\beta_3\ Financial\ depth + \beta_4\ Dev.dummies + \varepsilon$

The three following equations[15] represent the different regressions including one of the

cronyism indices:

(2) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1 Number\ of\ banks + \beta_2\ HHI\ on\ deposits +$
$\beta_3\ Financial\ depth + \beta_4\ Dev.dummies + \beta_5\ Fracbanks + \beta_6\ FBxHHIdep + \varepsilon$

(3) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1 Number\ of\ banks + \beta_2 HHI\ on\ deposits +$
$\beta_3\ Financial\ depth + \beta_4\ Dev.dummies + \beta_5\ Shareassets + \beta_6\ SAxHHIdep + \varepsilon$

(4) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1 Number\ of\ banks + \beta_2\ HHI\ on\ deposits +$
$\beta_3\ Financial\ depth + \beta_4\ Dev.dummies + \beta_5\ Fracbankers + \beta_6\ FBrxHHIdep + \varepsilon$

In fact, in order to measure the banking industry's competitiveness, there is a

need to account for the distribution of deposits among banks, which constitutes a much

more reliable measure. Furthermore, I control for the financial depth as per the ceteris

paribus assumptions described in the model.

"*Result 2: The deeper the deposit market, the lower is the cost of public*

borrowing" (Ozkan et al., 2010). To test this result, I extract total deposits for each

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[15] Financial depth is measured by the level of liquid liabilities as a percentage of GDP and it is used by Suzanne Anderson based on Levine's findings in her paper about the influence and effects of financial development on economic growth (Andersen, 2003).
The variable development dummies takes the value 1 if the country is an emerging country and 0 if it is a developed economy

active commercial bank in each country in my sample from Orbis Bank Focus, which would account about 14,000 observations for the year 2015, and I test in a similar manner as for the previous result.

The corresponding regressions can be stated as follow:

(1) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1 Total\ Deposits + \beta_2\ HHI\ on\ deposits +$
$\beta_3\ Financial\ depth + \beta_4\ Dev.dummies + \varepsilon$

(2) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1\ Total\ deposits + \beta_2\ HHI\ on\ deposits +$
$\beta_3\ Financial\ depth + \beta_4\ Dev.dummies + \beta_5\ Fracbanks + \beta_6\ FBxHHIdep + \varepsilon$

(3) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1 Total\ deposits + \beta_2\ HHI\ on\ deposits +$
$\beta_3\ Financial\ depth + \beta_4\ Dev.dummies + \beta_5 Shareassets + \beta_6 SAxHHIdep + \varepsilon$

(4) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1\ Total\ deposits + \beta_2\ HHI\ on\ deposits +$
$\beta_3\ Financial\ depth + \beta_4\ Dev.dummies + \beta_5\ Fracbankers + \beta_6\ FBrxHHIdep + \varepsilon$

The depth of the deposit market is captured by the total amount of deposits available in banks for a certain country. However, there is still a need to account for the concentration of these deposits, as the main aim is to be able to test its possible effect on the government bonds interest rate.

"*Result 3: The greater the cost of illiquidity, the lower the demand for government bonds, and, therefore, the higher the terms of borrowing to the government*" (Ozkan et al., 2010). The cost of illiquidity is measured by the deposits rate the commercial banks pay to depositors. Extracted from Orbis Bank Focus, the interest rates on bank deposits seem to be missing for some banks in each country. Thus, I take a proxy by calculating the average ratio of interest rate on deposits to total interest rate received for each country in my sample.

The regressions used to test this result are the following:

(1) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1 Total\ Deposits + \beta_2\ HHI\ on\ deposits +$
$\beta_3\ Financial\ depth + \beta_4\ Dev.dummies + \beta_5\ Interest\ on\ deposits + \varepsilon$

(2) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1\ Total\ Deposits + \beta_2 HHI\ on\ deposits +$

$\beta_3\ Financial\ depth + \beta_4\ Dev.\ dummies + \beta_5\ Interest\ on\ deposits + \beta_6\ Fracbanks + \beta_7\ FBxHHIdep +$

ε

(3) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1 Total\ Deposits + \beta_2 HHI\ on\ deposits +$

$\beta_3\ Financial\ depth + \beta_4\ Dev.\ dummies + \beta_5\ Interest\ on\ deposits + \beta_6\ Shareassets +$

$\beta_7\ SAxHHIdep + \varepsilon$

(4) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1 Total\ Deposits + \beta_2 HHI\ on\ deposits +$

$\beta_3\ Financial\ depth + \beta_4\ Dev.\ dummies + \beta_5\ Interest\ on\ deposits + \beta_6\ Fracbankers +$

$\beta_7\ FBrxHHIdep + \varepsilon$

"*Result 4: The higher the reserve requirement, the higher is the cost of public borrowing*" (Ozkan et al., 2010). To observe the effectiveness of this result, I extract the required reserves ratios for all countries in my sample from the International Monetary Fund database released for the latest year available and I test in the same way as for the above statements.

(1) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1\ Total\ Assets + \beta_2 HHI\ on\ assets +$

$\beta_3\ Financial\ depth + \beta_4 RRR + \beta_5\ Dev.\ dummies + \varepsilon$

(2) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1\ Total\ Assets + \beta_2 HHI\ on\ assets +$

$\beta_3\ Financial\ depth + \beta_4 RRR + \beta_5\ Dev.\ dummies + \beta_6\ Fracbanks + \beta_7\ FBxTA + \varepsilon$

(3) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1\ Total\ Assets + \beta_2 HHI\ on\ assets +$

$\beta_3\ Financial\ depth + \beta_4 RRR + \beta_5\ Dev.\ dummies + \beta_6\ Shareassets + \beta_7\ SAxTA + \varepsilon$

(4) $Interest\ rate\ on\ government\ bonds = \beta_0 + \beta_1\ Total\ Assets + \beta_2 HHI\ on\ assets +$

$\beta_3\ Financial\ depth + \beta_4 RRR + \beta_5\ Dev.\ dummies + \beta_6\ Fracbankers + \beta_7\ FBrxTA + \varepsilon$

In this set of regressions, I intend to use total assets rather than total deposits since banks' demand for bonds is based on their overall availability of assets.

CHAPTER IV:

FINDINGS

I use the Ordinary Least Squared (OLS) estimation method to test the results. As seen from tables 2, 3, 4, and 5, results can be summarized as below:

By using the variables stated in the model, I find no significant effect of the banking-related variables on the interest rates on government bonds. Emerging economies have significantly higher costs of borrowing for the government.

In summary, the number of banks has no significant effect on the interest rate on government bonds and the coefficient is positive. Opposite to the statement proved by Ozkan et. al, when the number of banks increases, the rate on government bonds increases (Table 2).

On the other hand, although the effect is not significant at the 5% level, the concentration ratio on deposits seem to have a negative relationship with the cost of borrowing, so as the banking sector deposits are concentrated in a lower number of banks, the interest rate on government bonds decreases. Similarly, the higher the deposits in the overall banking sector in a country, the lower is the interest rate on government bonds (Table 3).

Results show that when banks face higher costs for obtaining funds, the interest rate on government bonds decreases as proposed by the authors, though results are insignificant at 5% (Table 4). Conversely, the increase in the required reserves ratio seems to be associated with a decrease in the cost of borrowing (Table 5).

When adding the different cronyism indices to the regressions, although insignificant at 5%, the results show a negative relation with the interest rate on government bonds. That is, when cronyism increases the government bonds interest

rates tend to decrease. I next move to regressions that show the direct effect on public

debt.

CHAPTER V:

PROPOSITION

The aim in exposing the relationship between cronyism and public debt through the government bonds channel is not straightforward as these instruments are not the only instruments used by governments. Thus, I propose to test the effect on public debt directly, where I will use the same method as for the above tests.

In fact, banks' decisions on lending depend not only on their deposits but also on their assets as a whole. In what follows, I include total assets and the concentration ratio (HHI index) on total assets.

A. Adding Revenue on bonds variable

Banks affect public debt through their demand for government instruments to finance debt. At the same time, those institutions aim at maximizing profits. Thus, their demand for government bonds is largely affected by the expected revenue generated from these instruments. I calculate revenue on bonds by multiplying the interest rate on government bonds for the year 2015 by the credit to the government sector generated from the World Bank database for the same year for a given country. Similar to the above regressions, I intend to test the effect on public debt with cronyism through the different indices and without cronyism. The regressions can be stated as:

(1) $Public\ Debt = \beta_0 + \beta_1\ Dev.dummies + \beta_2 HHI\ on\ deposits + \beta_3\ Total\ deposits + \beta_4\ Rev.\ on\ bonds + \beta_5\ Total\ credit^{16} + \varepsilon$

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[16] Total credit represents the total amount of credit generated by the commercial bank for the year 2015 in each of the countries in my sample

(2) $Public\ Debt = \beta_0 + \beta_1\ Dev.\ dummies + \beta_2 HHI\ on\ deposits + \beta_3\ Total\ deposits + \beta_4\ Rev.\ on\ bonds + \beta_5\ Total\ credit + \beta_6\ Fracbanks + \beta_7\ FBxHHIdep + \varepsilon$

(3) $Public\ Debt = \beta_0 + \beta_1\ Dev.\ dummies + \beta_2 HHI\ on\ deposits + \beta_3\ Total\ deposits + \beta_4\ Rev.\ on\ bonds + \beta_5\ Total\ credit + \beta_6\ Shareassets + \beta_7 SAxHHIdep + \varepsilon$

(4) $Public\ Debt = \beta_0 + \beta_1\ Dev.\ dummies + \beta_2 HHI\ on\ deposits + \beta_3\ Total\ deposits + \beta_4\ Rev.\ on\ bonds + \beta_5\ Total\ credit + \beta_6\ Fracbankers + \beta_7\ FBrxHHIdep + \varepsilon$

1. Results for proposition 1

At the 1% level of significance, public debt seems to be significantly affected by the total credit generated by the private sector where an increase in total credit increases public debt. On the other hand, revenue on bonds and total assets seem to be also positively correlated with public debt but the correlation is not significant at the 5% level.

Once the different cronyism variables are introduced, the numbers change considerably. In fact, when adding the variable FRACBANKS and the interaction FBxTA, revenue on bonds becomes significant at level 5% with a positive coefficient indicating that the larger the revenue on bonds, the larger is the public debt. On the other hand, the interaction variable is highly significant at the 1% level and is negatively related to public debt indicating that when the number of banks with at least one politician on their BOD increases relative to the total number of commercial banks, public debt tends to decrease. Similarly, when adding the variable SHAREASSETS results conform to the previous results but total assets become significant at the 1% level. Conversely, the index FRACBANKERS seems not to have any effect on public debt (Table 6).

B. Adding the loanable funds variable

Banks' major source of revenue lies in lending. Thus, these institutions decide upon their supply of loans based on their capacity limit. In fact, the loanable funds size available for lending is the residual from the required reserves amount required by the Central Bank. Therefore, the loanable funds available in the banking sector in a certain country are (1-RRR)*Total Deposits.

1. Results for proposition 2

Prior to adding any cronyism variable, the only significant effect on public debt is total credit of financial institutions[17], where, similar to the results in the previous proposition, an increase in the credit leads to an increase in public debt. The variable "loanable funds" does not seem to have an effect at the 5% level of significance for the four regressions run. However, the changes in the sign of its coefficient are worth reporting. In fact, when the variable FRACBANKS with its corresponding interaction are included, the loanable funds coefficient becomes negative, indicating that an increase in the loanable funds size would decrease public debt. Furthermore, revenue on bonds becomes significant at 5% level and positive reaffirming the results of the previous proposition. Total assets is positive and significant at 95% confidence level, indicating that the greater the total assets in an economy, the higher is public debt. On the other hand, the interaction of cronyism is negative and significant at 99% confidence level. The SHAREASSETS variable seems to have similar effects as the

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[17] This variable indicates the total amount of credit given by financial institutions in a certain year for a defined country. It includes all kinds of credit (households, businesses and public)

previous index whereas FRACBANKERS does not affect public debt in this set of

regressions (Table 7).

C. Adding cost of funds variable

Commercial banks incur the cost of attracting funds to be deposited in their

accounts. Thus, the supply of loans and demand for government instruments depend on

the deposit interest rate incurred by banks. Therefore I include the variable "cost of

fund" that is calculated by multiplying the interest rate on deposits for a given country

by total deposits.

1. Results for proposition 3

Due to the increased number of missing values, my sample size decreased to

33. With no cronyism, none of the variables significantly affect public debt. However,

when the variable FRACBANKS is added, total assets and revenue on bonds are

positively and significantly correlated with public debt at 0.1% and 1% levels

respecitvely. On the other hand, the interaction variable FBxTA is negatively and

significantly correlated with public debt at 0.1% level. The variable SHAREASSETS

shows the same results but with a lower significance whereas FRACBANKERS does

not seem to affect public debt (Table 8)

CHAPTER VI:

MODEL LIMITATIONS

Due to the difficulty in obtaining time series data from Orbis Bank Focus, I am unable to construct a panel cross-country dataset to improve the power and identification of my approach.

The cronyism index I use is constructed for the year 2006 only. Even though using past values of some of the right hand side variables helps limit endogeneity from reverse causality, it is certainly more accurate to be able to observe this variable over time.

Although government bonds are widely used to finance debt, many other factors should enter into the equation. For instance, the yield spread on government bonds varies on a daily basis, which ultimately, should be accounted for in my data. Bonds are issued with short-term or long-term maturity and investors' decisions to lend heavily depend on the maturity of these instruments, which could have a direct impact on the minimum yield required and thus on the interest rate (COPPOLA, GIRARDI, & PIGA, 2012). Bonds are not the only financial instruments used to finance government debt. According to the IMF, a survey of 83 countries in the year 2008 reveals that treasury bills are the most widely used financial instruments in emerging economies due to their short-term maturity. Actually, short-term government securities tend to decrease the refinancing risk and the exposure to market volatility (Nyawata, 2012).

Even though the R-squared and adjusted R-squared of my regressions are within an acceptable range (greater than 0.33), using Ordinary Least Squared (OLS) estimation method has a high probability of endogeneity as there are many observable and unobservable factors that affect public debt in addition to the variables studied

above. Thus, it is worth noting that the testing of the empirical findings' paper may not be doing justice to their proposition in Ozkan (2017), rather my estimations are used solely to deepen my understanding about the interaction between the banking and the public sectors.

CHAPTER VII:

INTERPRETATION OF RESULTS

Although the coefficients of the different cronyism indices show a negative correlation to public debt, results should be evaluated with a more critical eye. In fact, changes occurring to other variables when cronyism is introduced provide an opposite possible interpretation.

In fact, when evaluating the effects of cronyism on the interest rate of government bonds, the results showed a negative correlation though insignificant at 5%. When evaluating the effect of revenue on government bonds on public debt in the presence of cronyism, there seems to be a positive correlation with public debt at 5% significance level. Thus, an increase in the revenue on government bonds increases public debt. Furthermore, when total credit granted by commercial banks increases, public debt seems to increase at 1% significance. Moreover, as total assets increase, public debt seems to increase at 1% significance level. Conversely, cronyism indices seem to be negatively correlated with public debt. Thus, if cronyism is associated with a lower rate of interest on government bonds, which leads to a decrease in the cost of borrowing and as a result, in public debt, but total assets of the banking sector and total credit granted by the commercial banks is associated with significantly higher public debt, one can interpret that cronies tend to decrease interest rate on government bonds, so, improve the term of the debt which explains the negative coefficient of the cronyism index. Yet, the overall size of loanable funds allocated for the public increases, which offsets and maybe reverses the "positive" effect of cronyism on public debt.

CHAPTER VIII:

CONCLUSION

This paper aims at examining the behavior of commercial banks vis-à-vis the issue of public debt in the presence of cronyism. This topic is particularly interesting to investigate in emerging countries facing high debt to GDP levels, while suffering from corruption. As described by Braun and Raddatz (2010), cronyism in the banking sector is mostly important to examine in countries where politicians are corrupt and accountability is low.

Looking closely at the case of Lebanon, the figures seem to emphasize the need to better explore the elements contributing to public debt especially through cronyism in commercial banks channel. In fact, although this country suffers from a more likely unsustainable debt, stagnant GDP growth, current account deficit, the banking sector seems to be immune, it does not follow the overall macroeconomic trend of Lebanon. Actually, banking total assets constitute more than 380% of the Lebanese GDP in 2015 and more than 45% of Lebanon's banking assets are controlled and managed by former or current politicians, or politically affiliated personnel. Yet, economic growth seems to be slow and public debt levels amassed. This suggests a relation between cronyism and public debt (Chaaban, 2016).

Previous literature tackles either the topic of cronyism in the banking sector, or the effect of banking sector on public debt. However, no previous research has exposed the relation between the cronyism in the banking sector and public debt levels.

Based on the Braun and Raddatz (2010) cronyism index and Ozkan et. al (2010) propositions on the effect of different banking sector variables on the cost of

public borrowing, I test for the results of the latter paper while including the indices of the first mentioned paper. Then, I aim at testing for the direct effect on public debt.

A. Summary of results

By evaluating the effect of the banking sector on the interest rate on government bonds, results show that cronyism is negatively associated with the interest rate on government bonds, meaning that when cronyism increases interest rate on government bonds tend to decrease. However, these results are not significant at 5% level. On the other hand, the number of banks seems to be positively correlated with interest rate on government bonds opposite to the proposition stated by Ozkan et.al, but these results are not significant at 5% level. High deposits seem to be negatively correlated with the interest rate on government bonds whereas the cost of getting funds measured by the interest rate on deposits seem to be positively correlated with the public cost of borrowing measured by the interest rate on government bonds. On the other hand, the required reserves ratio seems to be negatively correlated with the interest rate on bonds.

A new proposition is made that evaluates the direct effect of banking sector variables on public debt. The key findings are the following: First, adding different cronyism indices to the different regressions results in noticeable changes even if the key variable tested is not by itself significantly correlated to public debt. Second, revenue on bonds seems to be positively correlated with public debt at 5% significance or less. Third, although loanable fund do not seem to be significantly correlated with public debt, when cronyism is introduced, total assets significantly affect public debt. Similarly, when adding cost of funds, though this variable is insignificantly correlated

to public debt, when cronyism is introduced, total asset affect public debt at 0.1%
significance level. Finally, in all regressions, the various cronyism indices seem to be
negatively correlated with public debt.

B. Limitations of the model

It should be noted that these results do not prove causation because of the
various number of limitations. First, the dataset comprises sixty-six different countries
from different backgrounds, thus it would be more useful if panel data on these
countries were gathered to control for country-level fixed effects. Second, the cronyism
index was conducted for the year 2006 only; however, it would be more accurate if this
index were observed over a period. Third, the independent variables do not fully cover
for observable and unobservable factors affecting public debt through the banking
sector, thus my model risks being biased.

C. Interpretations of results

The negative relationship between cronyism and public debt is controversial.
In fact, the overall interpretation of results shows a hidden scenario. Cronyism is
negatively correlated with interest rates on government bonds and thus negatively
correlated with public debt. On the other hand, total credit granted by financial
institutions as well as total assets are significantly and positively correlated with public
debt. Therefore, it can be interpreted that, when cronyism in commercial banks
increases, those banks tend to decrease the interest rate on bonds to encourage the
government to borrow more. The capacity of commercial banks to lend is captured with
total assets, which strongly increase public debt. Thus, the benefit from the decrease in

the cost of borrowing is crowded out by the increase in the size of borrowing leading to a rise in public debt.

D. Extension of paper suggestions

As mentioned previously, for this model to be more reliable for drawing a causation effect between cronyism and public debt, panel data must be used along with a cronyism index constructed for every year as well as using different methods to test the above results.

Furthermore, it would be interesting to test the above model for specific countries such as the emerging economies, developed economies and MENA region countries and aim at building a comparative study to observe the intensity of this phenomenon among the different groups.

Finally, it is important to study this effect in countries that are financially integrated as these countries face a contagion effect.

APPENDIX

A. Figures
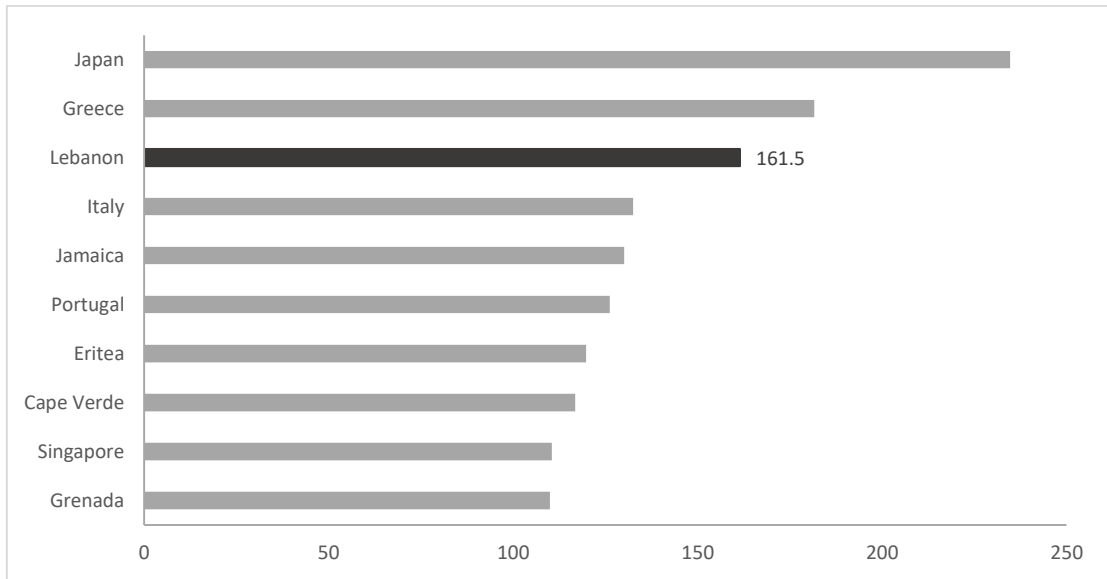
Figure 1: Highest debt-to GDP ratio countries in 2016
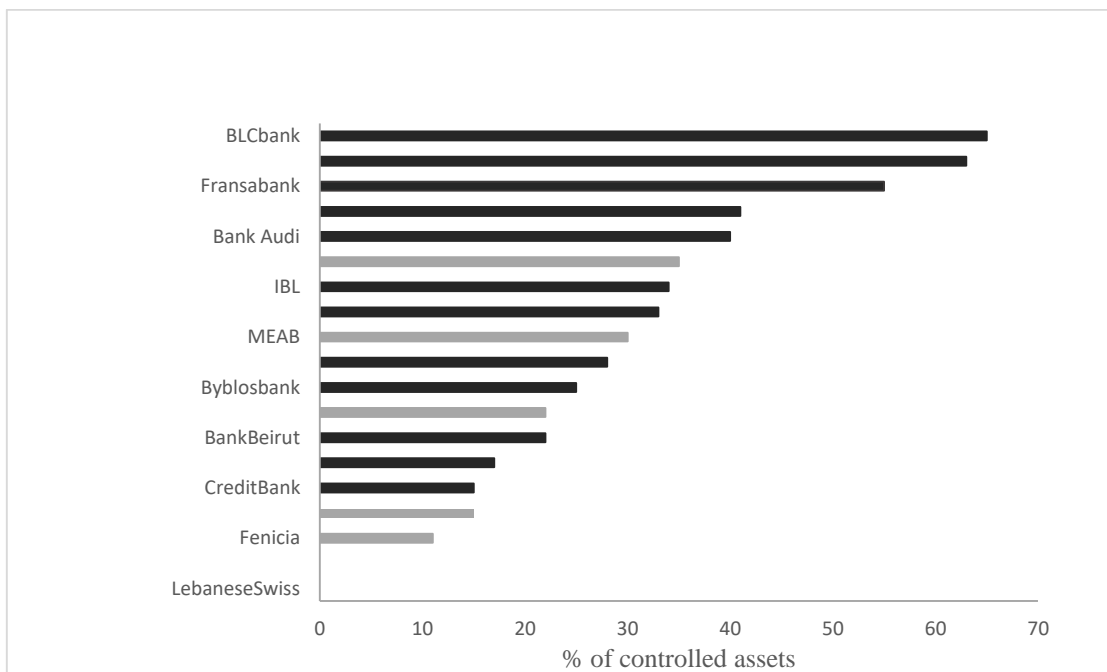
Figure 2: Political linkages in Banks' BOD in 2015
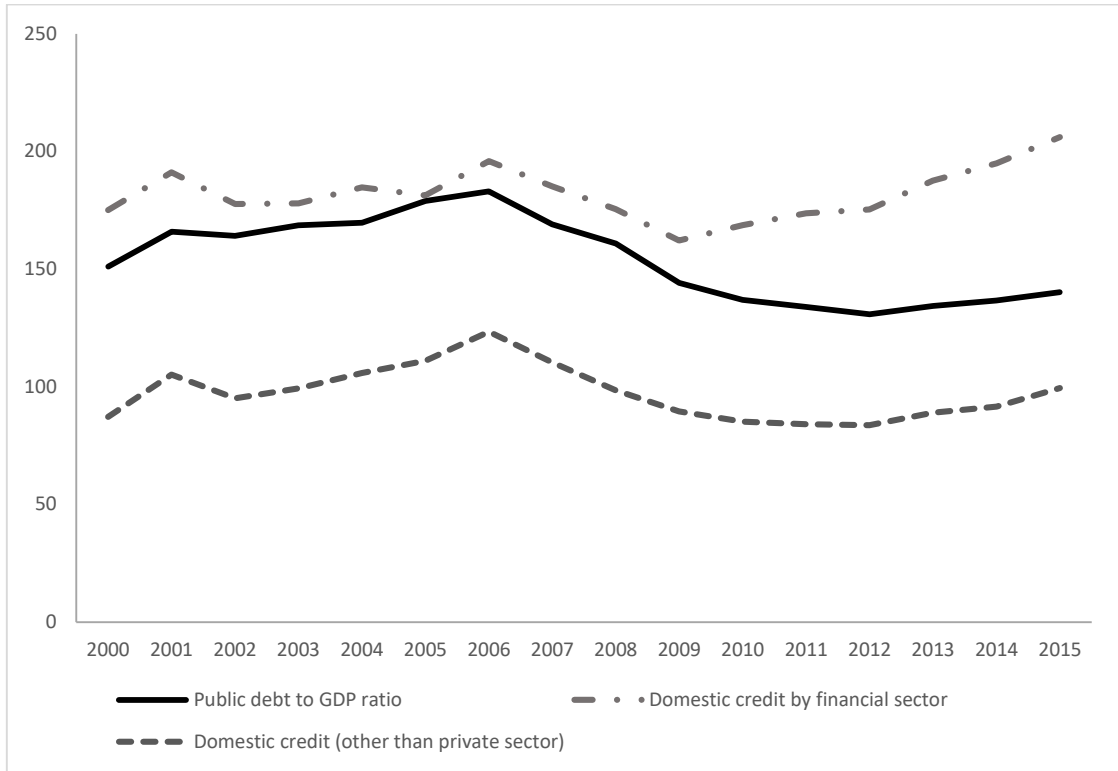
Figure 3: Evolution of Public Debt to GDP and domestic credit
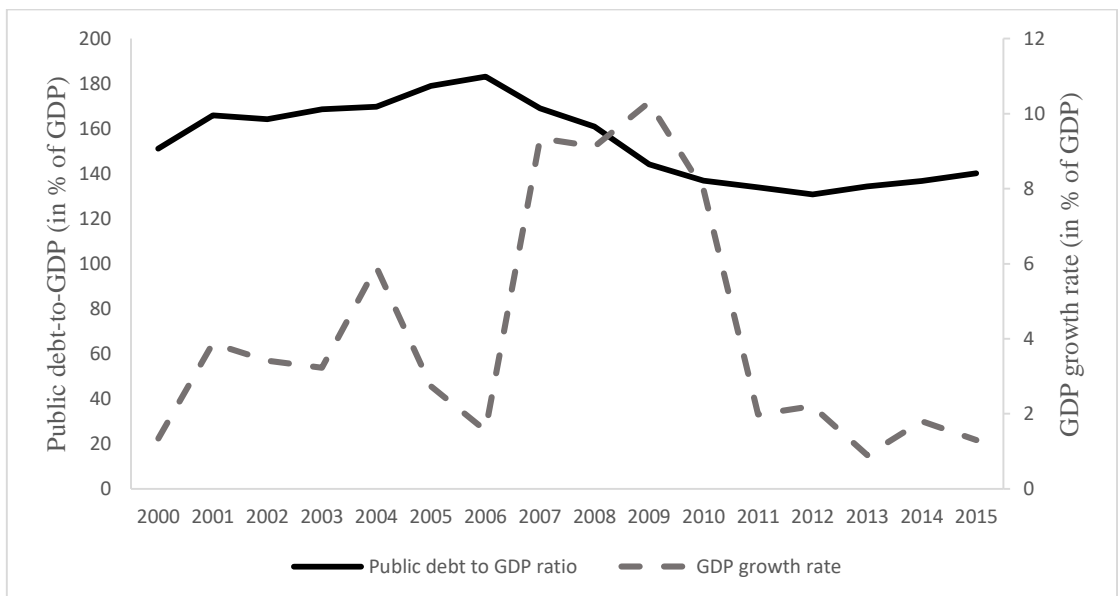
Figure 4: Evolution of Public Debt to GDP and GDP growth
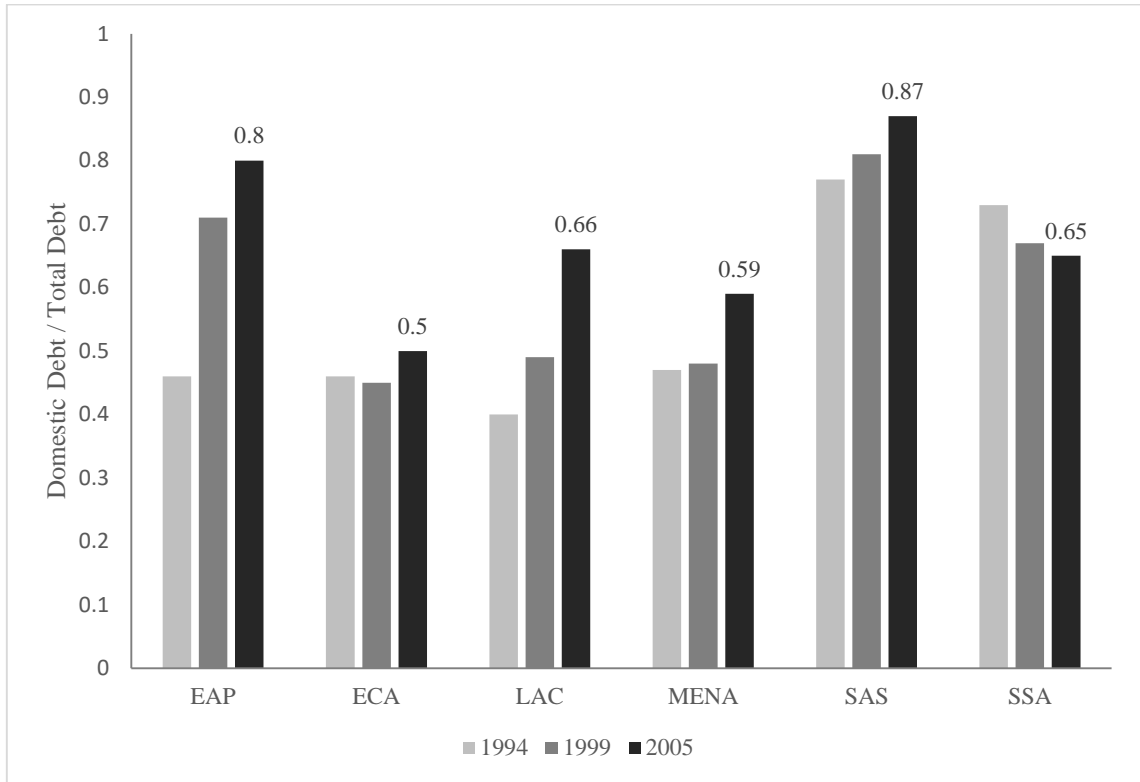
Figure 5: Domestic Debt in Developing Economies

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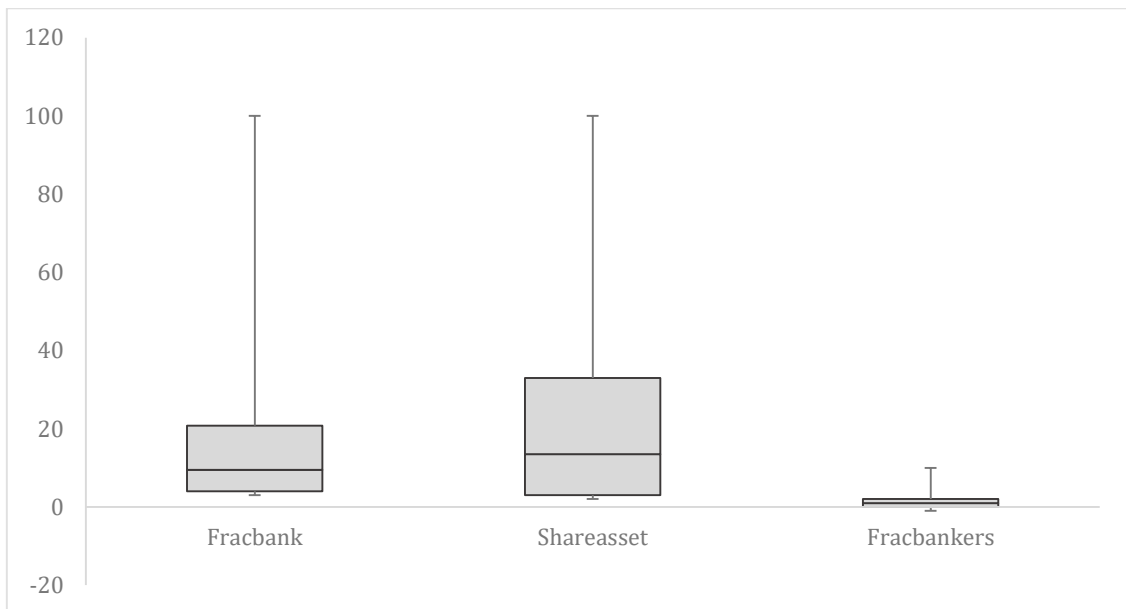
Figure 6: Cronyism Indices Distribution

B. Tables

1. Summary statistics

Variable	Mean	Standard Deviation	Source
Number of banks	130.05	714.62	Orbis Bank Focus
Total Deposits (in million USD)	1,190,924	3,170,846	Orbis Bank Focus
HHI on deposits	1927.95	1169.11	Orbis Bank Focus
Total Assets (in million USD)	1,583,646	3,838,766	Orbis Bank Focus
HHI on assets	1938.05	1156.88	Orbis Bank Focus
RRR (in %)	0.07	0.1	IMF
Interest rate on government bond (in %)	0.03	0.04	IMF
Credit by Financial Sector (% of GDP)	112.17	71.31	IMF
Credit to Public sector (% of GDP)	0.13	0.14	IMF
Public Debt/GDP ratio	60.15	37.7	World Bank
Liquid Liabilities (in % of GDP)	0.88	0.63	World Bank
Fracbanks	16	20	Braun & Raddatz
Shareassets	22	26	Braun & Raddatz
Fracbankers	2	2	Braun & Raddatz
Revenue on Government bonds			Constructed[19]
Loanable funds			Constructed[19]
Cost of funds			Constructed[19]

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[19] Variables are calculated from the variables extracted from Orbis Bank Focus and IMF

2. Result 1: The more competitive the banking sector, the lower the cost of borrowing

	(1) Int_rate_B~s	(2) Int_rate_B~s	(3) Int_rate_B~s	(4) Int_rate_B~s
HHI_deposits	-0.00000377	1.34e-08	0.00000191	-0.00000264
	(-0.99)	(0.00)	(0.38)	(-0.50)
Num_banks	7.35e-08	0.00000151	0.00000104	0.00000109
	(0.01)	(0.25)	(0.17)	(0.18)
Fin_depth	0.0132	0.0140	0.0149	0.0151
	(1.71)	(1.82)	(1.96)	(1.90)
Dev_dummies	0.0322**	0.0285*	0.0323**	0.0295*
	(3.18)	(2.59)	(3.19)	(2.65)
Fracbanks1		0.000936		
		(1.27)		
FBxHHIdep		-0.000000310		
		(-0.76)		
Shareassets1			0.000949	
			(1.96)	
SAxHHIdep			-0.000000377	
			(-1.57)	
Fracbankers1				0.00522
				(0.96)
FBrxHHIdep				-7.99e-08
				(-0.26)
_cons	0.00624	-0.00471	-0.0114	-0.000905
	(0.40)	(-0.25)	(-0.64)	(-0.05)
N	56	56	56	56

t statistics in parentheses
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 2: Regressions set for result 1

3. Result 2: The deeper the deposit market, the lower is the cost of public borrowing

	(1) Int_rate_B~s	(2) Int_rate_B~s	(3) Int_rate_B~s	(4) Int_rate_B~s
Total_Depo~s	-2.02e-09	-1.66e-09	-1.64e-09	-1.80e-09
	(-1.46)	(-1.16)	(-1.19)	(-1.27)
Fin_depth	0.0124	0.0131	0.0140	0.0138
	(1.65)	(1.73)	(1.87)	(1.77)
HHI_deposits	-0.00000555	-0.00000304	-0.000000266	-0.00000515
	(-1.44)	(-0.49)	(-0.05)	(-0.97)
Dev_dummies	0.0291**	0.0256*	0.0295**	0.0263*
	(2.95)	(2.37)	(2.95)	(2.40)
Fracbanks1		0.000687		
		(0.93)		
FBxHHIdep		-0.000000189		
		(-0.46)		
Shareassets1			0.000853	
			(1.77)	
SAxHHIdep			-0.000000336	
			(-1.41)	
Fracbankers1				0.00368
				(0.69)
FBrxHHIdep				-1.30e-08
				(-0.04)
_cons	0.0149	0.00662	-0.00186	0.00999
	(0.95)	(0.34)	(-0.10)	(0.53)
N	56	56	56	56

t statistics in parentheses
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 3: Regressions set for result 2

4. Result 3: The greater the cost of illiquidity, the higher the terms of borrowing to the government

	(1) Int_rate_B~s	(2) Int_rate_B~s	(3) Int_rate_B~s	(4) Int_rate_B~s
Total_Depo~s	-2.20e-09	-2.23e-09	-2.11e-09	-2.43e-09
	(-1.68)	(-1.63)	(-1.56)	(-1.79)
Fin_depth	0.0181*	0.0170	0.0175	0.0160
	(2.10)	(1.87)	(1.96)	(1.77)
HHI_deposits	-0.00000910*	-0.00000753	-0.00000509	-0.0000116
	(-2.17)	(-1.14)	(-0.77)	(-1.97)
int_dep	0.176	0.154	0.135	0.181
	(1.57)	(1.22)	(1.07)	(1.50)
Dev_dummies	0.0217	0.0250	0.0268	0.0201
	(1.79)	(1.77)	(1.92)	(1.42)
Fracbanks1		0.000152		
		(0.20)		
FBxHHIdep		-0.000000173		
		(-0.37)		
Shareassets1			0.000435	
			(0.78)	
SAxHHIdep			-0.000000247	
			(-0.78)	
FBrxHHIdep				0.000000113
				(0.37)
Fracbankers1				-0.00433
				(-0.80)
_cons	0.0111	0.00953	0.00147	0.0219
	(0.68)	(0.47)	(0.07)	(1.04)
N	36	36	36	36

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Table 4: Regressions set for result 3

5. Result 4: The higher the reserve requirement, the higher is the cost of public borrowing

	(1) Int_rate_B~s	(2) Int_rate_B~s	(3) Int_rate_B~s	(4) Int_rate_B~s
Total_assets	-1.78e-09 (-1.47)	7.23e-10 (0.36)	-1.25e-10 (-0.05)	-1.61e-09 (-1.29)
HHI_assets	0.00000241 (0.46)	0.000000707 (0.13)	0.00000202 (0.38)	0.00000117 (0.22)
RRR	-0.00563 (-0.11)	-0.0292 (-0.57)	-0.0297 (-0.56)	-0.0183 (-0.36)
Fin_depth	0.0171* (2.15)	0.0174* (2.21)	0.0175* (2.19)	0.0177* (2.21)
Dev_dummies	0.0345** (3.05)	0.0326* (2.46)	0.0369** (3.06)	0.0356** (2.98)
Fracbanks1		0.000841 (1.43)		
FBxTA		-5.65e-10 (-1.36)		
Shareassets1			0.000383 (1.22)	
SAxTA			-1.33e-10 (-0.80)	
Fracbankers1				0.00521 (1.13)
FBrxTA				-1.69e-08 (-1.29)
_cons	-0.00660 (-0.41)	-0.0117 (-0.69)	-0.0132 (-0.76)	-0.00692 (-0.43)
N	54	54	54	54

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Table 5: Regressions set for result 4

6. Proposition 1: Adding Revenue from bonds

	(1) Public_Debt	(2) Public_Debt	(3) Public_Debt	(4) Public_Debt
Dev_dummies	-0.136	-0.0142	-0.0517	-0.117
	(-1.30)	(-0.13)	(-0.53)	(-1.01)
Total_assets	4.77e-09	5.12e-08*	5.97e-08**	3.68e-09
	(0.37)	(2.58)	(2.96)	(0.28)
HHI_assets	-0.0000509	-0.0000232	-0.0000250	-0.0000526
	(-1.34)	(-0.61)	(-0.71)	(-1.30)
Rev_bonds	5.966	6.138*	6.365*	5.681
	(1.98)	(2.16)	(2.33)	(1.83)
Total_credit	0.00257**	0.00221**	0.00205*	0.00269**
	(2.99)	(2.71)	(2.58)	(2.97)
Fracbanks1		-0.000743		
		(-0.26)		
FBxTA		-1.13e-08**		
		(-2.95)		
Shareassets1			-0.000828	
			(-0.42)	
SAxTA			-4.54e-09**	
			(-3.33)	
Fracbankers1				0.00814
				(0.26)
FBrxTA				-7.41e-08
				(-0.61)
_cons	0.463**	0.380*	0.423**	0.450**
	(3.04)	(2.61)	(2.99)	(2.87)
N	56	56	56	56

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Table 6: Regressions set for proposition 1

7. Proposition 2: Adding Loanable funds

	(1) Public_Debt	(2) Public_Debt	(3) Public_Debt	(4) Public_Debt
Dev_dummies	-0.132	-0.118	-0.00550	-0.0531
	(-1.22)	(-0.99)	(-0.05)	(-0.52)
HHI_assets	-0.0000539	-0.0000570	-0.0000185	-0.0000264
	(-1.37)	(-1.35)	(-0.45)	(-0.71)
Total_assets	2.90e-09	2.20e-09	5.19e-08*	5.71e-08*
	(0.22)	(0.16)	(2.34)	(2.61)
Rev_bonds	6.166	5.796	6.312*	6.503*
	(2.00)	(1.79)	(2.12)	(2.29)
Total_credit	0.00263**	0.00277**	0.00222*	0.00209*
	(2.98)	(2.94)	(2.61)	(2.55)
loanable_f~s	1.04e-08	1.03e-08	-3.20e-09	3.75e-09
	(0.71)	(0.68)	(-0.22)	(0.28)
Fracbankers1		0.0144		
		(0.34)		
FBrxTA		-6.55e-08		
		(-0.50)		
Fracbanks1			-0.00195	
			(-0.39)	
FBxTA			-1.14e-08**	
			(-2.72)	
Shareassets1				-0.00114
				(-0.46)
SAxTA				-4.38e-09**
				(-3.00)
_cons	0.443**	0.428*	0.379*	0.419**
	(2.81)	(2.60)	(2.51)	(2.82)
N	54	54	54	54

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Table 7: Regressions set for proposition 2

8. Proposition 3: Adding cost of getting funds

	(1) Public_Debt	(2) Public_Debt	(3) Public_Debt	(4) Public_Debt
Dev_dummies	-0.0993	0.110	0.0258	-0.0613
	(-0.62)	(0.77)	(0.19)	(-0.35)
HHI_assets	-0.0000621	0.00000925	0.0000280	-0.000114
	(-0.78)	(0.12)	(0.41)	(-1.21)
Total_assets	-4.73e-09	0.000000144***	0.000000101**	-6.48e-09
	(-0.25)	(3.90)	(3.08)	(-0.34)
Rev_bonds	5.820	9.343**	8.925*	4.932
	(1.48)	(2.93)	(2.72)	(1.23)
Total_credit	0.00342*	0.00115	0.00140	0.00414**
	(2.62)	(1.00)	(1.19)	(2.91)
loanable_f~s	3.36e-08	3.13e-08	2.42e-08	4.00e-08
	(1.54)	(1.74)	(1.35)	(1.72)
cost_funds	-0.00000225	-0.00000103	-0.000000811	-0.00000254
	(-1.18)	(-0.66)	(-0.50)	(-1.31)
Fracbanks1		0.00739		
		(1.14)		
FBxTA		-2.49e-08***		
		(-4.36)		
Shareassets1			0.00121	
			(0.37)	
SAxTA			-6.61e-09**	
			(-3.59)	
Fracbankers1				0.0864
				(1.31)
FBrxTA				-0.000000103
				(-0.54)
_cons	0.385	0.152	0.240	0.294
	(1.70)	(0.83)	(1.24)	(1.22)
N	33	33	33	33

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Table 8: Regressions set for proposition 3

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