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Bank Loans, Bonds, and Information Monopolies across the Business Cycle: Test of the South African Market

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A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in Finance and Investment

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Supervised by

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ABSTRACT

Corporate finance theory suggests that bank's private information about borrowers lets them hold up borrowers for higher interest rates and that hold up power should increase with borrower risk, and if so, banks with private information about borrowers should increase their rates in recessions more than warranted by borrower risk alone. Studies have been concluded in other markets for these propositions, particularly for the US market. This paper has replicated these studies for an emerging economy (Republic of South Africa) to see if the findings will hold across dissimilar markets. Hold up cost is not just a function of information monopoly, Rajan, 1992 posits that firms with a higher probability of failure should suffer more from informational hold-up cost. The risk of failure is more pronounced during recession than in expansion and hence relationship banks with information monopolies are able to extract more rents in recession than warranted by borrower default risk alone.

Using literature that suggest that information rents can be mitigated by multiple banking relationships, I investigated further, whether this problem of hold up cost can be mitigated through a different channel by studying credit spreads of firms that have publicly sourced funds, and continued to seek private funds in the South African market.Using LOANSPREAD as the dependent variable in a regression model, I find that loan spreads are higher for bank-dependent firms, rise in recessions and rise by a greater amount in recessions for bank-dependent firms. In the context of this study I define bank-dependent firms as those firms who have issued no public bond. The key finding is that, indeed multiple banking relationships can reduce informational monopolies, but issuing public bonds can be another channel that South African firms can use to avoid being taken advantage of by financiers with information monopoly over competing financiers.

DECLARATION

I, Mbongiseni Thokozani Nkambule, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in Finance and Investment in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Mbongiseni Thokozani Nkambule

Signed at .....

On the ..... Day of 2012

DEDICATION

I dedicate this Research Paper to my wife Ntombikayise Nkambule and my daughter Asante_Kya Nkambule who supported me during the whole research period, emotionally, physically and spiritually.

ACKNOWLEDGEMENTS

First of all, I would like to acknowledge Professor Kalu Ojah for his leadership and scholarship whilst doing this paper. I learnt a lot more from him whilst doing this paper than I did in class when tackling Corporate Finance issues. I would also like to acknowledge two colleagues and friends; Mbongeni Bhembe and Helda da Silva for their invaluable comments and assistance in the analysis and editing of the paper. Lastly, I would like to acknowledge and thank my data sources; The South African Reserve Bank for recession data, The Johannesburg Stock Exchange (JSE) for bond data, and an anonymous Bank that supplied most of the syndicated loan data.

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1. INTRODUCTION

Public debt as a source of funds is steadily increasing in South Africa as compared to when public debt market commenced in the early 1980s. When comparing the number of public debt issued between 2001 and 2006 (174) with public debt issued between 2007 and 2010 (899), it is evident that there is exponential growth. However, despite this exponential growth, data obtained from BESA shows that of the top 166 companies listed in the Johannesburg Stock Exchange (JSE) about 14% have issued a corporate bond (public debt), which is just a paltry 23 firms in total. This shows that public debt funding still has a long way to go amongst South African firms. An explanation is given by Blackwell and Kidwell (1988), and Krishnaswami, Spindt, and Subramaniam (1999) that floating costs of public placements make public debt financing unattractive for firms with small needs for external finance. Initial public offerings also tend to suffer from underwriting costs causing firms to leave money on the table. Both these propositions are yet to be proven for the South African market as an effort to explain why the corporate bond market has not fully blossomed yet.

Having made the above diagnosis, one can conclude that as a form of external financing, both equity issuances and private borrowings from bank and non-bank lenders are still popular amongst South African firms (Ojah and Pillay, 2009).If finance theory is anything to go by in the South African debt market, then private lenders of funds have a high propensity to hold up for higher interest rates fromfirms that are dependent on them. Corporate finance theory suggests that bank's private information about borrowers lets them hold up borrowers for higher interest rates (Rajan, 1992; Houston and James, 1996). Santos and Winton (2008) suggested that hold up power should increase with

borrower risk, and if so, banks with private information about borrowers should increase their rates in recessions more than warranted by borrower risk alone. They concluded this finding for a developed economy (US).

This paper willreplicate their study for an emerging economy, the Republic of South Africa, to see if their findings will hold across dissimilar markets. Even though this is a test for the South African market, Itest the same hypothesis, adjusting for limitations where South African data does not permit.Ojah and Pillay (2009) in their study of the corporate debt structure in South Africa highlighted the absence of data richness as an obstacle to studying corporate debt structure in emerging markets in detail. I test these hypotheses by comparing the pricing of loans for bank-dependent borrowers with the pricing of loans for borrowers with access to the bond market, controlling for relevant risk factors.

Hold-up cost is not just a function of information monopoly; Rajan (1992 posits that firms with a higher probability of failure should suffer more from informational hold-up problems. The risk of failure is more pronounced during recession than in expansion and hence relationships banking slanted banks with information monopolies are able to extract more rents in recession than warranted by borrower default risk alone (Santos and Winton, 2008).

Using literature that suggests information rents can be mitigated by multiple banking relationships, Schenone (2010), and combining it withother corporate finance theories, I investigate further, whether this problem of hold up-cost can be mitigated through a different channel-access to public debt market as well. Thus I study credit spreads of firms that have publicly sourced funds, and continued to seek private

funds. South African firms tend to issue public debt in Rand, but then source private debt in other currencies in the syndicated loan market; with the US dollar the most used currency. I therefore use loan spread over LIBOR to test the hypothesis as opposed to spread over JIBAR as the commonly used reference borrowing index in the South African market.

In Ojah and Pillay(2009), one of their findings was that public debt-issuing firms experience significant reduction in both overall and systematic risks, and incur lower cost of capital following issuance than non-public debt issuers. I take this finding further by seeking evidence that public debt-receiving firms' bank loans are priced at a reduced spread compared to non-public debt-receiving firms, and that this is even more evident during recession when risks spread widens more than normal borrower risk alone, and yet for public debt-receiving firms risk spread increases by less when adjusted for all embedded risks. This study is a first attempt in the South African market to access whether or not banks do hold up their clients, using private information they access through monitoring to earn higher interest rates, particularlyif the client firms do not have access to the corporate bond market.

Further, Santos and Winton (2008) found that during recession, banks raise their rates more for bank dependent borrowers than for those with access to public debt markets. They concluded that to a larger extent this was as a result of informational hold-up effects rather than to greater risk of borrower firms that are bank dependent when compared to those with bond market access. We cannot overlook though, the fact that firms with access to public debt market tend to be less risky than firms without such access and if that is true, bank dependent firms are likely to fail more in recession than in expansion, which would tend to hike their borrowing costs. Faulkender and Petersen (2006) take this

intuition further by implying that firms with access to public debt financing have more or higher leverage over their counterparts without access to public debt finance. The above expectations or relations can be stated in the following questions, as tested by Santos and Winton (2008) for the US market, a set of similarquestions I examine for the South African market.

Questions:

1. What empirical evidence do we have that spreads should be lower for firms with public debt market access than for firms that do not have such access?
2. What empirical evidence do we have that loan spreads should be higher in recessions than in expansions?
3. Is the increase in loan spreads during recessions lower for firms with public debt market access than for firms without such access?

As an objective proximate to this study I examine whether there exists information monopolies in an African emerging economy, and if so, do firms with access to public debt markets benefit in reduced rents against them when private owners of capital price their loans ex post bond initial public offerings. Secondly, if reduced rents exist, is the loan pricing similar when the economy goes through a recession than when it goes through an expansion.Given these objectives, the contribution of this study relates to the fact that there is little academic research done on data from emerging markets, particularly African emerging economies (Ojah and Pillay, 2009); therefore, this will be an addition to that literature. Secondly, most literature concentrate on the reasons firms choose bank debt over public debt, or the mix of the two and how they affect firm's capital structure, or whether it is cheaper for firms to source

funds through bank loans as opposed to issuing bonds publicly. In this study we seek to add to the literature that says there maybe benefits that accrue to firms with regards to bank loans once they have issued bonds, without saying that it offsets the cost of issuing a bond. We also suggest that if the corporate finance theory of insiders and outsiders (Rajan, 1992) is true, then sourcing public funds can be a mitigating factor in reducing the cost of funds as a result of information rents.

1.1 A Synopsis of the South African Public Debt Market

A more detailed historical background of the South African bond market is given in Ojah and Pillay (2009). In this paper I updated both Table 1A and Table 1B of their paper in order to capture the recent bond issuances given that their data end in 2006. There may be a slight variation in the descriptive statistics even though our data source is the same. I tend to lean more on issued and listed debt securities as opposed to just issued debt securities which may be private and not listed on the JSE. Additional to this, I categorize the issuing entities differently from Ojah and Pillay (2006) in that I separate banks from other corporates because their role of financial intermediation would cloud the findings of my study; I also combine state owned enterprises with water authorities because they are also owned by Government; lastly, I introduce a new category of supranational issuers to capture entities such as the African Development Bank, World Bank etc., who have also recently started issuing and listing in the South African bond market.

Table 1: Issuing entities listed on the JSE by nominal values as at 2011

Issuing Entity	Nominal Value of issue (in million rand)	Nominal Value of Issue as a % of total Value
Central Government	734,935,049,005	58.67%
Banks	155,309,346,854	12.40%
Other Corporates	173,943,804,477	13.89%
Government Municipalities	13,292,170,000	1.06%
Parastatals	171,975,582,177	13.73%
Supranationals	3,200,000,000	0.26%
Total	1,252,655,952,512	100.%

Data source: JSE / BESA (Johannesburg Stock Exchange)

Table 1 show that Central Government still dominates the South African bond market with the size of issues or in nominal values by 59%, even though it is at a decreasing rate. Corporate issues have increased on the other hand at the expense of Central Government; especially non-bank corporate issues have increased significantly between the periods 2001-2011 as shown in Table 2. In nominal values non-bank corporates account for 14% of total issues which when you add to the 12% for bank corporates it totals to 25%, showing a 3% increase overall for corporates since 2006. It may seem small in nominal terms, but Table 2 shows that both bank and non-bank corporates now account for about 86% of the bonds issued and listed in the South African bond market, even though it may be years before that increase shows in nominal values because Central Government is always the biggest issuer (in terms of nominal value) in any domestic market.

Table 2: Issuing entities listed on the JSE by number of bonds issued and listed as at 2011

Issuing entity	No. of debt issues	No. of debt issues	No. of debt issues	No. of debt issues	No. of debt issues	No. of debt issues	Total issues	% total issues by issuing entity
	1975-79	1980-90	1991-96	1997-00	2001-06	2007-11	1975 -2011	1975 -2011
Banks	0	0	0	1	50	387	438	40.0%
Other Corporates	0	0	0	1	48	457	506	46.2%
Government	0	0	11	2	62	6	81	7.4%
Municipalities	2	1	0	0	3	8	14	1.3%
Parastatals	0	0	2	3	11	37	53	4.8%
Supranationals	0	0	0	0	0	4	4	0.4%
Total issues /period	2	1	13	7	174	899	1096	100%
% of total issues by issue period	0.18%	0.09%	1.19%	0.64%	15.88%	82.03%	100%	

Data source: JSE / BESA (Johannesburg Stock Exchange)

The remainder of the paper is organized as follows. Section 2 sets out the theoretical foundationof the study and provides empirical evidence of the three hypotheses to be tested. Section 3 presents the data sources and methodology used in the study. Section 4 presents our results. Section 5 concludes the study by highlighting the implications of the findings and issues for further research.

2. LITERATURE REVIEW

2.1 Introduction

Given that we are looking at bank loans pricing in the context of the South African bond market, it wasimportant that we provide at least a synopsis of the South African public debt markets. To bring our literature into further context we also review literature relating to information monopolies, and banking relationships, to ascertain the role they play in pricing of bank loans. We further investigate related papers

to see if loan pricing differs ex post and ex ante bond issuance, during economic crisis or across the business cycle.

2.2 Informational Monopoly

In a banking relationship, the corporate finance theory of information monopoly refers to when a bank acquires proprietary firm-specific information that is unavailable to non-lenders (Schenone, 2010)[1]. As a result of these information asymmetries between relationship lending banks and non-relationship lending banks, the latter is faced with the adverse selection problem. Consequently this leads to borrowers facing high switching costs from one lender to the other and leads to the incumbent lender gaining an opportunity to extract rents from informationally captured borrowers.

Generally the assumption is that, once a firm has issued a bond publicly, then information about the firm becomes opened to all lenders in the market and hence the information asymmetries should disappear, resulting to financing costs decreasing were the firm to approach a lender other than the incumbent lender seeking loan financing soon after the bond initial public offering (IPO)[2]. This point is strengthened by Rajan's (1992) findings that the availability of the option to issue public debt to a firm limits the relationship bank's monopolypower. Schenone (2009) used the firm's bond IPO as a landscape leveling event and found that there is wider information dissemination as a result and that soon thereafter the adverse selection problem facing outside lenders diminishes; this paper follows the same line of thought regarding information monopoly. In another paper, Hale and Santos (2009)

[1] The notion that in relationship banking, a bank learns more about a borrower's characteristics than do other banks is also found in Sharpe (1990) and Rajan (1992).

[2] Hale and Santos (2009) focus more on credit worthiness of the firm at the IPO as revealed by its credit rating because a vast majority of firms get their first credit rating at the time of their bond IPO and because there is evidence that rating agencies produce valuable information on firms.

usesbanks' pricing policies before and after borrowers gain access to public debt market to ascertain whether or not banks price their information monopoly and they find that firms are able to borrow at lower interest rates after their bond IPOs.[3]Equally of importance of Hale and Santos is that, they discovered that if a firm issues a bond for the first time after having received a credit rating a while back, the benefit that accrues in terms of less cost of funds is small compared to when the firm obtains its credit rating in the process of the bond IPO. As already mentioned credit ratings and registration disclosure for an IPO (both equity and bond registration) produce valuable information which was otherwise material non-public information to investors.

Hale and Santos (2009) also find that loan spreads after the bond IPO can decline for other reasons other than the disappearance of the incumbent banks' information rents. They argue that firms which gain access to public debt financing are likely to use it as a bargaining tool in their loan negotiations despite the differences that exists between these funding sources.

2.3 Banking Relationships

According to Santos and Winton (2008), there has been more concentration of literature on whether firms that depend on banks seek one or more bank relationships, arguing that reliance on a single bank implies that the benefits of a single bank outweigh the informational costs.[4] Even though this paper takes a different tact in that it looks at how the pricing of bank loans varies across the business cycle for firms using "arm's length" debt, it is still vital to look at how bank relationships influence the pricing of private loans. Several papers have

[3] See also Santos and Winton (2008) and Schenone (2007)

[4] Houston and James (1996) find that reliance on bank borrowing depends on firm size, the importance of growth opportunities and intangible assets, overall leverage, the number of bank relationships and the firms' access to public debt markets.

looked at the relationship between borrowing rates and the intensity of the lending relationship, and the results are not conclusive. Sharpe (1990) and Greenbaum, Kanatas, and Venezia (1989) argue that interest rates will increase as the banking relationship intensifies over the years; they posit that initially banks subsidize firms by charging rates below market spot-borrowing costs and then once they reach equilibrium they start raising the interest rates over the course of the relationship.

Boot and Thakor (1994) argue that rates should decrease with relationship intensity, because borrowing firms face above market spot-borrowing rates until they prove successful. This point is further strengthened by Petersen and Rajan (1994) as well as Diamond (1991), who argue that the longer a firm has been servicing a loan creates trust from the bank believing that the firm has a viable business, and therefore using hindsight would reduce future cost of funds for this firm.

Farinha and Santos (2002) try to explain why a firm may switch from single to multiple lending relationships, without necessarily assuming loan pricing to be the only determinant. They suggest that concerns with hold-up costs, together with unwillingness by the incumbent bank to increase its exposure to a firm because of its past poor performance, are the key reasons for these firms to initiate an additional relationship. Another dimension they noted is that competition amongst banks may limit the incumbent bank from extracting rents without eliminating it, because the outside banks are afraid of the "winner's curse"[5]. Studies have also shown that there is direct evidence on the benefit of multiple lending relationships for younger firms and little for larger publicly

[5] Sharpe (1990) posits that due to competition, rents are competed away via lower interest rates on loans offered to all firms in their initial period, precisely when banks know the least about firms.

traded firms (Petersen and Rajan 1994)[6]; hence Houston and James (1996) conclude that reliance on bank borrowing depends on firms' size[7].

Schenone (2009) posits that all else equal, borrowing rates decline with the intensity of a banking relationship (defined by loan concentration), either information asymmetries among lenders and non lenders are diminishing or relationship banks are strategically sharing the surplus granted by the relationship with the borrowing firm.We conclude this section with Fama's findings that a bank which actually lends to a firm learns more about that borrower's characteristics than do other banks (Fama, 1985).

2.4 Loan Pricing ex ante and ex post Bond Issuance

In this paper we do not look at whether the costs that are borne by firms as a result of raising funds through public markets are higher or lower than if firms sourced funds through private means. We want to see if there are benefits that accrue to these firms following their bond IPOs. Hale and Santos (2009), tackle both questions but the results of the latter hypotheses are that there are benefits that accrue to firms' ex-post bond IPOs; firms benefit from both a reduction in the interest rates they pay on bank loans and the costs they incur to issue private bonds after they enter the public bond market. This derives from the information firms need to release to enter the public debt market, which is likely to reduce banks' informational advantage and consequently decrease their ability to extract rents from firms, (Hale and Santos, 2009)[8].Further studies on equity IPOs show the same results as bond IPOs, and suggestthat these events are seen as new information releasing events

[6] They also find that borrowing costs are unrelated to the length of the lending relationship suggesting banks extract their rents from informationally captured borrowers instead.
[7] But also find that establishing multiple relationships may be one way to mitigate hold-up problems and that firms are less likely to suffer hold-up problems if they have access to public debt markets.
[8] See Rajan (1992) and Sharpe (1990)

about the firms coming into the debt and equity markets for the first time[9].

2.5 Economic Crisis and Loan Pricing

Spiegel (2011) indicates that when the 2008 financial crisis hit the financial markets, not only did it freeze the funding market but also it affected non-financial firms. Analyzing other research papers, he draws a conclusion that as a result of the crisis capital became costly to non financial firms, and if funding was eventually granted to them, they also received less than they wanted to access beyond the fact that accessing funds became harder during the crisis. Adrian, Colla, and Shin (2011), in their working paper confirms what Spiegel et al posits by identifying a negative relationship between loans and bonds during economic crisis; they find that whilst loans to firms decrease during recession, there is a corresponding increase in corporate bond issuance that compensates the created gap.If this is explained from a credit squeeze point of view, it will concur with Bernanke (1983), that ballooning spreads during recession are caused by dwindling credit demand from investors as the real cost of intermediation increased. Campello (2011) shows that as a result of the increase in the cost of funds during economic crisis, firms with good internal cash flows switched to those funds instead of digging into their credit lines.

Other studies like Bernanke (1983) tried to find a correlation between bank lending and aggregate measures of economic activity to explain the contraction of lending during crisis times. Bernanke (1983) posits that it is not inconsistent to argue that the collapse in the financial system has effects on the macro economy other than through monetary channels. Santos (2011), unlike most studies that focus on bank lending volume,

[9] See Schenone (2005) on equity IPOs

focuses on bank loan pricing during and after economic crisis. He finds that loan spread rose during the subprime crisis, but larger for those banks that incurred massive losses. He also finds that these banks with larger losses increased the loan spreads more for bank dependent borrowers than arm's length debt borrowers. The credit spread widening seem to be bank driven, but whether bank driven or not the evidence from the analysis is that the incumbent bank is able to extract rents more for bank dependent borrowers than for public debt market borrowers even during a crisis.

2.6 Evidence on the Cost of Bond Issuance over the Business Cycle

Santos (2006) presents a theory that the relative cost of bond financing is partly due to credit rating firms or agencies that firms use to raise bond financing. He further argues that because of information frictions, these agencies are unable to rate firms correctly thus resulting in the cost of bond financing being dependent on the state of the economy and the quality signal provided by these agencies. In this paper I use this theory to examine whether indeed in recession the cost of bond financing is higher than in expansion and hence varies across the business cycle. Preliminary answer to this question is evidenced by Santos (2006) finding that in the US bond market bond credit spreads widen in recession in the primary market, affecting the relative cost of bond financing across issuers of different credit worthiness, phenomena I assume would be the same across other markets[10]. It is also worth noting that because of these agencies providing the much needed signals about the firms, the asymmetries in information may soon disappear.

[10] Santos (2006) find that recession increases the cost of bond financing for mid quality firms, but recession may also increase the cost of bond financing to all firms, in which case mid-quality firms are suspected affected the most.

In a different theory Bernanke (1983) argues that the disruption of the financial sector by the banking and debt crisis raised the real cost of intermediation between lenders and certain classes of borrowers. He posits that, for a given safe rate, an increase in the cost of credit intermediation reduces the total quantity of goods and services currently demanded. Using yield differential between Baa corporate bonds and the U.S. government bonds between 1921 and 1933 as a proxy for the cost of credit intermediation, Bernanke et al shows that spread steadily rose from 2.31% to a high of about 7.93% during this period.

3. RESEARCH DESIGN

3.1 Data

Dataused in this research paper come from several data sources, namely: Deal Logic (a collective database for all Investment Banks deals in South Africa), BESA / JSE, Bloomberg, and McGregor-BFA. I use data from BESA / JSE to identify firms that have issued or sourced funds from the public debt market. This data also gave me the credit rating, nominal amount, issue date, type of bond, coupon rate, and other relevant information pertinent to the issuance of bonds in the public debt market. To identify those firms which borrowed from banks and when they did so I use both Bloomberg and Deal Logic.

The Bloomberg data only identifies firms that have borrowed from banks without indicating the corresponding pricing. On the other hand, the Deal Logic data provides both the loan signing dates and the corresponding pricing. We note however that, firstly, this database contains syndicated loans, and secondly that the database is poorly administered as sometimes critical information such as pricing is

missing. We omit such entries even though that reduces the sample size. On the syndicated loans, the Lead Arranger structures the terms of the deal and take such responsibilities as monitoring the borrower on behalf of the syndicate members, making such loans synonymous, in a way, to individual loans issued by a bank to a specific borrower firm, Sufi (2007).

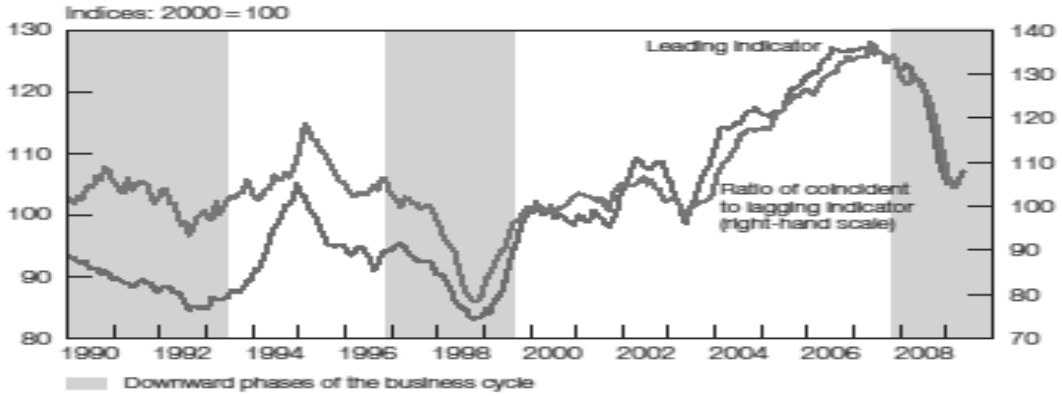
To identify those firms which borrowed from banks prior to borrowing from the public debt market, I match data sources from BESA using the Bond Initial Public Offering date with data from Deal Logic using the loan signing date.The period from 2000 to 2010 saw an increase in corporate bond issuances, particularly by non-banks corporates, so I use it as my sample period. Although there was an increase in the number of issuances, the data indicates that of the 166 firms in the All Africa JSE Share Index, only 14% issued bonds publicly, an indication that the increase in issuance is concentrated amongst 23 firms. This significantly reduces the sample size considering that these 23 firmsare inclusive of bank corporates.

The banks' loan data will give me information on bilateral loans taken by firms from banks, including loan's spread over LIBOR, maturity, seniority status, purpose and type; the borrower, including its sector of activity and its legal status (public or private firms); and lastly, the lending syndicate, including the identity and role of the banks in the loan syndicate. To ascertain firm-specific and loan specific variables that might be expected to affect loan credit risk, I used McGregor-BFA as my main data source.

For definition of recession, I used the South African Reserve Bank Composite Business Cycle Indicator (SACBLI Index). The SACBLI Index uses the same compilation methodology as the Conference Board in the

United States according to Venter and Pretorius (2004). The Index defines the business cycle as either a downward phase or an upward phase.

Graph 1: Composite Leading Business Cycle Indicator from 1990 to 2008



Source: SARB

According to Venter (2009), the composite leading business cycle indicator reached a lower turning point in October 1998. See table 3.

Table 3: Breakdown of up and down phases of South Africa's Business Cycle for 1993-2009

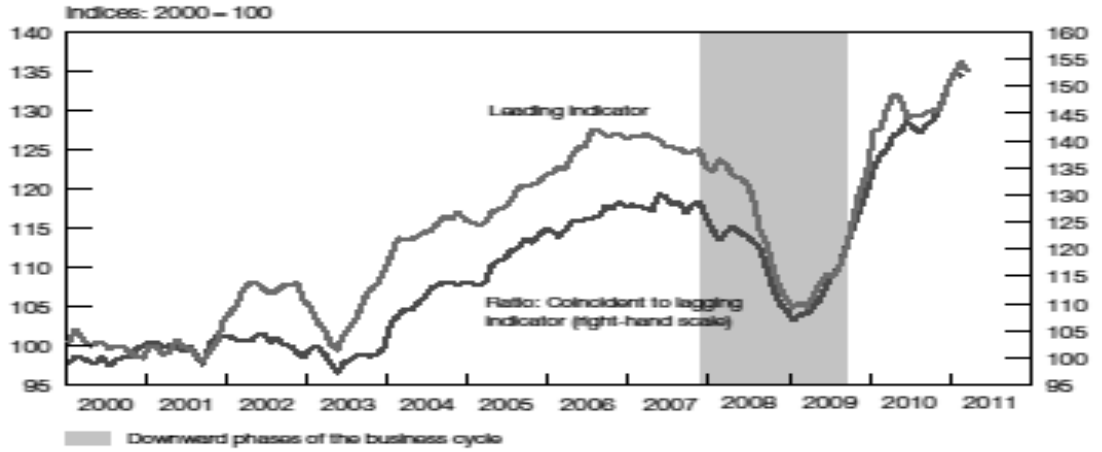
Upward Phase	**Duration (Months)**		**Downward Phase**	**Duration (Months)**
June 1993 – November 1996	42		December 1996 – August 1999	33
September 1999 – November 2007	99		December 2007- August 2009	21

Source: SARB

According to Graph 1, the leading indicator then increased significantly before reaching a peak in February 2000, where after it followed a moderate downward trend up to September 2001. After

another steep increase, the indicator again reached a peak in April 2002, decreasing abruptly until May 2003. From 1996 to 2011, there are two distinct recessions in 1998 and 2008 and one expansion from 2002 to 2007, with a combination of moderation and a downward swing for the period of 1999 and 2001 and again in 2007.

Graph 2: Composite Leading Business Cycle Indicator from 1990 to 2011



Source: SARB

The limitation of this study is scarcity of data that spans a period of about fifteen to twenty years so that I am able to capture several up and down swings in the business cycle. However, as shown in graph 1 and 2 above the period from 1998 to 2011 had two recessions and one prolonged expansion which is sufficient to address questions 2 and 3. This data problem will also be compounded by the fact that the South African bond market was still in its infancy for much of the period between 1980 and 1992 and the corporate bond market's first issue was only in 1992. As in Ojah and Pillay (2009), in 2009 the corporate bond market accounted for only 22% of the nominal value issued on the BESA inclusive of financial firms. For this study I

needed to exclude banking financial firms for stronger results, but I will include them because of the smallness of my sample size.

Poor data entry into Deal Logic reduced the syndicate loan sample size from about 340 loans to about 65 loans, with missing pricing information the main reason for dropping loan entries. Of the 65 remaining loans in the sample, 57 are Dollar loans priced at 3 months LIBOR plus / or minus a spread which Bernanke (1983) refers to it as the cost of credit intermediation (CCI) and the other 8 loans are Euro loans priced at 3 months EURIBOR plus / or minus a spread. To standardize the sample I used the SWAP functionality in Bloomberg to convert the Euro loans into Dollar loans and the EURIBOR spread into LIBOR spread with matching maturities and interest payment frequencies.

However, I have decided to include banks in the sample against my initial reasoning that because of the intermediation function that banks perform they may make the results a bit fuzzy. LIBOR is however in a sense a measure of the cost of funds for banks in the interbank market and it is correctly reflective of the cost of funds for banks as it is for other firms seeking funds from banks. Another factor I discovered is that almost all the South African firms borrow using dollar LIBOR as opposed to JIBAR (ZAR), making South Africa banks to be the same as any other firm in the LIBOR market.

3.2 Methodology

In order to test hypotheses inherent in question 1 through 3, as in Santos and Winton (2008), I investigate loan spreads and determine the impact of borrower access to public debt markets and of recessions,

controlling for various firm and loan-specific characteristics. I estimate the following model on loan credit spreads:

$$LOANSPREAD_{f,l,t} = c + \delta . \text{PUBDEBT ACCESS}_{f,t} + \zeta . REC_t + \eta . REC_t . \text{PUBDEBT ACCESS}_{f,t} + \sum_{i=1}^{L} \psi_i X_{i,f,t} + \sum_{j=1}^{F} \upsilon_j Y_{j,l,t} + \varepsilon_{f,t.} \quad (1)$$

Where:

$LOANSPREAD_{f,l,t}$	is the spread over LIBOR of loan *l* of firm f taken at date *t*
$\text{PUBDEBT ACCESS}_{f,t}$	is a dummy variable that takes the value of one if firm *f* has access to public debt markets as of the date of the loan
REC_t	is a dummy variable that takes the value of one if there was a recession at this date
$X_{i,f,t}$	represents firms-specific variables
$\upsilon_j Y_{j,l,t}$	represents various loan-specific variables that might be expected to affect loan credit risk
$\varepsilon_{f,t.}$	is the error term of the estimation equation

As in Santos and Winton (2008), all three hypotheses are incorporated in the equation above. In hypotheses 1, a negative δ indicates that firms with public market access pay lower spreads; for hypotheses 2, a positive ζ indicates an increase in spreads during recession; and for hypotheses 3, a negative η indicates that in recession spreads increase less for firms with public market access than for bank-dependent firms.

We have a few concerns with the methodology as in Santos and Winton (2008); firstly, on the recession dummy, even if we find the coefficient positive, that would not necessarily indicate that the increase in spreads during recession is excess hold-up costs, but rather a premium for additional risk. Secondly, credit spreads reflect firm specific risks and it is possible that risk for firms with public debt access is different from firms without such access. These were taken care of by using proxies that control for different aspects of credit risks. Even though, we were not able to do difference for difference tests as in Santos and Winton (2008), we allude to the result of their study which found that there are no significant observable risks between these two types of firms.

3.3 Sample Characterization

As already outlined in the data section, I use data from Deal Logic and BESA as the main data sources. Deal Logic data constitutes firms listed at the JSE and firms that are not listed, and firms that have borrowed from both the public debt market and the private debt market. The data also has those firms who have only borrowed from private sources of funds and are not listed at the JSE. For the purposes of this study, I have used data from BESA to eliminate all data entries from Deal Logic for firms that are not listed or do not have access to the public debt markets. I want to capture firms that have issued public debt and went on to borrow privately and also firms that have not issued public debt,

but have sourced private debt yet they are listed and have access to public debt. This will enable me to see if there are any benefits that will accrue for the latter in terms of reduction in rents.

Table 4 presents the definitions of the variables I use in this study. Graph 4 shows the numbers of loans to bank-dependent firms and to firms with access to the bond market over time. Santos and Winton (2008) claims that bank-dependent borrowers seem to be more sensitive to credit conditions, and tend to show a high volatility in recession times. In Graph 4 I represent the classification of firms according to whether they are bank-dependent or not. I classify firms as bank-dependent (MRPBOND=1)ifthe bond IPO is before the 31stof December 2011. This will not take into consideration firms that have issued private bonds as the BESA data eliminates all private firms and private bonds issued by public firms. In Graph 4, my results may not be very conclusive and strong, but I note that in the two captured recessions in 2002 (which was a mini recession) and 2008 loans accessed by bank-dependent firms decreased; the other recession in 1998 has been excluded because it does not fall within the sample period which is 2000 to 2011. I say my result may not be strong because, I note that a number of bank-dependent firms are not publicly listed and therefore are not part of my sample, hence a selection bias. However I do glean that those bank-dependent firms included and defined above (MRPBOND=1) may to some extent, be sensitive to credit conditions.

Table 4: Variable Definitions

Variable	***Definition***
LOANSPREAD	Loan spread over LIBOR at the time of the loan origination.
AGE	Age in years.
OLDERFIRMS	Dummy variable equal to one for firms older than 20 years
SALES	Sales in hundreds of millions of dollars.
SALES GROWTH	The firm's sales growth in the year prior to the loan.
TANGIBLES	Property, plant, and equipment plus inventories over assets
PROFITMARGIN	Net income over sales.
INTCOVERAGE	Earnings before taxes and depreciation over interest expenses. When the firm has no interest expenses this variable is set equal to earnings.
NWDEBT	Current assets minus current liabilities over total debt. When the firm has no debt, this variable is set equal to current assets minus current liabilities.
LEVERAGE	Total debt over assets.
CORPURPOSES	Dummy variable equal to one when loan is for corporate purposes.
REFINANCE	Dummy variable equal to one when loan is to repay existing debt.
TAKEOVER	Dummy variable equal to one when loan is for takeover purposes.
WORKCAPITAL	Dummy variable equal to one when loan is for working capital purposes.
LENDERS	Number of lenders in the loan syndicate.
MATURITY	Maturity of loan in years.
BOND	Dummy variable equal to one for firms that issued bonds prior to their loan.
PBOND	Dummy variable equal to one for firms that issued public bonds prior to the loan.
PBONDblg	Dummy variable equal to one for those firms with PBOND=1 whose last public bond prior to the loan was rate below grade.
PBONDnrt	Dummy variable equal to one for those firms with PBOND=1 whose last public bond prior to the loan was not rated.
MRPBOND	Dummy variable equal to one for firms whose most recent bond prior to the loan was public.
MRPBONDblg	Dummy variable equal to one for firms whose most recent bond prior to the loan was a public bond with a below grade rating.
MRPBONDnrt	Dummy variable equal to one for firms whose most recent bond prior to the loan was a public bond not rated.
REC	Dummy variable equal to one for loans borrowed during a recession as defined by the South African Reserve Bank Composite Business Cycle Indicator (SACBLI Index.
JSE	Dummy variable equal to one for firms that trade in the JSE
TSPREAD	Treasury yield curve slope computed as the difference between the 30-and 5-year Treasury bonds.
JSE	Dummy variable equal to one for firms that trade in the JSE

In Graph 3, I capture the relationship between the SARB repo rate and the spread differential between the 30-year and 5-year Government bonds; the horizontal shaded area is the periods during which the economy went into recession as defined by the SARB's SACBLI Index. The best variables that one could have used in this instance as a determinant of the trend of credit spread across the business cycle would have been the Baa corporate bond and the Government bond of similar maturity as in Santos and Winton (2008) and Bernanke (1983). However, in the South African debt market there is no corporate yield curve yet and whatever data one got was too disjointed to be meaningful.

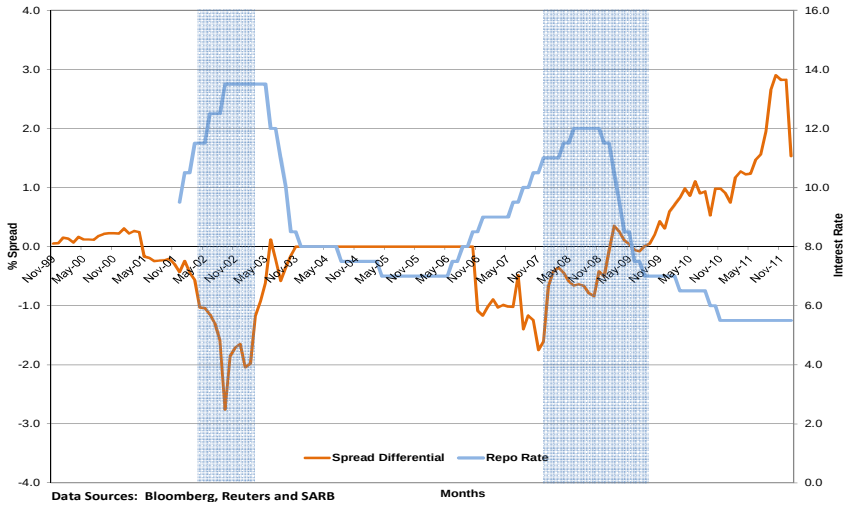
Where the red line is flat there was no data for that period, either for the 5-year bond or 30-year bond. The graph shows that, during a recession, the spread of the 5-year Government bond was higher than the 30-year Government bond creating a negative variance. Also, during recession the repo rate was at its peak as the spread differential bottomed, reflecting higher interest on the short end of the yield curve than the longer end. Using, the two studies mentioned above, one can infer that credit spreads widen during recession more than in expansion.

Table 5: Average Loan spread of all Firms across the Business Cycle

Average Loan Spread (all firms) in basis points	
Recessionary Period	248.796
Non-Recessionary period	79.016

Table 5 above helps to further strengthen the point made above and graphically in Graph 3 below, that indeed average loan spreads in general do widen more in recession than during expansion periods.

Graph 3: SARB Repo Rate and 30-Year vs. 5-Year Yield Spread Differential



Graph 4: Time distribution of loans of bank-dependent and non-bank dependent firms.

Borrowers are defined as non-bank dependent if their bond IPO was before 31st December 2011; otherwise they are defined as bank-dependent. See Table 4 for variable definition.

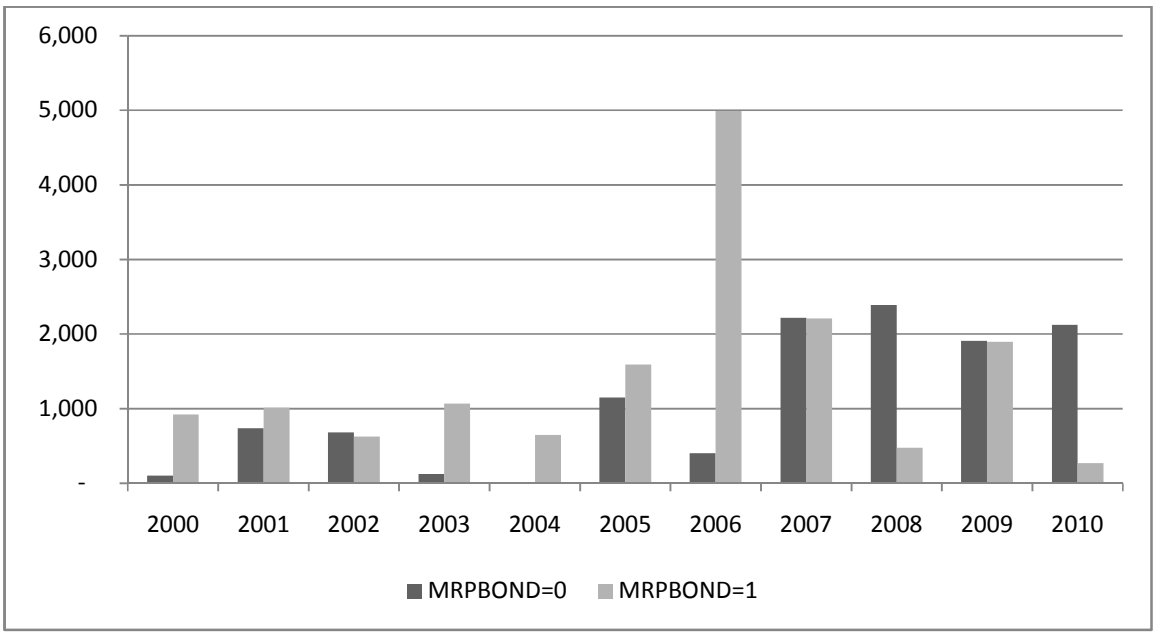


Table 6: Sample Characteristics

Variables	Firms: Non Bank Dependent	Firms: Bank Dependent	Difference
Average Loan Spread (basis points)	101.333	141.545	40.212
Weighted Average Loan Spread (basis points)	119.990	171.185	51.195
Average Loan Spread:			
Recession	239.860	266.667	26.807
No Recession	67.797	112.671	44.873
Age (years)	42	37	-5
Loan Amount ($m)	554.39	619.48	65
Maturity (years)	2.980	3.323	0.344
Profit Margin	9.62%	8.63%	-0.99%
Interest Cover	4.14	11.75	7.601
Leverage	20.77%	48.40%	27.63%
Tangibles	19.51%	20.27%	0.76%
Net Working Capital	-2.40	0.58	2.986
StockVolatility	2.218%	2.533%	0.315%
Purpose of Borrowing (percentage of total loan amounts)			
Corporate Purposes	31%	8%	
Refinancing	39%	64%	
Acquisition	30%	28%	
Number of Companies in Sample	46	16	
Percentage of Total Sample	74.2%	25.8%	
Percentage of companies with a below grade (or no) rating	24%	81%	

Table 6 above classify firms as non-bank dependent if the firms has issued a public bond on or before 31st December 2011, which is the last date of including firms into the sample, and as bank-dependent otherwise. We can see from the table that bank-dependent firms pay a higher spread when sourcing private debt or loans compared with their

non-bank dependent counterparts. The difference is 40 basis points, whilst when the loan spread is weighted against the loan amount the difference increases to 51 basis points. This is also an indication that bank-dependent firms in the South African market generally take higher loan amounts than non-bank dependent firms. This could be explained in one reason, that even though bank-dependent firms tend to pay a higher spread on private loans they do not have an alternative source of funds because they can not issue debt publicly. However because the sample only includes public firms who are eligible to issue public debt, I can infer without empirical proof that South African firms may tend to prefer private debt over public debt, maybe because of the costs associated with raising funds in the public debt domain. Such costs as floatation costs and underwriting costs maybe higher than the loan spread these firms pay on private debt and this can further exacerbate the problem of hold-up costs.

Another related factor under the loan specific controls is the maturity of the loans taken by either of these two categories of firms; bank-dependent firms tend to take shorter term maturity loans than non-bank dependent. However, my sample is largely constituted by short to medium term maturity loans, but it is still clear that on average the bank-dependent firms take loans in the region of 3.2 years compared to 2.9 years for the non-bank dependent firms. This is in agreement with the literature I reviewed, but what is a departure from other studies is the size of the loans, where most literature tends to say those bank-dependent firms are more likely to take longer maturity loans in small amounts.

My firm controls also indicate that bank dependent firms are younger, smaller and have fewer intangible assets. The average age of bank-dependent firms is 37 years compared to 42 years for the non-bank dependent firms. I need to point out that my sample is however skewed

towards older firms, even though my results are consistent with the findings of Santos and Winton (2008). This sample is constituted of the top 166 firms listed in the JSE; however of the 62 observations finally used as a sample, about 70% is in the top 40 of the JSE by market capitalization and Top 40 firms tend to be older in age.

The stock prices of bank-dependent firms are on average more volatile and have high interest coverage. What I found to be inconsistent with other studies like Faulkender and Petersen (2005) and Santos and Winton (2008) was that these firms were more levered than the non-bank dependent firms; but it is true that bank dependent firms have a high stock volatility. Again all of these controls may have been smoothened by the average age of the entire sample which as already explained is skewed towards older firms.

Other studies show that bank-dependent firms may have less syndicate members than non-bank dependent firms or the loan maybe extended by a single lender; for this study I decided to omit this control because this sample is wholly syndicated loans and there are no bilateral loans included.

4. RESULTS

4.1 Univariate Analysis of Loan Spreads

Table 7: Loan Spreads at Issue Date for Bank-Dependent and Non-Bank Dependent Borrowers Based on Equation 1.

The dependent variable is LOANSPREAD and the models use ordinary least squares regression to estimate the values of the coefficients. The terms in brackets below the coefficients represent the associated *p*-values of the estimates. See table 4 for variable definitions.

Variables	***1***	***2***	***3***	***4***	***5***	***6***
CONSTANT	*141.545 (0.00)*	*107.1288 (0.00)*	*79.015 (0.00)*	*118.69 (0.000)*	*112.67 (0.00)*	*91.68 (0.00)*
BOND	*-61.906 (0.0187)*			*-52.90 (0.0237)*	*-44.87 (0.0773)*	
PBOND		*-25.342 (0.2899)*				*-31.38 (0.1638)*
REC			*128.484 (0.0001)*	*121.871 (0.0001)*	*153.995 (0.0031)*	*174.977 (0.0005)*
*REC*BOND*					*-49.79 (0.426)*	
*REC*PBOND*						*-63.28 (0.3089)*
Adjusted R^2	*0.076*	*0.002*	*0.22*	*0.275*	*0.270*	*0.254*
# Observations	*60*	*60*	*60*	*60*	*60*	*60*

In the univariate analysis, the models examine the impact of bank dependence and recessions on loan spread.Bank dependence is gauged by whether or not the firm has access to raise funds in the public bond market, thus a firm with a public bond issuance is deemed to be non-bank dependent.

In Model 1, LOANSPREAD is regressed against a constant and the dummy variable BOND.The results show that firms that have issued a public bond within the sample period typically pay 62 basis points less than those that have never issued the bond.This model testshypothesis 1: *controlling for other firm and loan characteristics, loan spreads should be lower for firms with public bond market access than for firms that do not have such access.*These estimates are highly significant at a 95% confidence level, as *p*-values are less than 0.05.In Model 2, LOANSPREAD is regressed against a constant and dummy variable PBOND (where PBOND is equal to 1 if the firm had issued a public bond prior to the loan date). The results show that a firm that has issued a public bond before taking out a loan would typically pay 25 basis points less than other firms.The result does not pass the significance test, and therefore needs to be interpreted cautiously;this suggests that there is no sufficient evidence to accept the null hypothesis although the sign of the coefficient conforms to expectations. The tested sample constitutes only public firms and public bonds if a firm issued one, as such Model 1 and 2 will typically give the same results.

In Model 3, LOANSPREAD is regressed against a constant and dummy variable REC (recession).The result shows that during recessions, spreads are typically 128 basis points higher than in non-recessionary periods. The results are highly significant. This model testshypothesis 2*: controlling for other firm and loan characteristics, loan spreads should be higher in recessions than in expansions.*

In Model 4,the variables, BOND and REC are tested together as explanatory variables of LOANSPREAD. The results obtained are consistent with those estimated in the univariate analysis in models 1 and 3.They show that firms that have issued a bond will typically pay 53 basis points lower than other firms and during a recession spreads will be 122 basis points higher than in expansionary periods.The coefficient estimates are highly statistically significant.

Model 5 is an extension of Model 4, with the inclusion of the variable REC*BOND, which captures the interaction between the recession and bank dependency dummies.The results show that for firms that have issued a bond, the spread is typically 45 basis points lower than other firms (lower than estimate of 62 basis points estimated in Model 1).In periods of recession, spreads will be 154 basis points higher. The negative coefficient of REC*BOND is as per expectation, and signifies that

firms which have issued a public bond will pay lower spreads in a recession than those firms which have never issued a public bond.Therefore, firms with a public bond will effectively pay a spread of 104 basis points in a recession (this is given by 153.995 less 49.79) whereas other firms will typically face a spread of 154 basis points.The large *p*-value of the coefficient of REC*BOND indicates it is not statistically significant even though the direction of the sign of the REC*BOND is correct.This model tests hypothesis 3: *controlling for other firm and loan characteristics, the increase in loan spreads during recession should be lower for firms with public bond market access than for firms without such access.* Model 6 is similar to Model 5, but uses the variable PBOND as a measure for bank dependency.The estimates of the coefficients are in line with expectations, as PBOND and PBOND*REC both have negative coefficients and the REC variable has a positive coefficient.However, the high *p*-values of the coefficient estimates indicate that two of the variables are not statistically significant.

I need to point out that even though these results are consistent with the findings of Santos and Winton (2008) for the US market, once I introduced controls for firm and loan specific risk the results become distorted and not significant as you would expect. I therefore exclude the multivariate analysis of loan spread in my final result. Koop, G (2006) reasonably argues that having more data points improves accuracy of estimation just as having a larger spread of values of the explanatory variable, X, improves the same. My data may have a large pool of values of the explanatory variable but it lacks in having more data points. I assume this is responsible for the observed distortion when I extend the estimation to include firm and loan specific risk controls.In summary, the results are consistent with my expectations on the impact of bank information monopolies on loan pricing across the business cycle.

5. CONCLUSION

I investigate if, as in the US market, firms that have issued a public bond and have then sourced private funds benefit from reduced rents on those private funds in terms of favourable loan rates. My investigation is extended to phases of the business cycle to see if my proposition holds the same in recessions versus expansions, with a view of finding a new channel through which firms can mitigate hold-up costs that come as a result of information monopolies of banks. Do I find the same results as Santos and Winton (2008) for the US market, that banks hold up for higher interest rates from firms without access to the public bond market and that this is more pronounced during recessions than in expansion? The evidence is at least not inconsistent with this proposition. My results hold when a univariate analysis on LOANSPREAD is performed. I find that loan spreads are higher for bank-dependent firms, rise in recession and rise by a greater amount in recessions for bank dependent firms.

From the univariate analysis performed there is clear evidence that firms with access to the South African public bond market pay a spread that is 62 basis points less than those firms without access to the public bond market. I believe that if the data also included non-public firms and bilateral loans this spread would be wider than the reported 62 basis points. In my introduction, this hypothesisfalls under question 1 and the results are given by model 1 in the univariate analysis. Model 2 also shows that a firms that has issued a public bond before taking a loan pays a spread of 25 basis points less than other firms and for both models these results are significant at 95% with *p*-values less than 0.05.

Again from the univariate analysis we have evidence that in the South African market credit spreads move higher the most in recessions than in

expansions. In recessions spreads are higher by 128 basis points than in expansions. Model 3 was a test to answer question 2. A combination of Model 1 and 3 in Model 4 interacts, the variables BOND and REC against LOANSPREAD with the same results as the latter two models. For the last hypothesis I test if the increase in loan spreads during recessions is lower for firms with public debt market access than for firms without such access, the results are in the affirmative. Firms with public bond market access pay 104 basis points in recessions compared to 154 basis points for firms without access to public funds.

Finally, I answer the question posed in the introduction, whether hold-up costs can be mitigated through other channels apart from multiple banking relationships. The conclusion is that by issuing public bonds South African firms can reduce their cost of borrowing significantly in the private debt market.

I did not attempt to answer the question whether issuing a public bond is cheaper than sourcing funds in the South African private debt market. This is an avenue for further study. This in particular, can help explain why listed South African firms still prefer bank loans over public bond financing (an insight gained from some of the data I analyzed); and also equity issuances than public debt (bonds) as seen in the synopsis of the South African bond market.

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