

# **Agency Theory and Loan Syndications: The Case of South Africa.**

A Research Report of a 50% dissertation to be submitted in partial fulfillment of the requirements of the degree of Master of Commerce in Finance.

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## **Declaration**

I, Dzikamai Shoko Muzvidziwa, declare that this research report is my own, unaided work. It is submitted in fulfillment of the requirements for the degree of Master of Commerce in Finance at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

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March 2011

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# **AGENCY THEORY AND LOAN SYNDICATIONS: THE CASE OF SOUTH AFRICA.**

## **ABSTRACT**

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The market for syndicated loans has grown in the last two decades and is now a major source of funding for corporate organizations. As an important source of capital, an understanding of how this market operates is worth acquiring. Central to syndicated loans are the unique relationships that exist between the borrower, the lead arranger and the participant lenders. An analysis of these relationships and how these relationships affect loan syndications is also critical. The purpose of this paper is to explore the impact of information asymmetries and the resulting agency problems on loan syndications in terms of volumes and, structure. This paper also explores the role of reputations of the in mitigating the agency problems associated with loan syndications.

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## **Chapter One**

### **1.1 Introduction**

The market for syndicated loans has grown in recent years and is now a major source of funding for corporate organizations and governments. In 2010 according to the Thomson Reuters Syndicated Loans Review, global syndicated lending was up 50% over 2009 figures reaching \$2.7 trillion. The syndicated lending fees were also up 38% in 2010 from the 2009 figures totaling \$8.7 billion in 2010. According to Weidner (2000), syndicated lending generates more underwriting revenue for the financial sector than both equity and debt underwriting. Despite the growing importance of syndicated loans in corporate finance and the fact that all companies from all spectrums utilize this type of finance, research on their role in finance still remains limited.

A syndicated loan is a loan where two or more lenders jointly offer funds to a single borrowing firm. The lead arranger is mandated to form a syndicate and lend money to the borrower. The lead arranger negotiates the terms of the loan with the borrower and then recruits participants to fund part of the loan. Syndicated loans typically involve elements of both kinds of financing in the sense that the lead arranger screens and monitors the borrower in a relationship like context, and then sells part of the loan in a capital-market like setting. Syndicated loans are thus referred to as a hybrid of transactional and relationship banking (Dennis and Mullineaux, 2000; Panyagometh and Roberts, 2002; and Lee and Mullineaux 2004).

It is clear that in a typical syndicated lending procedure the lead arranger is situated at the core of the loan syndication as the participant lenders rely heavily on the lead arranger before and after the loan issuance (Simons 1993 and Sufi 2007). At the pricing stage of the loan prior to issuance, the participant banks depend on the lead arranger for evaluating the credit quality of the borrower. Subsequent to issuance, the monitoring and investigation of the borrower is delegated to the lead arranger by the participant lenders. This delegation of

responsibility and reliance on the lead arranger leads to information asymmetries among syndicate members and potential moral hazard problem on the part of the lead arranger. This is because the lead arranger bears all costs attached to monitoring of the borrower but shares only part (i.e. to the extent of his shareholding in the syndicated loan) of the benefits emanating from his monitoring and investigation activities.

Several papers have investigated the implications of information asymmetries among lenders on the structure of syndicated loans (Simons, 1993; Jones, Lang and Nigro, 2000; and Sufi 2007). They find no evidence of opportunistic behavior on the part of lead arrangers. They however find evidence that participant lenders anticipate lead arranger moral hazard and force the lead arranger to retain a higher share of the loan before they can invest in the borrower.

## **1.2 Research Problem and Objectives**

### **1.2.1 Core Research Problem**

It is clear that the structure of syndicated loans invites potential agency problems involving both the adverse selection, moral hazard problem and the general principal agent problem. The principal agent problem can arise between the lead arranger and the borrower when they have different objectives and attitudes towards risk. This can also arise when it becomes difficult and expensive for the borrower to verify that the lead arranger is acting in his best interests especially during the negotiation phase of the syndication.

The adverse selection problem can arise when the lead arranger has a long term relationship with the borrower. He therefore possesses idiosyncratic information on the borrower that other participant lenders may not have. The lead bank can therefore syndicate these loans unfavorable information to the potential detriment of participant banks. Loan syndications can also generate the moral hazard problem as the seller has less incentive to monitor the borrower once a fraction of the loan has been removed from his balance sheet. This is

because monitoring is a very costly exercise and once loans have been sold off, the benefits accrue to the buyer and not the seller.

Agency problems cannot be avoided in syndicated loans as they are embedded in the structure of the syndicated loans themselves. Agency problems in loan syndications affect the structure of the syndicate and also the loan agreement. It is with this thought in mind that it is important to discuss the impact of information asymmetries and the resulting agency problems on loan syndications as they have become an important source of corporate and project funding.

To facilitate an empirical analysis this study employs a theoretical framework based on Holmstrom and Tirole (1997) where they develop a model that postulates that firms with limited public information require due diligence and monitoring by an informed lender before uninformed lenders invest in the firm. Under this framework the moral hazard problem exists for the informed lender because his monitoring and due diligence effort is unobservable. To ensure diligence, a lender with monitoring and due diligence responsibilities must retain a large financial stake in the loan as only a firm with a stake in the firm's performance exerts the necessary effort in due diligence and monitoring.

### **1.2.2 Additional Research Objectives**

Reputation concerns by both lenders and borrowers can be used to ameliorate the moral hazard and adverse selection problems in syndicated loans. Because the loan syndications market is characterized by repeated interactions among players it can be assumed that, ceteris paribus, players will be more concerned about their long run reputations than short run gains. The extent to which corporate reputations of borrowers and lenders can mitigate the moral hazard and adverse selection problems in syndicated loans will be investigated in this paper.

### **1.3 Chapter Outline**

The rest of the paper is organized as follows. Chapter 2 briefly reviews the literature on loan syndications and the agency conflict. It also discusses the theoretical framework and the fundamental concepts in loan syndications. Chapter 3 discusses the data and methodology. Data analysis and results are presented in Chapter 4. Chapter 5 concludes the paper.

## **CHAPTER TWO**

### **2.1 Background**

Syndicated loans are defined as a loan extended by a group of lenders to a single borrower. Though there are multiple lenders to a single loan it is fundamental to syndicated lending that the terms and conditions of the loan are similar for each of the lenders. The members of the syndicate fall into two distinct groups, namely, lead arrangers and participant lenders. These two distinct groups differ in two critical aspects. Firstly, participant lenders rarely negotiate with the borrower, keeping an “arms length” relationship with the borrower through the lead arranger. It is the responsibility of the lead arranger to establish and maintain a relationship with the borrower and to undertake the primary information collection and monitoring activities. Secondly, the lead arranger typically holds a higher fraction of the loan than any of the participant lenders.

#### **2.1.1 The History of Syndicated Loans**

The history of syndicated loans shows that they were developed in response to the prevailing conditions in the financial markets. Altunbas, Gadanecz and Kara (2006) provide a historical perspective on syndicated loans. The emergence of the Eurodollar market in the 1960s facilitated the growth of syndicated loans. In the 1960s the growing internationalization in banking and the relaxation of exchange controls by Western European countries gave rise to dynamic growth in financial activity and increased the free movement of capital. This gave rise to the Eurodollar market as banks in Europe began offering dollar loans free of United States regulatory control at or below the prevailing rates in the United States market. The Eurodollar market was attractive given that banks operating in this market were liberated from requirements to hold non-interest-bearing reserve balances. The Eurodollar market gave rise to the Eurodollar bonds market which allowed international companies to issue dollar denominated bonds that would be bought by European and overseas branches of United States banks. The rise of Eurobonds generated demand for loans markets that were structured in the same way. Banks thus began to syndicate loans among groups of banks put together solely for the purpose of lending to an international borrower.

In the 1970s the world economy was negatively affected by rising oil prices. Political unrest in the Middle East resulted in a significant drop in oil output pushing oil prices. Commodity prices were also pushed up and this generated inflationary pressure around the world which led to imbalances in the balance of payments of the developing countries which are predominantly importers. While the non-oil exporting developing countries faced serious balance of payments problems, the oil exporting nations of the enjoyed high current account surpluses. This created a need to rechannel these surpluses to deficit nations. Banks began to syndicate medium to long term credit to developing nations troubled with their balance of payments deficits.

In the 1980s there was an explosive growth in corporate takeovers in the United States. It was characterized by restructuring of assets and recapitalization of firms. A common technique used to achieve this was leveraged buy outs where acquirers financed their acquisitions by issuing debt rather than shares. This gave rise to syndicated loans as borrowed funds were used to finance takeovers. Also, leveraged buyouts required large amounts and posed too much risk for a single bank to underwrite and carry on its balance sheet. Syndicated loans provided this market with an efficient and liquid loan market to manage bank exposures efficiently.

Finally, the development of the over the counter secondary loan market in the 1990s cemented the presence of syndicated loans in finance. The secondary market allowed banks to offload from their loan portfolios some loans to large institutional investors such as pension and mutual funds. Distress debt was also sold in the secondary market to institutional investors who specialized in risky loans.

### **2.1.2 The Syndication Process**

The manner in which syndicated loans are raised results in the unique overall structure of syndicated loans. According to Godlewski and Weill (2008), the loan syndication process involves three stages. The first stage is the pre-mandate phase where the borrower solicits competitive offers from banks to arrange and manage the syndication. From the bids the borrower chooses the lead arranger whom it mandates to form the syndicate. The lead bank then negotiates a preliminary loan agreement.

In the second stage termed the post mandate phase, the lead arranger begins the syndication process by drafting the preliminary loan contract and preparing a documentation package for the potential syndicate members. The lead arranger also invites the potential participants to participate in the syndicate. The borrower and the lead arranger jointly produce an information memorandum for potential participants that contain information about the borrower's credit worthiness and loan terms. The potential participants are given the opportunity to discuss the memorandum with the lead arranger.

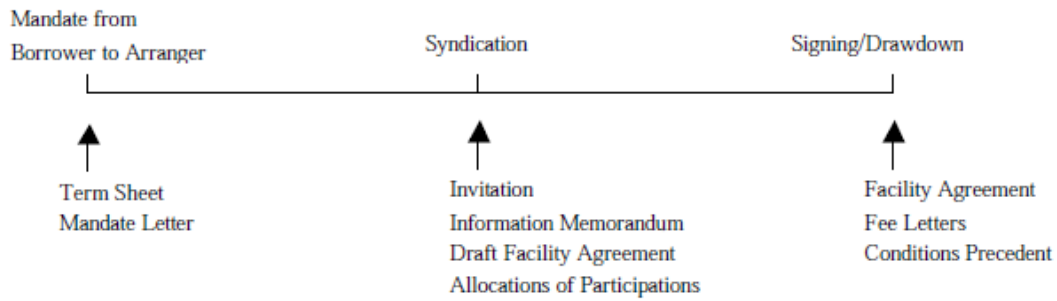
After the marketing of the deal the lead arranger then makes formal invitations to potential participants with preference being given to the participants with the largest appetite for the loan. The lead bank then determines loan allocations for each participant. In the event of an oversubscription the lead bank can scale down the allocations or the borrower can take up a larger loan. In the event of an under subscription the lead arranger can take up the difference if they have a firm commitment contract with the borrower or they can ask the borrower to change the terms and remarket the deal.

The third stage of loan syndications is the active phase. This is where the loan becomes operational and lenders receive a closing fee to compensate them for credit approval. The lead arranger earns the arrangement fee and participant lenders may receive a participation fee for joining the syndicate.

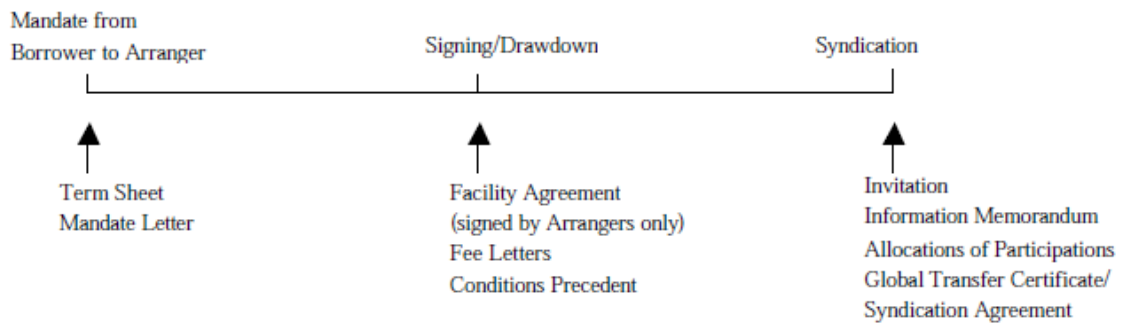
The lead arranger is at liberty to appoint other participant lenders as co-arrangers. These are usually appointed to perform specific tasks for the syndicate such as book running and documentation as depicted in figure four below. Syndicated loan agreements have an agency section where the lead arranger is formally designated the duties and also provides for the lead arranger's removal under special conditions. Figure 1 shows the typical syndication process and the documentation involved at each stage of the syndication under the best efforts basis (not underwritten) and the firm commitment basis (underwritten). Figure 2 shows the resulting structure of the syndication process.



### Typical Timetable of a Syndicated Loan - not underwritten

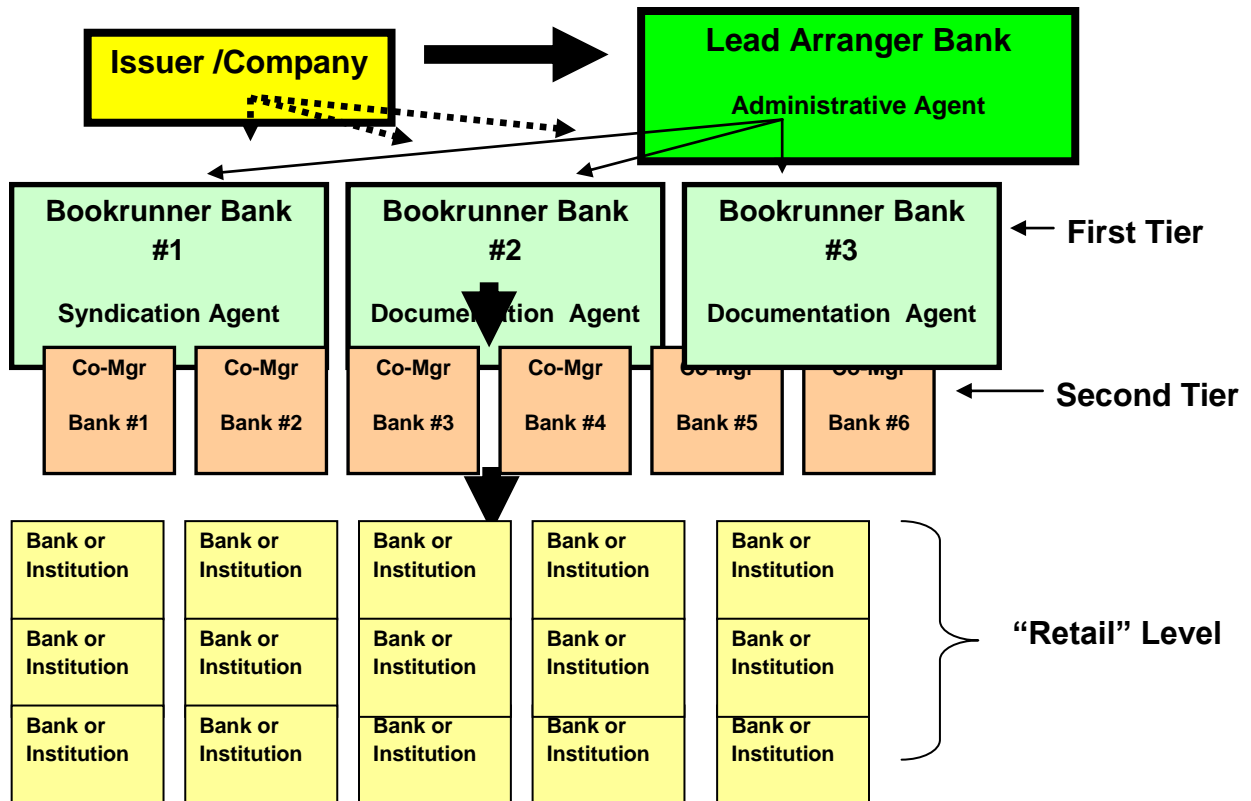


### Typical Timetable of a Syndicated Loan - underwritten



**FIGURE 1: The Syndication Process**

**Source: The Loan Markets Association.**



**FIGURE 2: The Loan Syndication Structure**

**Source:Chris Droussiotis, US Loan Syndication Presentation, Fall 2010, Sumitomo Mitsui Banking.**

**2.1.3 Loan Syndications in South Africa and Sub-Saharan Africa.**

In South Africa and Sub Saharan Africa in general, the project finance industry is increasingly turning to loans syndications to finance large projects. In South Africa the “Big Four” banks Absa, FNB, Standard Bank and Nedbank used to finance large projects single-handedly but in the recent past following international trends, South African banks are now sharing project finance loans and risks. In the last decade these “Big Four” banks have also made their presence felt in other developing countries in and out of the African continent. Standard Bank for example, has managed to secure mandates for several deals in Brazil, El Salvador and Turkey. The presence of development organizations such as the Development Bank of Southern Africa, Development Bank of Africa, World Bank and International Finance Corporation in most loan

syndications in Sub Saharan Africa has shown their capacity and commitment to infrastructural developments. Loan syndications have created a pool of diverse skills and techniques from which the client is able to benefit. The quality of services offered is broadened without cost disadvantage given the fact that banks compete mainly in fees and rate structures. International banks are also taking an interest in the South African project finance market as they are clearly participating in the syndicated loans and offering technical advice on the syndicated loans.

In Africa more and more countries are turning to syndicated loans for financing their development projects. This is because in international markets, most developing countries are considered as opaque borrowers and therefore are unable to access the bonds markets which require higher levels of transparency. Their lack of adequate public information on the borrower, poor credit ratings, poor country ratings and initiation cost considerations rules out bonds as a viable option for most African countries. On the continent most of the syndications are term loans followed by revolving facilities. The maturities of these facilities tend to follow the borrowers needs, market conditions and credit worthiness. The loans are moving away from the typical one year loans thanks to innovative structures, a prime example being the seven year gold forward sale of Ashanti Goldfields.

The pricing structure of the Sub Saharan Africa loan syndications is based on the London Inter Bank Offered Rate (LIBOR) floating rate of interest for US dollar denominated loans. LIBOR is a daily reference rate based on the interest rate at which banks borrow unsecured funds from other banks on the London wholesale money market. Pricing of rand denominated syndicated loans is based on the Johannesburg Inter Bank Agreed Rate (JIBAR), an average of the rates indicated by local and international banks. These rates are reset every three to six months and in most cases coincide with the repayments. The agency fees are charged in percentages and these may include costs for management participation, underwriting and commitment fees. Due to the increased competition in the market, lenders have reduced their all in costs to levels that do not always reflect the true state of the borrower. The strength of the relationship between the borrower and the lead arranger is also important in loan syndications. The better the relationship

between a borrower and its appointed lead arranger through previous lending relationships, the higher the chances that the bank will play a significant role in meeting the borrower's financial needs.

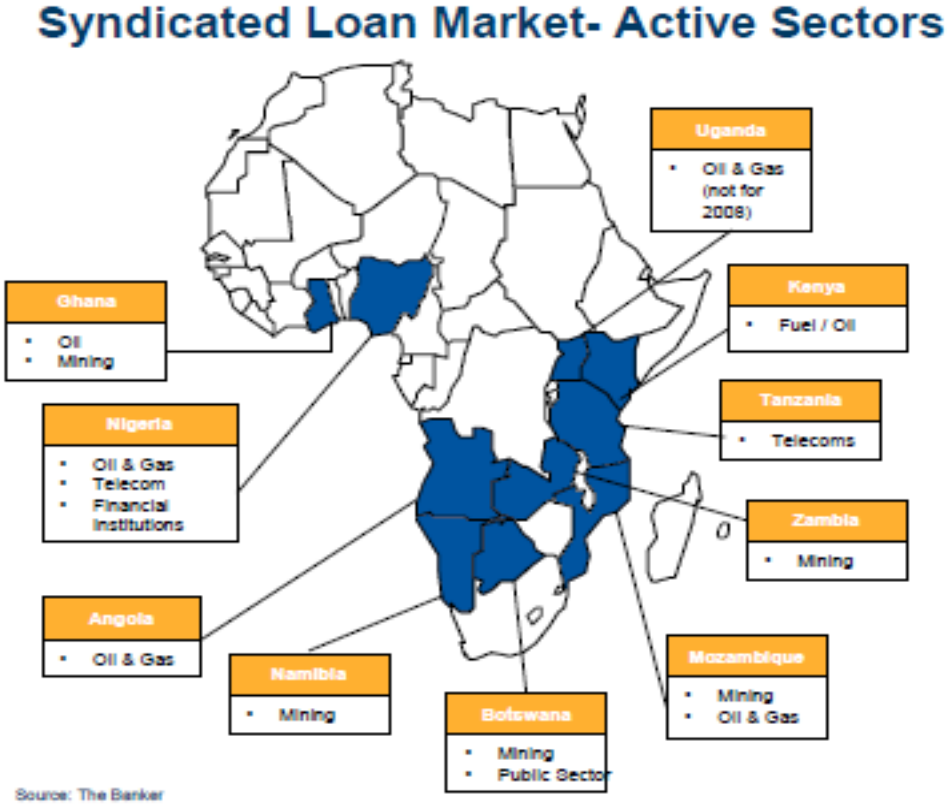
In seeking syndication mandates banks in the Sub Saharan markets rely on referrals by their own branches and affiliates or from direct invitations from borrowers themselves. The ensuing proposals consist of detailed term sheets that specify whether the syndication will be on a best efforts basis or underwritten. Increased competition in Africa amongst lenders has encouraged borrowers to request underwriting very often at little or no extra costs.

The South African syndicated loans markets utilize a series of contractual documents to augment the information asymmetries that are inherent in the syndicated loans market. By law participant lenders are supposed to undertake their own due diligence on a potential borrower before agreeing to participate in the loan but in practice the participant lenders rely on the assessment provided by the lead arranger. To mitigate the problem of adverse selection and moral hazard in the South African and Sub Saharan Africa syndicated loans market, the market players have agreed that the lead arranger's obligation is to provide participants with reliable information and then the participants conduct their own due diligence exercise. An indemnity form between the lead arranger and the participants is signed that indemnifies the lead arranger from any litigation in the form of adverse selection. This motivates participant lenders to rigorously assess the borrower. It is also common practice in the South African syndicated loans market participant lenders appoint independent experts in the form of lawyers, accountants, insurers and engineers to assess the project and give an independent opinion on the loan. This is done at the expense of the borrower. The appointed independent experts have reputation concerns and are expected to give a true assessment to the best of their abilities.

The use of a single term sheet in the South African syndicated loans market mitigates the agency problems associated with syndicated loans. By using one term sheet if one party does not agree to the terms then there is no signing off of the loan. Even if the lead arranger were to use undue influence to make the other participant lenders to agree to the terms it is impossible that this

undue influence would work on all the lenders. A consensus amongst the lenders on the terms of the loan is a prerequisite before the loan becomes active and this aids in mitigating the agency problems.

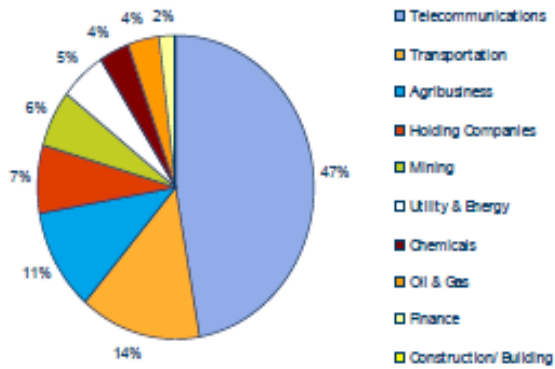
Figure 3 below shows the active sectors in loan syndications in Africa and the industries that typically receive the funds raised through loan syndications. Figure 4 below shows that in Sub Saharan Africa project financing and trade financing are the main uses of the funds raised through loan syndications.



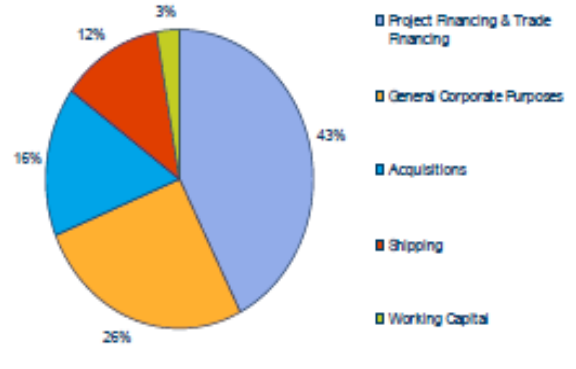
**FIGURE 3: Loan Syndications Active Countries Sub-Saharan Africa**

**Source: The Banker, September 2010 Edition.**

▪ SSA Syndicated Loans Market (incl SA) by Industry - 2007



▪ SSA Syndicated Loans Market (incl SA) by Uses of Finance - 2007



Source: Dealogic

**FIGURE 4: Loan Syndications Active Industries and Uses of Finance**

**Source: Deal Logic, March 2010 Edition.**

**2.2 Literature Review**

The manner in which syndicated loans are originated and managed raises potential agency problems between all parties involved. Firstly, the borrower mandates the lead arranger to act in his best interests and form a syndicate raising the first agency relationship. Secondly the lead arranger is mandated by the other participant lenders to monitor the borrower on their behalf raising the second agency relationship in syndicated loans. In other loan syndications the presence of a co lead arranger is an attempt by other syndicate members to monitor the lead arranger and the borrower more directly via the independent co lead arranger. All these relationships and potential problems that can arise from them motivate a deeper look into the

effects of the agency problem on loan syndications. Central to loan syndications is the behavior of the lead arranger hence reputations play an important role in mitigating the challenges.

### **2.2.1 Agency Theory**

Alchian and Demsetz (1972) observes that economic organizations through which input owners cooperate will make better use of their comparative advantages to the extent that it facilitates the payment of rewards according to productivity. If rewards to productivity were random the input owners would have no incentive to productive effort and if rewards were negatively correlated with productivity then the organization would be subject to sabotage. This places two key demands on economic organizations namely, the need to meter input productivity and the need to meter rewards. Economic organizations must therefore endeavor to measure the productive inputs supplied by input owners and reward these inputs accordingly and this is referred to as the “metering problem”. The metering problem in its most successful state rewards only those responsible for changes in output. The challenge is that in team production, marginal products of cooperative team members are not directly and separably observable. Costs are incurred to monitor the marginal products of cooperative team members and this gives team members incentive to shirk on their responsibilities than when if their performance could be easily measured or if he did not work as a team. Market competition in practice could be used to monitor some team production as input owners who are not team members can offer to replace shirking team members in return for smaller shares of the team’s rewards. Team members are constrained from shirking by the threat of replacement.

Ross (1973) defines the agency relationship as a relationship between two parties when one designated as an agent acts for and on behalf of another, the principal, in a particular domain of decision problems. He explores the problem of agency under conditions of uncertainty when both the agent and principal are utility maximizers. The agent is also assumed to possess better information about the state of the world than the principal. He concludes that without perfect information between the agent and the principal, an optimal solution to the principal agent problem cannot be obtained if the preferred remuneration that the agent requires to act in the best interests of the principal is not completely known to the principal.

Jensen and Meckling (1976) note that an agency relationship exists when one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers then it is possible that the agent will not always act in the best interests of the principal as he will maximize his own utilities than those of his principal. The principal thus has to incur costs aimed at establishing incentives for the agent that will limit divergences from his interests by the agent. The principal will also incur monitoring costs designed to limit suboptimal behavior by the agent. The principal will thus suffer a loss in welfare termed “residual loss” due to the divergences between him and his agent. The problem of inducing an agent to act in the best interests of his principal exists in all cooperative team effort.

Anthony A Atkinson (1978) observes that in most agency relationships the agent is better informed than the principal about the possibilities facing the firm. This inherently creates a fundamental problem for control since most of the information relevant for the control of the agent’s behavior is possessed by the agent and not the principal. Given this the principal cannot be sure that the agent is making decisions that are consistent with the principal’s objectives for the firm. This has led to consideration of incentive devices which result in decisions being made by an agent which are simultaneously the best decisions from the principal’s point of view. He suggests that by sharing profits which result from the agent’s decision making, goal congruency between the goals of the principal and the agent can be achieved. Profit sharing can however lead to potential conflicts of interest in the presence of uncertainty about the returns of the firm. Specifically the manager can undertake safer projects with lower returns than the principal may deem desirable. He concludes that when responsibility and information are decentralized and in the presence of an incentive scheme the agent employs his superior information in a manner that is mutually beneficial to both the agent and the principal.

Financial economists have long been concerned with the incentive problems that arise when decision making in a firm is the province of managers who are not the firm’s security holders. He



notes that management is a special type of labor with a special responsibility of coordinating the activities of productive inputs and carrying out contracts agreed among all inputs in a firm, all of which is characterized as decision making. Fama (1980) observes that in the absence of some form of ex-post settling up for deviations from contract, managers have the incentive not to act in the best interests of his principals through shirking, perquisites and incompetence than is agreed in the contract. The managers can perceive that, on an ex-post basis they can beat the game by shirking or consuming more perquisites than previously agreed.

The issue of moral hazard in teams was discussed by Holmstrom (1982) where he tackled the issue of inducing agents to supply proper amounts of productive inputs when their actions cannot be observed and contracted for directly. In team effort many agents were found to cheat if joint output is the only observable indicator of inputs. This gives rise to the free rider problem in joint production. The free rider problem is less severe in organizations where there is separation of labor and ownership than in closed organizations like partnerships. Eisenhardt (1989) notes that because agents cannot diversify their employment they tend to be risk averse while the principals who can diversify their investments tend to be risk neutral. This results in differing goals between the principal and the agent with the agent showing unwillingness to undertake risky projects that would otherwise maximize the welfare of his principal.

Grossman and Hart (1983) develop a method for analyzing the principal- agent problem in the case where the agent's attitudes to income risk are independent of action. They broke down the principal's problem into a computation of the costs and benefits accruing to the principal when the agent takes a particular action. This method aids in establishing the structure of the optimal incentive scheme and about the determinants of the welfare loss resulting from the principal's inability to observe the agent's action. Their results show that a decrease in the quality of the principal's information increases welfare loss and that when there are only two outcomes the welfare loss increases when the agent becomes more risk averse.

Balakrishnan and Koza (1991) present a comparison of joint ventures, market mediated contracts and hierarchical governance to provide trade-offs between (i) the transaction costs in writing and executing contracts in the intermediate product market (ii) the costs that accompany transactions that redistribute the ownership of assets (iii) the costs of administering hierarchies and joint ventures. They show that the acquisition of complementary assets (such as in joint ventures) is desirable to economize on the transaction costs that are associated with market mediated contracts for the supply of intermediate products. Asymmetric information about the quality or the value of the target assets causes the adverse selection problem that result in roadblocks to a complete transfer of ownership rights. Joint ventures mitigate this problem as it avoids a terminal transaction that transfers ownership rights and allows piecemeal and continuous reassessment of the individual contributions to the venture. Their results show that shareholders of parent companies are favorably disposed towards joint ventures than acquisitions when parent companies are less informed about each other's business. With potential adverse selection problem complete acquisition will be more costly than a joint venture.

Dahlstrom and Ingram (2003) assess the agency theory as situations in which one party (i.e. the principal) seeks to establish an exchange relationship with another party (i.e. the agent) to perform some organizational tasks on the principal's behalf. They acknowledge that the principals and agents pursue co-operative relationships yet they have differing goals and attitudes towards risk. They illustrate how examination of an agent's network of relationships influences the principal's costs of reducing pre-contractual uncertainty. They suggest that in establishing agency relationships, one must weigh the costs associated with acquiring pre-contractual information against the losses associated with foregoing screening. Their findings suggest that the selection of trading partners based on low pre-contractual uncertainty does not ensure that appropriate returns are derived throughout the life of the relationship. In fact an agent's dense network of strong ties may lead to a heightened moral hazard problem for the principal.

### **2.2.2 Loan Syndications**

Syndicated loans have risen in volumes in the last fifty years to become an important source of finance for large corporations. Altunbas, Gadanecz and Kara (2006) provides a historical perspective on the development of the global syndicated loans markets. He highlights that the rise of the syndicated loans market was facilitated by the emergence of the Eurodollar market in the 1960s the Balance of Payments problem of the 1970s, the US merger wave of the 1980s and finally the development of the secondary loans market in the 1990s.

The market for syndicated loans has evolved over the years to include new participants as opposed to the traditional commercial banks. Nandy and Shao (2007) documented the arrival of institutional investors such as hedge funds, private equity funds and hybrid funds in the syndicated loans market and examined their impact on the syndicated loans market. Their results show that institutional investors participate in the syndicated loans market because it offers them with lucrative returns. They also report that the loans that are originated by institutional investors have a higher spread than the loans originated by commercial banks in the primary market. This additional spread is attributed to compensation given to the institutional investors for producing information about the borrower. Nandy and Shao (2007) also report that institutional investors lend to riskier borrowers and for riskier purposes compared to commercial banks, such as leveraged buy-outs, takeovers and recapitalizations. They also report that the supply of capital from institutional investors to the syndicated loans market is negatively correlated to the corporate risk premium. This indicates that institutional investment in the syndicated loan market is sensitive to alternative investment opportunities available to investors who invest their money with institutions such as private equity funds and hedge funds, consistent with the arguments made by Gompers and Lerner (2000).

The decision to syndicate a loan is motivated by many factors. Diamond (1991) reports that borrowers shift from private sources of funding to public sources of funding as the information on them improves and their borrowing reputation is developed through a successful history of debt repayments. When a firm requires less monitoring, debt becomes more saleable to parties lacking idiosyncratic information on them and loan syndications become an option. Simons

(1993) reports that the capital position of the agent bank is a major factor affecting loan syndications and suggests that banks syndicate loans to share the risk of large indivisible projects and to diversify loan portfolios.

The market for syndicated loans was analyzed by Mullineaux & Dennis (2000) and they found that loan syndications are more likely when the information about a borrower becomes more transparent through repeated market transactions and availability of public information on the borrower. They also found that loan syndications are more likely as the lead arranger's reputation increases. This is acquired through repeat business between the lead arranger and participant lenders where the lead arranger does not exploit other participant lenders. A lead arranger can build reputation capital by not shirking on his responsibility of effectively monitoring the borrower on behalf of other team members. Longer loan maturities were also found to increase the likelihood of loan syndications as they minimize the duplicative monitoring costs for the banks.

Mullineaux & Dennis (2000) went on further to analyze the factors that motivate loan syndications and found that capital regulations play an important part in the syndication decision. Authorities typically limit the maximum size of any single loan to a bank's equity capital and participants therefore use loan syndications as a method of managing debt concentration meeting regulatory requirements. They also found a bank's liquidity position affects the syndication decision as banks in a tight liquidity position opt to syndicate loans.

Jones, Lang and Nigro (2000) tested the effect of capital constraints, loan quality and information variables on a lead arranger's share of the syndicated loans held in its portfolio. They reported that banks will retain a larger share of a syndicated loan if it has higher capital suggesting that capital constraints provide a significant incentive for banks to participate in the syndicated loan market. The level of information asymmetry between the lead bank and participant lenders has a significant influence on the share retained by the lead arranger, with the

lead arranger retaining a higher portion of the loans with higher information asymmetries so as signal his commitment to due diligence and monitoring. They also reported that lead arrangers generally hold a larger share of their low quality loans and that lead arrangers generally have a higher concentration of low quality credits in their portfolios, suggesting that lead arrangers do not exploit other syndicate members by syndicating more of loans with unfavorable information. The fact that lead arrangers have a higher concentration of low quality credits also suggests their desire to build strong reputations of non-exploitative behavior in syndications thus enhancing their reputation capital.

Godlewski & Weill (2008) identified the factors that motivate a bank's decision to syndicate a loan in emerging markets. They went further to investigate the country level variables such as the legal environment, financial development and bank regulation to determine their role in loan syndications. They report that loan size is an important consideration in the decision to syndicate loans. The larger the loan size the more likely that loan is syndicated and this is in line with the diversification motive and the regulatory driven issues of loan syndications. They also report that loan maturities negatively affect the likelihood of syndication as it strengthens the moral hazard problem through higher monitoring costs incurred through repeated monitoring of the borrower. They report that the transparency of information plays a positive role in the decision to syndicate a loan as it mitigates the adverse selection problem that results from the lead arranger possessing superior information about the borrower than other syndicate members.

On the country level specifics they report that bank concentration hampers the probability of a loan syndication. A concentrated industry means fewer potential participant lenders. Bank regulation has a positive influence on the decision to syndicate loans. Credit limits enforced by bank regulators have a positive influence in the decision to syndicate loans.

The growth of syndicated loans has been pushed both by demand side factors and supply side factors. Giddy (1993) notes that borrowers are attracted to syndicated loans because they protect

the borrower from undue influence by any one single lender. Syndicated loans have proved to be less costly than bonds in terms of origination fees Altubas & Gadanecz (2004). Godwelski and Weill (2008) discuss the advantages of syndicated loans to borrowers. They report that syndicated loans offer borrowers with great flexibility and convenience. They can be arranged quickly and more discreetly than public debt. They are also easier to liquidate, renegotiate and to cancel than debt securities. Syndicated loans also offer the advantage of raising large sums of money that would otherwise be raised through a series of bilateral loan agreements. They also protect the borrower against undue influence by any one single lender, a consequence of credit concentration. Lastly syndicated loans are less costly than bonds in terms of origination fees.

Godwelski and Weill (2008) also discuss the advantages that syndicated loans offer to the lenders. They report that syndicated loans are motivated by the lenders need to diversify their loan portfolios. Syndicated loans also aid in controlling for excessive credit exposure to one borrower which is prohibited by most regulators. Lenders are also able to generate fees income from syndicated loans which results in the diversification of the lenders income sources. The presence of a well developed secondary market for syndicated loans also motivates lenders to participate as they offer the option to offload the loan should their financial positions change. Schure, Scoones and Gu (2005) notes the motive to syndicate loans as the need to control the risk of the credit portfolio rather than sharing the risk. Banks aim to control sector risks in their loan portfolios through active portfolio management through the use of syndicated loans. Banks can also reduce the costs of screening and monitoring borrowers in loan syndications as this function is served by the lead arranger (Hale, 2005).

Other articles on syndicated loans focus on the rationale of having multiple co lead arrangers in a syndicate structure. Song (2004) finds evidence of the clientele effects in loan syndications where highly specialized underwriters co-manage deals in order to enhance their services in response to client specific needs. Das and Nanda (1999) present a model of a banking structure where, in equilibrium, banks involved in relationship-specific transactions tend to underspecialize in their skill, whereas banks involved in deal-specific transactions tend to

overspecialize. In the model, syndication appears to be an efficient way to allow banks to specialize optimally. In other words banks act in the syndication process according to the competitive advantage they have in performing different administrative tasks.

### **2.2.3 Agency Theory and Loan Syndications.**

Several authors in recent years have analyzed the effect of information asymmetries and the resulting agency problems on loan syndications. The information asymmetries mainly exist between the lead arranger and the participant lenders. According to Boot (2000), these information asymmetries are a direct consequence of relationship banking. He notes that the financial intermediation theory as developed by Diamond (1984) is primarily focused on the role of relationship lenders who develop close relationships with borrowers over time. This close proximity between banks and borrowers facilitates monitoring and screening and can overcome problems of asymmetric information between the two parties. Boot (2000) thus defines relationship banking as the provision of financial services by a financial intermediary that invests in obtaining customer-specific information, often proprietary in nature and evaluating the profitability of these investments through multiple interactions with the same customer over time and across products. This brings about two critical dimensions of relationship banking namely, proprietary information and multiple interactions. Transaction banking on the other hand is viewed as an arms length financing focusing on that particular transaction rather than being aimed at an information intensive relationship with a customer such as public debt issues.

The financing options for borrowers include many products with varying degrees of relationships. Syndicated loans fall between bank loans (relationship lending) and public debt issues (transaction lending). In syndicated loans only the lead arranger has a relationship with the borrower resulting in him having access to private information about the borrower. When he sells part of the loan to willing participants, the information asymmetries between the lead arranger and the other participant lenders become evident.

Gorton and Pennacchi (1990) investigates the market for selling commercial and industrial loans which previously were on non-marketable. Their study paid a special focus on the nature of the contract between a bank and a loan buyer. Commercial loan sales are a contract under which a bank sells a proportional claim to all or part of the cashflow from an individual loan to a third party buyer. Under the contract the third party buyer has no legal relationship with the banks' borrower leaving the third party bank to rely on the credit assessment of the originating bank. In this market the loan buyer has no recourse to the selling bank should a loan default occur. The theory of financial intermediation explains that for a bank to be motivated to continue with credit evaluation and monitoring the bank has to hold the loans it creates until maturity. Loan sales can give rise to lack of incentive to produce an efficient level of credit information and monitoring since it would not receive benefits from this activity. Loan buyers anticipating this lack of incentive value the loans lower than otherwise.

Gorton and Pennacchi (1990) empirically detect the presence of unobservable contractual arrangements between banks and loan buyers which if enforceable could explain how the loan sales market is incentive-compatible. At times the selling banks sell only part of the loan so that the bank retains some incentive to maintain the loan's value. The greater the portion of the loan held by a bank, the greater will be its incentive to evaluate and monitor the borrower. Given that loan sales do not require the selling bank to maintain a fraction of the loan, this contract feature would be enforced by the market rather than legal means. Their findings show that loan sales would be incentive-compatible when the loan buyer can verify that the originating bank has effectively monitored and evaluated the borrower. This would enable the loan buyer to observe the bank's behavior, so that the potential moral hazard problem linked to loan selling can be avoided. Their results also show that the share of the loan sold is a decreasing function of the spread between the loan sale yield and LIBOR. This suggests that for certain types of loans that are not perfectly liquid the bank must continue to convince loan buyers of its commitment to monitoring the borrower by taking a share of the loan's risk.



Pichler and Wilhelm(2001) apply the moral hazard problem in teams to syndicates. They report that the structure of syndicated loans gives powerful incentive to free ride on one another especially in monitoring and due diligence. Lead arrangers with implacable reputations of monitoring may be tempted to ride on this past performance and maintain the perception of high quality relationships with minimal effort to the potential detriment of other syndicate members.

Wright and Lockett (2003) explored the structuring of syndicates in the venture capital market setting. The different parties in a venture capital syndicate are expected to perform different roles and this creates a need for a satisfactory level of cooperation between the collaborating parties if the objectives of the syndicate are to be achieved. To achieve this, firms employ different mechanisms to ensure confidence that partners will cooperate satisfactorily and this is usually done through control and trust mechanisms. Similar to syndicated loans the venture capital syndicates market is also characterized by repeated interactions and hence reputations play an important role. They report that a high proportion of venture capital firms act as both leads and non leads in different syndicates over time. The lead investors typically hold a larger equity stake reflecting the role of the lead in identifying the deal. The large equity stake is also used as a signal by the lead to show his commitment to screening and monitoring of the investment. They also report the non-lead members of the syndicate may suffer severe informational disadvantage in relation to the syndicate lead but these are mitigated through contracting arrangements between the lead and non-lead syndicate members. They also report that reputations play an important role in encouraging other parties to continue to syndicate with a venture capital firm in further investment rounds and in subsequent rounds. The reputation effects linked to repeat syndication aid in minimizing potentially opportunistic behavior by lead syndicate members with larger equity stakes who obtain greater access to investee information.

Lee and Mullineaux (2004) examined the size and composition of commercial lending syndicates. They report that keeping syndicates small and more concentrated minimizes the adverse selection problems, enhancing the incentives to monitor. The free rider element is also minimized in smaller syndicates. They find that when there is little information on the borrower, credit risk is relatively high and when the loan is secured smaller and concentrated syndicates are formed. They also report that when a lead arranger constrains participant's resale activities a

larger and more diffuse syndicate results. Consistent with the theory that longer term bank loans have less credit risk, a larger and more diffuse syndicates are formed for longer term loans. Lee and Mullineaux (2004) also report that reputable lead arrangers form larger and more diffuse syndicates because reputation formation and maintenance requires a large network of contacts and frequent repeat business.

Ivashina (2005) studied the determinants of loan spreads in the syndicated loan market by focusing on its relationship with the syndicate structure. She notes that in loan syndications only the lead arranger conducts the due diligence of the client and monitors the loan after origination. This results in lower information production costs for the syndicate but at the same time creates information asymmetries between the lead arranger and the participant lenders. Her findings show that there is a persistent negative relationship between price and structure of the syndicate in terms of syndicate concentration suggesting that the agency problem can be effectively reduced by increasing the share retained by the lead arranger. The results also suggest that the price implications allow researchers to identify the type of agency problem (moral hazard vs. adverse selection) that dominates the market.

In her analysis Ivashina (2005) brings out similarities between syndicated loans, managerial ownership and company performance. The share of the lead arranger can be viewed similar to the managerial stake in a company which can be used to align the incentives of the manager to those of the shareholders. She separates the analysis of agency problems in loan syndications to distinguish between the adverse selection and moral hazard problem. Results show that both problems have the same effect on the syndicate structure, that is, the larger the information opaqueness of the borrower the larger the share retained by the lead arranger. Using the intuition that on average a sole lender's loan to opaque borrowers is generally lower than the lead arranger's commitment in a syndicated loan to opaque borrowers, Ivashina (2005) suggests that the ex-ante adverse selection problem is the predominant problem in syndicated loans rather than ex-post monitoring of the loan. She also documents that opaque borrowers have a significantly

higher cost of financing suggesting that the adverse selection problem is predominant in the syndicated loans market.

Schenone (2005) examined whether relationship banks exploit the informational rents generated by their repeated lending to a firm. The interest rates that a bank charges its relationship firm are traced throughout the different stages of a firm's life. The use of interest rate trends is important because banks screen prospective clients and closely monitor the selected ones, thus reducing the adverse selection and moral hazard problem in their lending activities which should lead to lower interest rates *ceteris paribus*. The findings suggest that relationship banks exploit their information advantage at a time in which they have the greatest opportunity to do so, but as they are threatened by outside competition, they start sharing the information rents with their borrowers.

Bosch (2006) explored the impact of information asymmetry on loan spreads charged to the borrower in the syndicated loan market. The findings reports that the loan spreads charged to borrowers systematically reflects the amount of publicly available information associated with a borrowing firm. Investors typically demand a risk premium to hold securities with higher information asymmetry. They report that syndicated loans to firms without analyst coverage or third party certification via rating agencies face substantially higher loan spreads all things being equal. They also report evidence that opaque borrowers who repeatedly accessed the market exhibit lower loan spreads the smaller the time period since the last transaction with the same lead arranger. However opaque borrowers who interact with the most reputable lead arranger do not exhibit lower spreads, pointing to the fact that the lead arranger's reputation does not mitigate a borrower's information asymmetry. Borrowers who repeatedly access the market build reputations for themselves thereby lowering their information opaqueness.

Bosch (2006) also analyzes the effect of informational asymmetries within the lending syndicate on loan spreads. As the monitoring and due diligence effort by the lead arranger is not

observable to the participant lenders, there is an information asymmetry within the lending syndicate that gives rise to the agency problems between the informed lead arranger and the uninformed participants. These agency problems are specific to loan syndications and result in the additional premium charges to syndicated loans compared to bank loans. The information asymmetry between the informed lenders and the uninformed lenders increases with borrower opacity because opaque borrowers imply higher monitoring and investigations effort by the lead arranger.

Bosch and Steffen (2006) analyze how information asymmetry between borrowers and lenders affect the lead arranger's decision to structure the syndicate. They employ the mandated disclosure requirements, rating agencies and stock exchange listings to measure borrower transparency. They show that rating agencies are the superior information providers. They report that lack of transparency induces an agency conflict between the lead arranger and uninformed participant banks as syndication reduces the monitoring incentives of the lead arranger. They show that the optimal share retained by the lead arranger is a function of borrower asymmetric information, as opaque borrowers optimally induce the lead arranger to retain a larger share of the loan in order to attract uninformed capital from participant banks. Similar to the findings of Sufi (2007) and Jones et al (2005) the lead arranger alleviates the moral hazard problem by adjusting its retained loan share signaling monitoring diligence to uninformed participant lenders. They report that both rating agencies and stock exchange listings have a major impact on information transparency.

Sufi (2007) explored the syndicated loans market with special emphasis on how information asymmetry and the resulting agency problems influence the syndicate structure and the choice of participants. He reports that information asymmetries shape the structure and the choice of participants in a manner consistent with the agency theory. Firms with limited public information generally require investigation and monitoring by an informed lender before any uninformed lender can invest in the firm. As a result Sufi (2007) finds that there exists a moral hazard problem in this as the informed lender's monitoring efforts are unobservable and to ensure

monitoring and due diligence, a lender with the monitoring and investigation responsibility must retain a larger share of the loan as only a bank with a higher exposure will exert the necessary due diligence and monitoring. His results show that when a borrower requires intense monitoring and due diligence the lead arranger retains a larger share of the loan and forms a concentrated syndicate with fewer participants. He attributes this to the moral hazard problem with respect to the lead arranger's monitoring and due diligence. He also attributes this to the adverse selection with respect to the private information that the lead arranger may possess tempting the lead arranger to syndicate more of a loan with negative private information. Because participant lenders correctly predict this behavior the lead arranger is forced to retain a larger stake in a loan to signify good quality and commitment when information asymmetry is severe.

With respect to the choice of participant lenders Sufi (2007) reports that when the borrower has limited public information in terms of financial results and credit ratings, the lead arranger approaches participant lenders who are closer to the borrower in terms of both geography and previous relationship. This is because the lead arranger will be attempting to reduce the need for information gathering by choosing participants that already know the borrower. His findings also suggest reputation build up may improve the ability for lead arrangers to syndicate loans for borrowers with limited information. In this case the reputation of the borrower is more important than that of the lead arranger as previous relationships between the borrower and a participant lender help mitigate the information asymmetries.

Francois and Missonier-Piera (2007) analyzed the agency syndication structure with special emphasis on the reason why co-agents are engaged in loan syndications. Their results show that the presence of co-agents is in support of the specialization hypothesis that states that multiple co-agents arise in loan syndications to because of the different competitive advantages they have for performing all administrative tasks. These banks possess these advantages because in equilibrium banks involved in relationship-specific transactions tend to underspecialize in their skills while banks that are involved in deal-specific transactions tend to overspecialize. This

suggests that banks act in the syndication process according to the competitive advantage that they have in performing different administrative tasks.

Francois and Missonier-Piera (2007) also show that the presence of co-agents is in support monitoring hypothesis that states that multiple co-agents arise in loan syndications to mitigate informational asymmetry problems as delegation of monitoring to a third party can effectively reduce agency conflicts Strausz (1997). According to the monitoring hypothesis since the lead arranger is the only bank that directly negotiates with the borrower and is usually the best informed bank about the financial position of the borrower, the syndication process leaves room for the moral hazard and adverse selection problem. The duty of co agents is to supervise the lead arranger and the borrower in a more direct way. The lead arranger by appointing a co-agent effectively delegates syndication agency to the co agent to mitigate the informational asymmetry between the agents and participant lenders. By getting co-agents involved in the loan they are able to acquire more accurate information on the borrower and they can monitor the lead arranger on behalf of the other members and determine whether the credit worthiness of the borrower is acceptable for the benefit of the syndicate. The co agents are induced to perform because their reputation will be at stake. Co agents also own a stake in the loan and this gives them incentive to closely monitor the borrower. The presence of co-agents in a syndicate can therefore be utilized to mitigate the adverse selection and moral hazard problem in loan syndication. Francois and Missonier- Piera (2007) also report that repeated contracting between the lead arrangers and participants and also between the co- agents and lead arranger attenuates the monitoring effect.

Tykvova (2007) analyses loan syndications to check whether repeated relationships, thus reputation concerns outweigh the temptation to renege on a given contract. The author shows that loan syndications can sometimes be impeded when a financier believes that has strong incentives to renege on a contract or to shirk on his responsibilities. The findings suggest that opportunistic behavior incurs costs because after renegeing the lender loses his reputation and potential future profits. Even for new market entrants shirking is costly because they lose the

chance to gain reputation and know how. Should the costs of renegeing exceed the benefits of cheating, the reputation effect can compensate for the potential partners lack of information.

Champagne and Kryzanowski (2007) documented the changing nature of global loan markets from being relationship based to transaction based. They highlight that the sustainability of this market especially loan syndications relies on a complex network of ties between financial institutions. Champagne and Kryzanowski (2007) examine the impact of past syndicate alliance relationships on future alliances based and also examine the factors that influence the importance of an alliance between two lenders. They report that the probability of joining a syndicate is positively related to past alliances between the lead bank and the participating banks. They also report that the probability of joining a syndicate is positively related to the reputation of the lead bank, the informational situation of the participant, whether the lead and the participant are from the same country, past relationships between the participant and the borrower and the number of lenders in the syndicate. Their results show that the strength of the syndicate relationship between two lenders is sensitive to the reputation of the lead bank and that informationally opaque participating lenders have stronger relationships with lead banks. Their results also suggest that lenders exhibit a home bias in their syndicate alliances.

Gopalan, Nanda and Yerramilli (2008) investigated how poor performance by a lead arranger as measured by defaults affects the lead arranger's future lending activity. They used defaults by borrowers to test whether syndication activity is affected by poor performance in a manner consistent with a reduction in the lead arranger's reputation and the moral hazard problem. They also used loan defaults to analyze the reaction of market participants to poor lead arranger performance. A lead arranger's reputation is defined in terms of his ability to and willingness to screen and monitor borrowers. They employed the reputation hypothesis to measure how the loss in reputation through defaults reduces the lead arranger's ability to attract participants and syndicate loans. They also employed the loss of capital hypothesis to measure the loss in business to a lead arranger owing to loss of capital after a borrower defaults and files for bankruptcy. They also employed the specialization hypothesis that measures the impact of loan

defaults due to wider economic problems or problems in a geographical area or industry that causes a lead arranger to suffer additional loss of future business.

Gopalan et al (2008) report that a lead arranger is less likely to syndicate loans following a default. This is consistent with the reputation hypothesis and the worst affected lead arrangers are the smaller lead arrangers as they find it difficult to raise additional capital and also their screening and monitoring abilities are in question. They also report an increase in the lead arranger's stake in loans following a default. This is consistent with the reputation hypothesis that predicts an increase in the lead arranger share of the loan following a default to compensate for his lower reputation and to send a stronger signal to syndicate participants of both loan quality and commitment to monitor. Gopalan et al (2008) also report that following a default lead arranger's switch to less opaque and less risky borrowers. They also report a reduction in syndication activity by a lead arranger who has suffered default and also his ability to attract participants. Only participants with strong relationships with the lead arranger are likely to participate in his syndicates following a default.

Berndt and Gupta (2009) explore the new banking model of originate-to-distribute which is typical of syndicated loans. The shift to originate-to distribute model has implications to all market participants. They suggest that because of the lead arranger's superior information on the borrower, it gives rise to the adverse selection problem by selling off loans with negative private information. Alternatively this model can also lead to the moral hazard problem due to impairment in the monitoring function of banks. The effects of this originate to distribute model affects both the lenders and the borrowers. They report that borrowers with an active secondary market for their loans underperform their peers with no secondary market for their loans. This underperformance is stronger for smaller, high leverage and speculative borrowers because of severe moral hazard and adverse selection problems.

These results the authors suggest that banks retain good quality loans in their balance sheets while systematically selling off loans with negative private information that is unobservable to outsiders. They also suggest that banks also be knowingly originating low quality loans primarily



to expand their origination fee income base since they know that they can sell them off in the secondary market. Berndt and Gupta (2009) provide another reason for the underperformance by firms with a secondary market for their loans. They attribute this to the moral hazard problem where when borrowers lose the discipline of bank monitoring are prone to making suboptimal investment and operating decisions which may lead to long run performance and value reduction. The paper suggests to regulatory authorities that banks are potentially originating-to-distribute lemons or due to diminished monitoring hampering the long run performance of borrowers which is socially undesirable. They suggest that banks retain a percentage of the loans they originate to limit the moral hazard and adverse selection problem.

Gadanecz, Kara and Molyneux (2010) examined the effect of informational asymmetries among lenders on the loan price. They report that in loan syndications the price of the loan is determined by negotiations between the lead arranger and the participant banks, the information asymmetries between the lenders is reflected in the loan price. They report that when the participant banks have information inferiority they demand a higher loan spread to compensate for the higher risk. The participant banks require higher prices to hedge against any possibility of ex-post lead arranger moral hazard in monitoring activities. They also report that the availability of borrower credit rating attenuates information asymmetries and nullifies the impact of information set differences among arrangers and participants on loan spreads. The presence of reputable arrangers leads to lower spreads only for those borrowers with potentially fewer asymmetric information problems. Similar to the findings of (Bosch (2006) for opaque borrowers, mandating a reputable lead arranger facilitates accession to finance in the syndicated loan market but does not lower the cost of borrowing.

Cai (2010) explores if the reciprocal arrangements among lead arrangers can serve as an effective mechanism to mitigate the agency problems in loan syndications. He reports that in the US lead arrangers are also participant lenders. The largest lead arrangers are typically the largest loan participants. This point to the fact that lenders maintain stable relationships with certain lenders and rotate their roles between leading and participating within the group.

Cai (2010) suggests that these reciprocal arrangements are a mechanism that can effectively mitigate moral hazard by providing lead arrangers additional incentive to monitor borrowers through loan participation. Reciprocal participation allows them to free ride on each other's origination expertise and monitoring effort and enjoy rents from relationship lending on both loans as long as they both monitor their respective borrowers. The lead arrangers infer each other's monitoring effort by observing the outcomes of the loans and with their individual credibilities in threat, in equilibrium the lead arranger will always monitor his borrowers. Cai (2010) also reports that in the presence of reciprocity the agency problems in loan syndications are reduced as evidenced by a smaller share of the loan retained by the lead arranger. Loans with reciprocity also charge a lower interest rate and have a lower probability of loan default. Cai (2010) also reports that the reciprocity effect persists even for informationally opaque borrowers, smaller borrowers, and smaller loans, less reputable arrangers and less reputable borrowers.

Panyagometh and Roberts(2010) explore the possibility that lead banks exploit other syndicate members by using the private information they have on the borrower to their advantage. They employ ex-post credit quality as a proxy for the private information held by the lead arranger. They report that, as the lead arranger acts as a delegated monitor for the participant banks, acquiring private information on the borrower, this information asymmetry creates the potential for agency problems. The nature of syndicated loans is that of repeat business and it is therefore more likely that in equilibrium banks emphasize their roles as certifiers of credit quality leading them to structure syndicates in ways that control the moral hazard and adverse selection problems.

Their findings suggest that lead arrangers use their private information to build reputation as honest certifiers of credit quality thus controlling the conflict of interest with syndicate participants. Banks do not syndicate larger portions of that subsequently deteriorate in quality. In contrast the loans that they syndicate higher portions are subsequently upgraded as evidenced by the lower loan spreads and fees. Their findings also suggest that the lead bank's reputation can

serve as an effective mechanism to mitigate the agency conflicts associated with loan syndications. This is evidenced by the finding that a loan is more likely to be syndicated and sold in larger portions when the lead arranger is reputable and gains the trust of syndicate members.

Allen and Gottesman (2006) compared the informational efficiency of the equity market to the syndicated loans market by comparing the relationship between equity returns and the lagged returns on secondary market prices of syndicated bank loans. This was done to test the integration between the equity and syndicated loans market. They observe that firms generally issue several types of securities, each representing some claim on the firm's assets and if markets were efficient and frictionless, then all information about the value of the firm's assets would be reflected immediately into the prices of each of the firm's securities. Capital markets however are neither efficient nor frictionless as different markets have access to different types of firm-specific information. This results in different levels of efficiency in the price formation process across markets. These market imperfections may prevent the integration of securities markets in incorporating all available information about the value of the firm's assets.

They employed several hypotheses for their tests, the private information hypothesis hypothesizes that loan prices should reflect information before it is released publicly and only then incorporated into the prices of publicly held equity securities. The integrated markets hypothesis hypothesizes that if loan and equity markets are well integrated, then observations of simultaneous trading in both markets will be recorded upon the release of any information. The results find no evidence of the private information hypothesis, that loan markets lead equity markets because members of loan syndicates have access to superior private information about the borrowing firms. They however find strong evidence of the integrated market hypothesis and this is particularly true if the same financial intermediary simultaneously acts as an equity market maker and as a loan syndicate member.

### **2.3 Theoretical framework and implementation**

The following section discusses four economic theories that are related to loan syndications. The loan syndications structure invites potential agency problems amongst the participants namely the principal- agent problem, the moral hazard problem and the adverse selection problem. The nature of syndicated loans is that of repeated interactions and hence reputations play a major role in loan syndications, to this end a theoretical analysis and implementation of these theories is discussed.

### **2.3.1 The Principal-Agent Problem**

The principal- agent theory rests on a basis in economics under which the relationship between the principal and the agent is defined by the contract. Under this premise the principal knows less than the agent about something important and their interests conflict in some way. The principal-agent problem thus treats the difficulties that arise under conditions of incomplete and asymmetric information when a principal hires an agent. The principal- agent problem postulates that the goals and desires of the principal and the agent conflict and it is also difficult and expensive for the principal to verify what the agent is actually doing. The problem of risk sharing arises when the principal and the agent have differing attitudes towards risk and therefore may prefer different actions owing to different risk preferences. The basic principal agent problem assumes that agents have a negative view and have a tendency to seek autonomy from the organizational rules, to minimize the burden of responsibilities and to hoard rather than disseminate information. Two problems stem from the principal agent problem, namely the moral hazard problem and the adverse selection problem.

The central dilemma investigated by the principal agent theorists is how to induce the agent to act in the best interests of the principal when the agent has an informational advantage over the principal and has differing interests from the principal. Sappington (1991) provides a discussion of the principal agent incentive problems. Principals must therefore balance agency costs against costs of debt finance and costs associated with not separating ownership from control. The theorists endeavor to find an optimum point of privatization where the marginal total costs (agency costs plus production costs) equal their marginal benefits.

Agency costs are transaction costs reflecting the fact that without incurring these costs it is impossible for principals to ensure agents will act in the principal's interests. Agency costs include the costs of investigating and selecting appropriate agents, gaining information to set standards, monitoring agents, bonding payments by agents and residual losses. Agency costs have policy implications in organizations namely:

- Information costs in contract management means that the agent has an informational advantage over the principal regarding performance points to the fact that a contractor may be able to impose high agency costs by resisting the principal's efforts to gain information. Information asymmetry in favor of the agent thus exists in all principal agent relationships and agents regard information as a source of power and therefore hoards and guards it. Waterman and Meier (1998) report that the more uncertain the outcomes the more the agent will have incentive to resist the principal's information gathering efforts so as to encourage behavioral rather than outcome performance standards. Mahler and Regan (2005) document that by reducing the costs of information gathering to the principal because of the internet, control of the agent and his outcomes became easier and more effective.
- The goal incongruity between the principal and the agent increases the agent's incentive to withhold information from the principal (Simonsen and Hill,1995).
- Some agents are more risk averse than others because they cannot diversify their employment easily. Risk averse agents are more prone to withhold information from principals, increasing agency costs.
- Interdependence can also make processes more complex and uncertain, in turn increasing the agency costs of obtaining information.
- The agent may not follow the intent of the principal when there is insufficient investment in communication channels by the principal resulting in lack of clarity and or consistency of messages from the principal. This results in communication costs (Goggin et al, 1990).

Herbert Simon (1957) emphasized that agents faced with information costs in the present and uncertainty about the future which limits their decision making ability may be forced to make decisions by seeking first a satisfactory solution rather than an optimizing solution that will require full information.

Implementing this framework in syndicated loans, the borrower (principal) pays the lead arranger (agent) an arrangement fee for the lead arranger to form the most favorable syndicate on his behalf. This involves recruiting a sufficient number of loan participants, negotiating the contractual details of a loan, disseminating financial documents to potential participants and preparing adequate loan documentation. In all these activities the lead arranger is expected to act in the best interests of the borrower, but since his efforts are unobservable, there is room that he may not always act in the best interests of the borrower.

### **2.3.2 The Moral Hazard Problem**

Holmstrom (1979) postulates that moral hazard occurs when a party insulated from risk behaves differently than it would behave if it were fully exposed to risk. It arises when an agent does not take full consequences and responsibility of its actions. Moral hazard is also a bi-product of information asymmetry in which one party (the agent) has more information about his actions and intentions than the other party (the principal) who pays for the negative consequences of risk. Because of information asymmetries the manager takes actions as an agent of the principal but the principal has little information on which to judge the effectiveness of the manager's performance. In practice the principal relies and trusts the manager to act properly and in his best interests.

Under the moral hazard problem the issue facing the principal is how to persuade an agent to act so as to maximize the principal's interests. This can be achieved by close monitoring of the agent to reduce information asymmetries between the principal and the agent and also by the principal providing incentives to the agent so as to realign their objectives. In financial markets the banks possess superior information about the credit quality of their loans and this gives rise to the

moral hazard problem. The recent developments in the banking sector of originate-to-distribute model of banking exacerbates this problem (Berndt and Gupta, 2008). This model entails that the banks originate financial products with the primary motive of selling the products to willing buyers. This phenomenon is most prevalent in syndicated loans and loan sales where after closing the deal banks may impair their monitoring function to the potential detriment of other market participants. Early banking theories on information asymmetry and the need for monitoring by Leland and Pyle (1977), Diamond (1984) provide a background to motivate an empirical analysis on the issue. Diamond's (1984)'s insights on joint monitoring apply to syndicated loans. He reports that monitoring of debt obligations by multiple creditors results in higher costs and inefficient free riding and the creditors perceiving this, delegate the monitoring function to one creditor who faces incentive problems given that the benefits of monitoring apply to the whole syndicate loan and not to his portion of the loan amount alone. Gorton and Pennachi (1995) show that in syndicated loans the lead arranger is the informed lender who is able to monitor and learn about the borrower through unobservable and costly effort. The participant lenders are the uninformed lenders who rely on the information and monitoring provided by the lead arranger to make lending decisions. This information asymmetry promotes the moral hazard problem given that the efforts of the lead arranger are unobservable. The lead arranger's potential loss increases with the portion he retains after the syndication process and therefore his monitoring and due diligence effort declines as he sells more of the loan to syndicate participants. In the long run only reputation concerns by the lead arranger will govern his monitoring and due diligence if he holds none of the loan in his balance sheet.

In this framework the lead arranger exerts less effort in his responsibilities than he would if his actions were fully observable by the participant lender. Participant lenders anticipating this response choose to hold less of the loan and only invest in syndicated loans after the lead arranger has taken a sufficient financial investment in the loan to ensure that he will honor his obligations. The key assumption in the moral hazard framework is that lead arrangers cannot commit to doing the proper due diligence because their effort is unobservable and that if his efforts were perfectly observable, participant lenders would compensate the lead arranger for his monitoring and due diligence effort, the amount held by the lead arranger would be irrelevant.

### **2.3.3 The Adverse Selection Problem**

Adverse selection refers to a market process in which bad results occur because of asymmetric information between buyers and sellers. It arises when the principal is able to observe the agent's actions but is unable to verify whether the agent acted optimally or made the correct selection. In general adverse selection problems are resolved by signals which give high quality agents the opportunity to reveal their private information or self identity to the principal.

The adverse selection problem is best described by Akerlof (1970) paper "Market for Lemons". He points out that in the market place goods of different qualities exist and the owners, sellers of these goods know more about their goods quality than do the buyers. The potential buyers themselves know that the sellers know more about the quality of the goods than themselves. Because of this information asymmetry the market changes dramatically. He reports that in equilibrium goods available at a given price must be worth that price. This suggests that market quality is endogenous and it depends on price. When sellers have private information about a product's intrinsic worth they will only bring out good quality products into the market when prices are high. Buyers anticipating this behavior adjust the price they are willing to pay to reflect the quality of the goods they expect to buy at that price. To reverse the lemons problem the sellers must find a means to disclose information credibly and this is termed the Full Disclosure Principle, where in equilibrium all market participants will disclose their private information so as to signal quality.

Jones et al (2005) provide the theoretical framework to test the adverse selection problem. Because lead arrangers are typically the larger banks, they can be expected to know more about the credit quality of the loans they originate than the participants. This is because of the substantial economies of scale in information collection and monitoring process associated with large commercial lending. The lead arranger's specialization in information collection and monitoring processing and loan monitoring minimizes the total cost of loan production. Lead



arrangers are typically large banks with substantial reputation capital to protect, and therefore have greater incentive to gather and process information on borrowers. This creates information asymmetry between the lead arranger and the participant lenders.

It is possible that lead arrangers can choose to exploit the private information that they have on prospective borrowers by syndicating more of the lower quality loans to participant banks as the participant banks are unable to verify whether they would have acted optimally in such a decision. To mitigate this problem Gerton and Pennachi (1995) postulate that, lead arrangers are interested in protecting their market reputations and may refrain from exploiting any information advantage for short run gains. This problem can also be mitigated by the participant lenders themselves if they had some signal about relative loan quality. In such a situation participant lenders sensing exploitation can decide to hold smaller loan portions forcing the lead arranger to strictly monitor the borrower. Participant lenders can also adjust their demand for opaque loans forcing the lead arranger to retain a higher loan share. Thus although a positive relation between loan credit quality and retained agent loan share would indicate that agent banks exploit information asymmetries, a negative relation does not necessarily indicate the absence of adverse selection in allocating loan shares to syndicate participants.

#### **2.3.4 Corporate Reputations**

A corporate reputation is a collective representation of a company's past actions and future prospects that describe how key resource providers interpret a company's initiatives and assess its ability to deliver valued outcomes. Weiglet and Camerer (1988) define corporate reputation as a set of attributes ascribed to a firm, inferred from the firm's past actions. Corporate reputations are intangible economic assets that contribute to the competitive advantage of a company. Reputations are externally perceived and are largely outside the direct control of firm's managers. Barney (1991) reports that reputations impede mobility and produce returns to firms because they are difficult to imitate. Reputations matter because they create value by attracting more and better resources to better regarded companies.

Formbrun (1996) reports that reputation markets show tendencies of winner-take-all environments in which few companies come out on top and most others lose. Disproportionate visibility and attention accrue to winners because of the bandwagon process that exaggerate minor differences in performance and fuel imitation. Bandwagons are developed as slight differences between companies induce companies to advertise their superiority increasing their familiarity and reputation. Dobson (1993) investigated the extent to which the agency problems of moral hazard and adverse selection are ameliorated by an agent's desire to build and maintain reputations in a multi-period environment. He reports that contractual environments characterized by the moral hazard problem, reputation can act as a contractual enforcement mechanism while in contractual environments characterized by the adverse selection problem reputation can actually compound the agency problem. These findings suggest that caution should be exercised when relying on an agent's reputation to enforce a contract.

Favorable reputations can generate excess returns for firms by inhibiting mobility of rivals in an industry (Caves and Porter (1977). Klein and Loffler (1981) document that favorable reputations may enable firms to charge premium prices and enhance their access to capital markets (Beatty and Ritter (1986). Dowling (1986) shows that corporate audiences routinely rely on the reputations of firms in making investment decisions, career decisions and product choices.

Boot et al (1993) studied why financial contracts often allow participants a measure of discretion as to whether to honor or repudiate them. In most instances financial institutions will honor such contracts because of reputation concerns. The better an institution's reputation, the more the market will be willing to pay for its guarantees. He reports that discretionary contracts provide institutions with additional degrees of freedom by allowing the institution to either honor them or repudiate them in managing its assets. These contracts also monetize reputation capital by allowing for adjustments on a firm's reputation capital. They also facilitate reputation enhancement through repeated honoring of these contracts.

Gopalan et al (2008) provides a theoretical framework to test the reputation hypothesis. Participants in the loan syndications delegate monitoring and screening responsibilities to the lead arranger and this can lead to information and agency problems of adverse selection and moral hazard. A non-contractual mechanism that can mitigate the agency problem is the lead arranger's concern for his reputation in the loan syndications market. This is because the loan syndications market is that of repeat business between the lead arranger and the participants, the participants who possess long organizational memories. This gives the lead arrangers incentive to develop and maintain a reputation for quality in performing due diligence and monitoring. Uncertainty about a lead arranger's ability and willingness to monitor and screen borrowers can result in the loss of reputation by the lead arranger in the market. Such a loss in reputation could negatively affect the lead arranger's ability to attract participants and syndicate loans in the future.

A loss in reputation should result *ceteris paribus* in severe agency problems and to mitigate this the lead arranger should signal to other participants his commitment to monitoring and screening by retaining a higher portion of the loan. Following a loss of reputation a lead arranger is expected to switch to more transparent borrowers who require less screening and monitoring as these borrowers have fewer information asymmetries.

Diamond (1991) model of reputation acquisition also provides a theoretical framework to test the reputation hypothesis. Diamond (1991) postulates that borrowers move from private sources of funding such as relationship bank loans to public debt by establishing a solid credit reputation through repaying loans. Monitoring becomes unnecessary as the borrower's reputation improves and thus the borrower no longer relies on commercial bank for funds. In this model borrowers with little or no credit reputation obtain loans that are similar to sole lender loans with the lead arrangers retaining a substantial portion of the loan and fewer participant lenders in the syndicate. A heavily concentrated syndicate is thus formed. Reputable borrowers on the other hand obtain loans that are similar to public debt with the lead arranger retaining a smaller share of the loan. The syndicate is dispersed because reputable borrowers have no problems attracting participant lenders.

## **CHAPTER THREE**

### **3.1 Data**

The primary data source used to evaluate loan syndications is from two banks who prefer to remain anonymous. The data from these two banks shows comprehensive information on the deals they participated in both at participant and lead arranger level. This information includes the total loan amount, number of participants and their respective shares of the loan, interest rates charged clearly showing the margin over benchmark, tenor of the loan, lead arranger's fee and other upfront fees charged to the borrower. Access to the term sheets and syndicate loan agreements was also given for every transaction these two banks participated in. As the South African syndicated loans market has few market players the likelihood of these two institutions participating in similar transactions is very high, therefore care was given to remove duplicate transactions from the sample.

Another source of data used in this research was the Export Credit Insurance Company of South Africa (ECIC). ECIC provides insurance cover on risks associated with investments and loan finance for capital goods and services projects in foreign countries. The cover is offered to financial institutions who provide loans for overseas enterprises and projects against political risks. It provides insurance against default on a loan payment where the direct cause of default is due to political events as listed under insurance coverage. Thus all South African domiciled financial institutions that participate in syndicated loans abroad make use of this facility to cover themselves against political risk. ECIC provides a list of all transactions it has insured since its inception. It also provides country ratings based on risk. The information provided shows the insured party, the amount insured, the borrower, industry, the project being undertaken and the country of the borrower. Due care is also undertaken to eliminate deals already reported in the sample provided by the two anonymous banks. The media and internet provides coverage on almost all syndicated loan via their coverage of signing on ceremonies. At these ceremonies information on the total loan amount, participants and their shares, lead arrangers, co-lead arranger and tenor of the loan is disclosed. Transactions that were not covered by the media and internet were dropped from the sample because of insufficient information. Another source of information from the internet was the Dealogic website which keeps a database of all global loans.

Another source of data was the tombstones provided by banks usually at the end of each year. Banks use tombstones as marketing tools to signal to the market their experience and growth via transactions that they have participated in during the year. Typical tombstones show the borrower, loan amount and the bank's role in the transaction. Repeating the procedure outlined above for the ECIC, deals already captured in the sample are dropped. Using the internet and media resources, information obtained from the signing on ceremonies is incorporated in the sample and transactions where there is inadequate information are dropped from the sample. The resulting sample shows that banks repeatedly interact with each other in most transactions especially those where the borrower is domiciled in South Africa. For borrowers that are not domiciled in South Africa other regional players come into play in partnership with the developmental institutions such as Development Bank of Southern Africa, International Finance

Corporation and Development Bank of Africa. From an initial sample size of 112 syndicated loans, a final sample size of 68 syndicated loans is obtained from 1990 to 2010. Most of the transactions are concentrated in the period after year 2000. A total of 157 lenders participated in these loans. Some syndicated loans have more than one loan tranche and following Sufi (2007), a deal level analysis is employed to calculate the number of lenders and the amounts held by each lender. To ease the analysis, all loan amounts were converted into one currency, the United States dollar using the average exchange rate for the year 2010. According to INet Bridge the 2010 average was R7.43/\$.

This paper also analyses how information asymmetries influence the type of participants in the syndicate. To facilitate this information on the lenders location is extracted. Part of the analysis presented in this paper focuses on the reputations of the lead arrangers and the borrowers. For the lenders experience in specific transactions is employed as a proxy for reputation. For the borrowers, data is collected on their firm characteristics. Information on the financial position of the borrower, industry, perceived market share, location and total assets is obtained from the financial press and the internet. The borrower's market share is employed as a proxy for reputation.

### **3.2 Methodology**

The major part of the analysis presented in this paper focuses on the effects of information asymmetries and the resulting agency problems on the structure of the syndicated loans. The information asymmetries are in two forms namely, between the lead arranger and other syndicate members and between the borrower and syndicate members. Specifically the effect of information asymmetries on the lead arranger's retention ratio, the number of participants, the type of participants and the margin charged to the borrower is explored. To this end borrowing firms are classified as either opaque or transparent. Opaque firms are generally associated with severe information asymmetries and higher possibilities of agency problems while transparent firms are associated with little information asymmetries and agency problems.

To classify the borrower's as opaque or transparent a variety of measures are employed. Following Bosch (2006)'s reasoning, publicly listed companies can be regarded as more transparent than unlisted companies because of the regulatory requirements governing reporting. This reduces the levels of information asymmetries between borrowers and lenders. Another useful indicator of transparency is articulated by Gadanecz et al (2010). They suggest that the availability of credit ratings on a borrower is a useful a measure of transparency on a borrowing firm. The attainment of a good credit rating by a borrower reduces the information asymmetries between the borrower and lenders. This is because the providers of this information (rating agencies) have concerns about their own reputations and therefore do not certify inferior borrowers with good credit ratings. Country ratings are also employed as a measure of transparency. Country ratings cover political, economic, social and legal aspects of a country and thus can be useful in classifying borrowers into opaque and transparent. Although audited financial statements are available for the less transparent (opaque) borrowers, the assumption is that participant lenders are more dependent on the lead arranger for both its monitoring skills and its ability to collect detailed information when the borrowing firm is not publicly listed.

### **3.2.1 Information Asymmetry and Syndicate Structure**

An analysis is undertaken to examine how information asymmetries and the resulting agency problems affect the structure of the syndicate with special emphasis on the share retained by the lead arranger. The analysis explores whether syndicated loans to transparent borrowers who generally require less monitoring and due diligence than opaque borrowers result in the lead arranger retaining a smaller share of the loan. Transparency mitigates the moral hazard and adverse selection problem for the lead arranger as he does not have to retain a bigger share of the loan to signify his commitment to due diligence and monitoring. An analysis is also undertaken to ascertain the share of a syndicated loan retained by the lead arranger when the loan is extended to an opaque borrower. This analysis follows the theory developed by Holmstrom and Tirole (1997) where for opaque borrowers the lead arranger has to signify his commitment to monitoring and due diligence by holding a larger share of the loan.

The lead arranger's experience in similar transactions is employed as a measure of the information asymmetries between the lead arranger and the participant lenders. Employing experience as a measure of the information asymmetries between lenders is appropriate because as a bank is repeatedly exposed to similar transactions knowledge of the most intricate details of a transaction is gained. The other participant lenders can expect superior due diligence and monitoring from that lender reducing the moral hazard and adverse selection problem. To implement this, the borrower's areas of operations are divided into sectors namely Telecommunications, Energy, Transport, Mining and Water Infrastructure Development. The lenders are then sorted by experience in all the sectors highlighted above.

Using the above described methodology the effect of information asymmetries between lenders can be analyzed. The analysis determines the effect of a lead arranger's experience on the portion of the loan he retains after syndication. It ascertains whether a lead arranger with limited experience in certain transactions is forced to retain a larger share of the loan so as to signal his commitment to due diligence and monitoring. The analysis determines if the hypothesis is true for the experienced lead arranger in that he may not need to retain a higher stake of the loan as the other lenders may assume that he possesses superior monitoring and due diligence skills in that area. The Herfindahl index is calculated as a measure of the concentration of holdings a syndicate. It is calculated using each syndicate member's share in the loan and it is the sum of the squared individual shares in the loan, varying from zero to 10 000 with 10 000 being the Herfindahl when a lender holds 100% of the loan.

### **3.2.2 Information Asymmetry and Number of Participants.**

The above outlined methodology of classifying borrowers into "opaque" or "transparent" is also employed to analyze the how information asymmetries affect the number of participants. Syndicated loans being a hybrid of public and private debt, the lead arranger first establishes a relationship with the borrower then sells part of the loan to willing buyers. Borrower information



asymmetries can influence the saleability of the loan to other lenders as the other lenders may perceive the risk to be too high. The analysis determines if opaque borrowers attract fewer participant lenders than transparent borrowers resulting in a concentrated syndicate. In the same vein the analysis determines if an inexperienced lead arranger in a certain sector may find it difficult to attract participant lenders than an experienced lead arranger as other lenders may be uncertain about his monitoring and due diligence efforts. An inexperienced lead arranger may thus form a more concentrated syndicate than that of an experienced lead arranger.

### **3.2.3 Information Asymmetry and Participant Choice.**

Classifying borrowers as transparent or opaque and lenders as experienced or inexperienced, an analysis is made to determine the effect of information asymmetries on the participant lenders that end up as syndicate members. First the analysis examines whether lead arrangers select potential participants that are more familiar with the borrowing firm when information asymmetry problems are potentially severe. Focus is on the characteristics of the lenders given that the lenders are approached by the lead arranger and how these characteristics vary with the opacity of the borrower. The hypothesis is that opaque borrowers find it difficult to attract participant lenders and the lead arranger anticipating this may approach lenders who are closer to the borrower geographically and in terms of previous relationships Sufi (2007) so as to minimize the costs of information gathering on the part of participant lenders. For inexperienced lead arrangers they may try to augment their limitations by bringing on board an experienced lender as co-lead arranger. By appointing a co-lead arranger an inexperienced lead arranger can tap into the co-lead arranger's expertise especially on due diligence thus enhancing his own experience in the process. An experienced lead arranger may on the other hand not need the services of a co-lead arranger and thus forms a syndicate with ordinary participants only.

### **3.2.4 Information Asymmetries and the Loan Margin.**

The impact of information asymmetries on the margins charged to the borrower is determined using the above methodology. Focus is on the information asymmetries between the borrower

and the participant lenders and how these affect the margin that participant lenders require to extend funds to the borrower. Opaque borrowers have a higher perceived risk than transparent borrowers and lenders require a higher margin on such loans. Considering that there is only one term sheet during the syndication which requires a unanimous decision, if some of the loan participants perceive the information asymmetries between them and the borrower to be high, they may press for a higher margin. On the part of inexperienced lenders other participant lenders may not be confident of the monitoring and due diligence effort of the inexperienced lender and can require a higher margin for their funds.

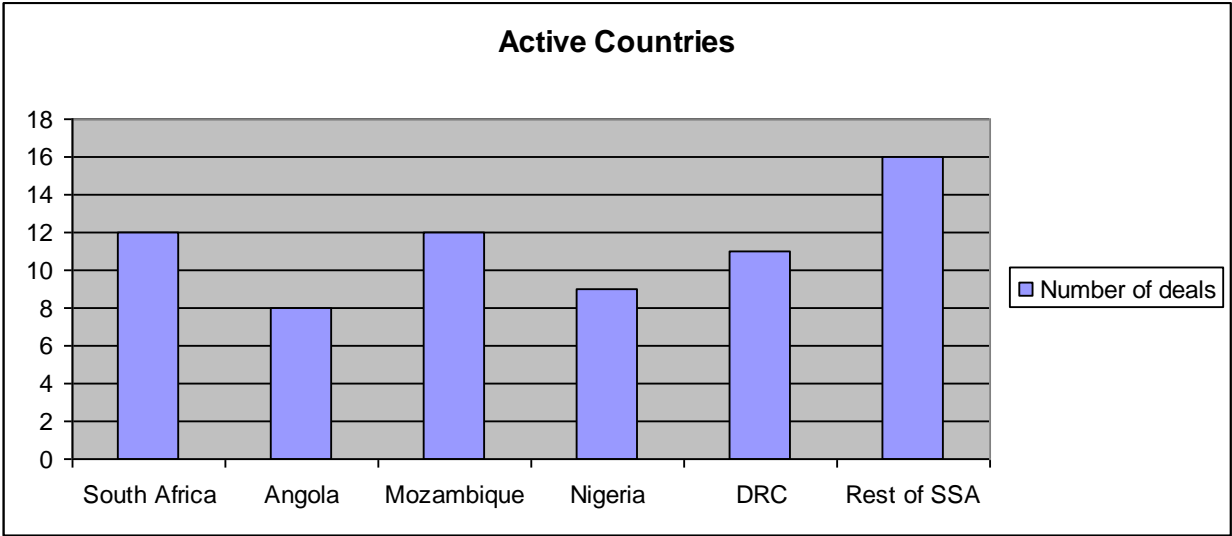
### **3.2.5 Reputation and Information Asymmetry Mitigation**

As highlighted above part of the analysis presented in this paper is to determine whether the reputation of the borrower mitigates the information asymmetries in syndicated loans. As already discussed above, when a borrower requires more investigation and monitoring effort, the lead arranger retains a larger stake of the loan and forms a more concentrated syndicate. Taking into account the fact that the syndicated loans market is one of repeated interactions, borrowers become more known to potential participants as they repeatedly access the market and thus the theory predicts that lead arrangers should hold less of the loan when a borrower develops a reputation in the market of timeous repayment. Classifying the lead arrangers as “experienced” and “inexperienced” based on whether the lead arranger has led a similar transaction in the same sector this paper determines if the lead arranger’s reputation can mitigate information asymmetries. Using the borrower’s market share to classify borrowers as “reputable” and “not reputable” this paper analyses if the borrower’s reputation can mitigate the information asymmetries in syndicated loans.

**CHAPTER FOUR**

**4.1 Analysis and Results**

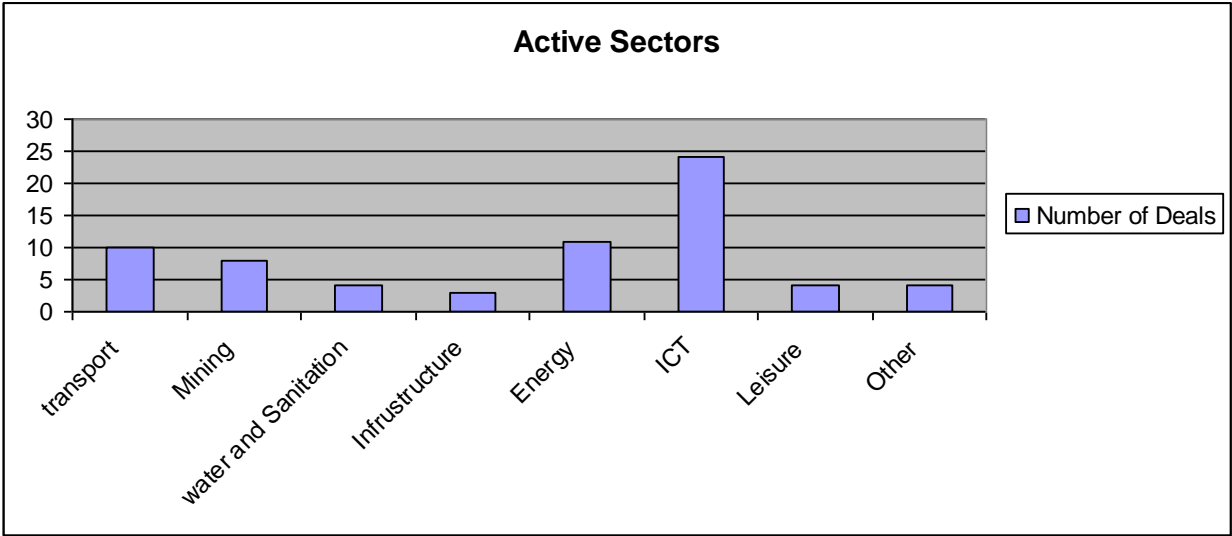
Figure 5, 6 and 7 diagrammatically shows the summary statistics for the 68 loans under analysis. The summary statistics are based on the actual figures of the loans under analysis.



**Figure 5 : Active Countries in Syndicated Loans**

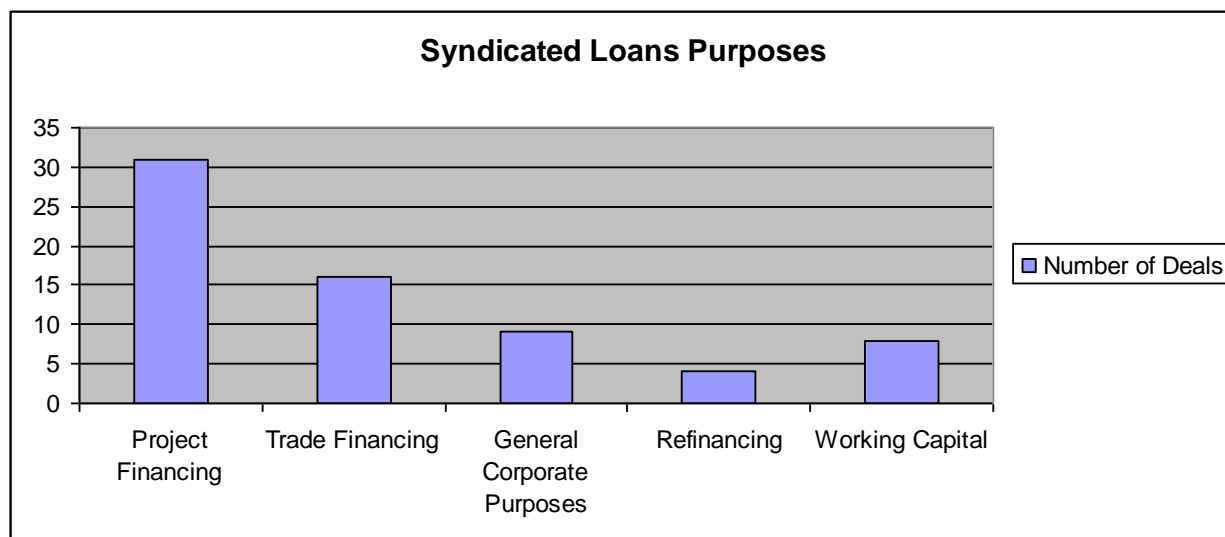
Figure 5 shows the country of origin of borrowers who seek syndicated loans from the South African lenders. Countries that are going through rapid economic development are the top

recipients of the syndicated loans with the exception of South Africa. Countries such as Angola, DRC and Mozambique present great opportunities for loan syndications as there is a strong need for infrastructure development and project financing after prolonged periods of political instability. In this analysis Angola, DRC and Mozambique received 43% of the syndicated loans under analysis. These countries are also popular with lenders because of the higher margins that are charged on the loans due to higher country risk.



**Figure 6: Active Economic Sectors in Loan Syndications.**

Figure 6 shows the sectors of the economy that actively seek syndicated funding. In recent years Information and Communication Technologies (ICT) sector has been the major recipient of syndicated loans as countries try to keep up with the ever-changing telecommunications sector. Transport and energy sectors are also popular as countries try to meet the demands of growing economies.



**Figure 7: Syndicated Loan Purpose**

Figure 7 shows the common purposes of the syndicated loans raised by South African banks. Project finance accounts for almost half of the loans raised signifying development in Sub-Saharan Africa.

**Table I**

**Summary Statistics for Syndicated Loan Deals**

This table presents the summary statistics of the syndicated loans. These summary statistics are calculated as averages of the 68 syndicated loans under analysis and are calculated at deal level.

	No of Deals	Mean	SD	Distribution		
				10th	50 <sup>th</sup>	90th
Syndicated loan characteristics						
Size of Deal (US\$ Millions)	68	117	287	25.5	90	300
Tenor (Years)	68	2.00	0.65	1	1.75	2.25
Margin Over LIBOR (basis	68	436	139	225	375	665

Points)	No of Deals	Mean	SD	Distribution		
				10th	50 <sup>th</sup>	90th
Syndicate Structure						
Number of lenders	68	5.6	2.8	2	5	11
Number of Lead Arrangers	68	1.8	2.1	1	2	3
Number of Participant Lenders	68	3.8	1.8	1	3	8
% of Loan Retained by Lead						
Arranger	68	29.87	8.7	14.6	26.75	65.8
Concentration of Syndicate						
(Herfindahl)	68	2658	1.274	985	2265	5897

The loan characteristics in Table I show that the average loan is \$117 million with a tenor of two years at a rate of 436 basis points above LIBOR. The average syndicated loan has 5.6 lenders, 1.8 lead arrangers and 3.8 participant lenders. On average the lead arranger retains 29.87% of the loan and using the Herfindahl index measure of concentration of holdings within a syndicate, the average value is 2658. The Herfindahl index is the sum of squares of the shares held by each lender in the syndicate. The index can range from 0 to 10000 and a Herfindahl index value of 10000 means the lead arranger holds 100% of the loan. The distribution of the syndicated loans is dispersed as evidenced by the wide range between the 10<sup>th</sup> percentile figures and the 90<sup>th</sup> percentile figures. The actual loan figures range from \$15 million to \$965 million. This pattern is true even for the syndicate structure. The total number of lenders in this sample ranges from 2 lenders to 11 lenders. A wide range is also clear in the analysis of the syndicate concentration with the degree of concentration ranging from 10.5% (1<sup>st</sup> percentile) to 72.68% (99<sup>th</sup> percentile).

**Table II**

## Top Lead Arrangers and Participant banks, by Number of Deals

Table II ranks the lead arrangers and the top ten participants by the total number of deals for the 68 syndicated loans under analysis.

<b>Lead Arrangers</b>		<b>Most Common Participant</b>	
<b>Bank</b>	<b>Total No of deals</b>	<b>Bank</b>	<b>Total No of Deals</b>
Standard Bank South Africa	15	World Bank	26
Nedbank	12	African Development Bank	21
ABSA	10	Standard Bank South Africa	19
		International Finance Corporation	17
Rand Merchant Bank	8		
Development Bank of Southern Africa	7	ABSA	14
		Industrial Development Corporation	9
International Finance Corporation	5		
African Development Bank	4	European Investment Bank	9
		Development Bank Of Southern Africa	8
World Bank	4		
Standard Chartered South Africa	2	Nedbank	8
		Mitsubishi Tokyo Financial Services	7
Citibank	1		

The sample results on the top ten lead arrangers and participants shows the dominance of the “Big Four” South African banks in the loan syndications market. Standard Bank with its presence in 17 African countries is able to capitalize on its network is the top lead arranger. Its dominance is also felt as it also appears on the top five participants list. Global development institutions appear to dominate the participant lenders list signifying their commitment to the development of the African continent.

Table III presents the means for the transparent and opaque borrowers. The opaque borrowers account for 67% of the syndicated loans. This result is robust given the fact that most of the funds raised are for borrowers domiciled in Africa where most of the borrowers have no credit ratings and their country ratings are poor. Opaque borrowers obtain smaller loans with shorter tenors and at a higher margin than the transparent borrowers. In terms of the syndicate structure transparent borrowers have larger numbers of lenders, lead arrangers and participant lenders than the opaque borrowers. The lead arranger retains a smaller percentage of the loan (24%) compared to (39%) for the opaque borrowers. The transparent borrowers syndicate is less concentrated than that of the opaque borrowers as by shown by a lower Herfindahl figure (2146 compared to 3346). These figures suggest that lead arrangers retain a larger share of the loan and form a more concentrated syndicate with fewer participants when borrowers are opaque. The results outlined in Table III are consistent with the theoretical framework of agency and moral hazard outlined in chapter two. Opaque firms are more difficult to investigate and monitor, which exacerbates the moral hazard problem for the lead arranger. Participant lenders are more reliant on the monitoring and investigation efforts of the lead arranger for loans to opaque borrowers, exacerbating the moral hazard problem. This induces the lead arranger to retain a larger share of the loan in order to attract uninformed capital from participant lenders. The results in Table III are consistent with moral hazard in a setting of information asymmetry as reported by Bosch and Steffen (2006), Sufi (2007) and Jones et al (2008).

### **Table III**

#### **Information Asymmetries and Syndicate Structure**

Table III presents the means by group for the sample of 68 loans under analysis. An “opaque” firm is a firm that requires intense monitoring and due diligence as it is not publicly listed, has no credit rating and its country rating is poor. A “transparent” firm is a firm that requires less monitoring and due diligence as it is publicly listed, has a good credit rating and country rating.

**Opaque Borrowers      Transparent**



		<b>Borrowers</b>
<b>Loan Characteristics</b>		
Percentage of Sample Loans	0.67	0.33
Loan Size (US\$ Millions)	245	294
Tenor (Years)	2	3.25
Margin over LIBOR (basis points)	565	325
<b>Syndicate Structure</b>		
<b>Characteristics</b>		
Number of Lenders	4.85	6.45
Number of Lead Arrangers	1.3	2.15
Number of participant banks	3.55	4.3
% of loan retained by Lead Arranger	38.58	23.67
Concentration of Syndicate	3346	2146

**Table IV**

**Information Asymmetries and the Lead Arranger Reputation**

Table IV measures the impact of the lead arranger’s reputation on the information asymmetries using previous experience as a proxy for reputation. The figures presented are means when the lead arrangers are classified as “experienced” and “inexperienced”.

	<b>Experienced Lenders</b>	<b>Inexperienced Lenders</b>
<b>Deal Characteristics</b>		
Number of Lenders	7.35	5.26
Number of Lead Arrangers	1.68	2.14
Number of Participant Banks	5.67	3.12

% of Loan Retained by Lead		
Arranger	28.94	29.32
Concentration of Syndicate	2356	3487
Margin over LIBOR (basis points)	368	387

The theoretical framework discussed in this paper predicts that when the borrowing firm requires more intense investigation and monitoring, the lead arranger retains a larger portion of the loan as a signal to the participant lenders of his commitment to costly effort. A characteristic of the syndicated loans market is repeat interactions amongst lenders which leads to reputation building. It can therefore be anticipated that reputable lead arrangers can overcome moral hazard concerns without retaining a larger share of the loan. Based on the analysis of the 68 syndicated loans the results show no significant differences in the retention ratios of the experienced and inexperienced (28.94% compared to 29.32%). The syndicates formed by the experienced lead arrangers have a higher number of participant lenders than the inexperienced lead arrangers (5.67 compared to 3.12). The syndicates are also less concentrated than those of the inexperienced lenders.

These results suggest that in South Africa and Sub Saharan Africa the reputation of the lead arranger is useful in attracting participants rather than ameliorating information asymmetries. This result is consistent with Gopalan (2008) where the loss of reputation by a lead arranger reduces his ability to attract syndicate participants and syndicate loans. Another explanation for the higher number of participants in the syndicates formed by reputable lead is given by Lee and Mullineaux (2004). They suggest that reputable lead arrangers form larger and more diffuse syndicates because reputation formation and maintenance requires a large network of contacts and frequent repeat business. Inexperienced lenders on the other hand have a higher number of lead arrangers in their structure. This result is consistent with the findings of Francois and Missionier- Piera (2007) who attribute the presence of co-lead arrangers as support for the

specialization hypothesis where multiple co-arrangers are employed because of their different competitive advantages in performing special tasks. Inexperienced lead arrangers may also be employing the services of experienced lenders as co-lead arrangers so as to capitalize on their knowledge and expertise in certain transactions. Through a series of contractual obligations the South African and Sub Saharan Africa syndicated loans market is able to ameliorate the problems of information asymmetries. It is standard in almost all the loans under analysis that independent experts in the form of accountants, lawyers and engineers are consulted on the loans at the expense of the borrower. These experts have concerns about their reputations and are expected to give a fair assessment on the loans and this reduces the information asymmetries between the lenders. It is also common that participant lenders are asked to sign an indemnity form that indemnifies the lead arranger from any form of litigation in the form of adverse selection. This encourages the participant lenders to conduct their own due diligence on the borrower. All syndicated loans are based on one term sheet for all lenders. This aids in ameliorating the agency problems especially the adverse selection problem as consensus on all loan terms is required before the signing off.

## **Table V**

### **Information Asymmetries and Borrower reputation**

Table V measures the impact of the borrower's reputation on the information asymmetries using the borrower's market share in its industry of operation as a proxy for reputation. Following Formbrun (1996), where he reports that reputation markets show tendencies of winner-take-all environments in which few companies come out on top and most others lose, this analysis employs a minimum of 30% industry market share as a proxy for reputation.

	<b>Reputable</b>	<b>Not Reputable</b>
<b>Deal Characteristics</b>		
Number of Lenders	5.78	5.43
Number of Lead Arrangers	1.64	1.89
Number of Participant Banks	4.14	3.54
% of Loan Retained by Lead		
Arranger	28.86	29.61

Concentration of Syndicate	2432	2614
Margin over LIBOR (basis points)	387	538

The results above suggest that the reputation of the borrower does not ameliorate the information asymmetries in the South African and Sub Saharan Africa loan syndications market. This is because the results show no difference in the structure of the syndicates formed for reputable borrowers and borrowers who are not reputable. The only difference noted is in the margin charged the reputable borrowers compared to the margin charged borrowers who are not reputable. This result is consistent with the findings of Bosch (2006) where reputable transparent borrowers are charged lower margins than opaque borrowers because investors demand a risk premium to hold securities with higher information asymmetries. Reputable borrowers are charged a significantly lower margin than that charged to borrowers with no reputation. This suggests that borrower reputation only aids in improving the borrower's credit risk. It would however be interesting to note the results had borrower's previous lending history had been employed as a proxy for reputation. This was however not possible in this sample analysis as for most borrowers no history was available.

#### **4.2 Moral Hazard Versus Adverse Selection.**

The following discussion tries to distinguish from the results presented above between the moral hazard and adverse selection problem and to find out which of the two problems is prevalent. The key distinction in the adverse selection and moral hazard hypotheses is the assumption of where the information asymmetry originates from. In the adverse selection hypothesis the lead arranger has private information on the borrower that the other participant lenders do not have. In the moral hazard hypothesis, all lenders are unfamiliar with the borrower and the moral hazard problem is most severe when the lead arranger must learn about the firm. The results above can be interpreted as predominantly moral hazard with respect to lead arranger effort in monitoring and investigation. This paper's intuition is that, had the adverse selection problem been dominant then the results for the reputable borrowers would have shown lead arrangers retaining a smaller

fraction of the loan and forming a less concentrated syndicate than that of the less reputable borrowers. This result however is not conclusive as the analysis employed the borrower's market share as a proxy for reputation due to data limitations.

## **CHAPTER FIVE**

### **5.1 Summary and Conclusions**

Syndicated lending represents an important source of funding in South Africa. Companies are increasingly turning to loan syndications to fund their operations because of their flexibility and convenience. This report provided an in-depth analysis of the South African loan syndications market. The South African syndicated loans market dominated by commercial banks and development agencies who aid borrowers in raising large amounts for money for various corporate purposes. The common reason for accessing syndicated loans in South Africa is for project and trade financing. The sample shows that the major sectors of the economy that syndicated loans are raised for are energy, transport, mining, water sanitation and telecommunications. The lenders exhibit bias towards participating certain sectors of the economy while avoiding other sectors. This is attributed to internal company strategies and mandates. For example DBSA does not participate in projects that manufacture weapons of war and that do not result in the creation of jobs for the masses because of its developmental mandate.

The primary objective of this paper was to analyze the effect of information asymmetries on the syndicate structure. Consistent with Sufi (2007) the results show that information asymmetries as shown by the borrower's level of transparency affect the structure of the syndicate. The lead arranger's retention ratio determines the structure of the syndicate. It follows that if a lead arranger retains a higher stake in the loan then the resulting syndicate will be concentrated as a smaller part of the loan will be open for syndication. The results show that lead arrangers in South Africa on average retain 30% of the loan amount, though this figure can be adjusted to suit the circumstances surrounding the loan. The retention ratio of the loan is used to address the moral hazard problem in loan syndications in South Africa. Consistent with Gerton and Pennachi (1995) participants in the loan syndications appear to commit to funding a loan only after the lead arranger has signaled his commitment to due diligence and monitoring by an appropriate retention ratio. The retention ratio is adjusted appropriately depending on the lead arranger. The results show that loans with longer tenors that are arranged by commercial banks have lower retention ratios than those arranged by development banks. This is attributed the fact that commercial banks obtain most of their funding from short term deposits and in an effort to match their assets and liabilities they cannot heavily commit to long term loan. This is contrary to the assertion that lead arrangers may retain lower portions of unfavorable loans. Development banks

on the other hand are funded by long term funds and therefore are able to commit to loans with longer tenors.

The South African and Sub Saharan Africa syndicated loans market uses experience as a proxy for reputation as most participants show bias towards participating in certain sectors of the economy. The results show that when the lead arranger is reputable, the moral hazard problem is reduced as they do not have to signify their commitment to due diligence and monitoring by retaining a higher portion of the loan. Less reputable lead arrangers retain a higher portion of the loan in an effort to signify their commitment to due diligence and monitoring. In an effort to enhance reputations, lead arrangers that are not reputable appoint co-lead arrangers who are reputable in that sector so as to benefit from their experience. Even when the mandated lead arranger has no funding limitations, the presence of an experienced co-lead arranger is an enhancement strategy especially when the size of the transaction is large.

Part of the analysis presented in this paper analyzed the effect of information asymmetries in the number of participants willing to take part in the loan. The results show that the credit quality of the borrower (as represented by the borrower's level of transparency) affects the number of participants willing to take part in the loan. This is because of the perceived risk of opaque borrowers and this is heightened when the borrower's country risk is high. Borrowers from war torn countries and countries with no legal framework in place such as DRC attract fewer participants than borrowers from peaceful countries. In this way country risk becomes an important consideration for lenders even in the presence of export credit risk insurance. The results also show that the credibility of the lead arranger is also an important determinant of the number of participants willing to work with the lead arranger. The South African loan syndications market places high value on the experience of the lead arranger. Inexperienced lead arrangers find it difficult to attract participants because most of the participants though they are supposed to conduct their own due diligence they rely heavily on the lead arranger's due diligence, which in the case of inexperienced lead arrangers is questionable. This is the reason why co-lead arrangers are prevalent in the South African loan syndications market as it allows lead arrangers to compliment each other's experience in due diligence and monitoring.

To a lesser extent the number of participants willing to participate in a loan is influenced by the sector of the economy for which the loan is being raised. Over time there are some sectors that are considered as “hot” and these attract interest among the lenders. Projects on toll roads, tolled railway lines, tolled bridges, power generation and telecommunication cables are highly favored by lenders and attract a lot of interest. In contrast projects to finance weapons of war and launching satellites are not favored by many lenders and as expected they attract fewer participants. In light of the recent global financial crisis banks are now more aware of their risks and hence bigger projects generally have more syndicate participants as the lead arrangers make use of their network of international banks.

Contrary to the findings of Sufi (2007) this paper finds no evidence of information asymmetries influencing the type of lenders. Sufi (2007) reports that where information asymmetries are severe, the lead arranger approaches the lenders who know the borrower through previous interactions or through their close proximity with each other. This is done so as to reduce the costs of information gathering. South African lenders generally prefer rand denominated loans to United States dollar denominated loans a fact this report attributes to the exchange rate risk. Likewise other lenders outside of South Africa prefer United States dollar denominated loans to rand denominated loans. This paper finds evidence that the tenor of the loan affects the type of participants willing to participate in the loan. As discussed above commercial banks because of their source of funding are not willing to finance long term loans, thus loans with longer tenors are taken up by development institutions mostly while loans with shorter tenors are taken up by commercial banks.

This paper also made an analysis of the effect of information asymmetries on the margin charged to the borrower. All South African Syndicated loans are priced at JIBAR or LIBOR as the base rate and a margin is added on top of the base rate to signify the risk premium. This paper finds strong evidence that the margin charged to the borrower is based on the borrower’s transparency with the borrower’s reputation and country risk playing an important role. Opaque borrowers are



charged higher margins than transparent borrowers. Opaque borrowers are also charged higher upfront fees which are recovered immediately than transparent borrowers.

The second part of the analysis presented in this paper was to determine if the reputations of the lead arrangers and the borrower mitigate the information asymmetries that are inherent in syndicated loans. This paper finds no evidence that the reputation of the lead arranger can be used to mitigate information asymmetries. Instead the reputation of the lead arranger is useful in attracting syndicate participants. The reputation of the borrower improves his credit quality but does not mitigate the information asymmetries.

## **5.2 Limitations of the Study**

This report was limited by the unavailability of a centralized database of loan syndications in South Africa. Though many transactions, far more than the 68 transactions used in this report have occurred in South Africa many could not be used due to incomplete information. This resulted in this report relying heavily on the information provided by the two anonymous banks and the media. Though these banks are major players in the South African loan syndications market and their deals can be representative of the loan syndications market a more comprehensive analysis would have been desirable if information from all banks was obtainable. The participant banks' willingness to discuss the loan syndications market was low especially on the sensitive issue of the pricing structure of syndicated loans. A development of an association like the Loan Markets Association of London will be a welcome development in South Africa as it will simplify the data collection process.

Secondly, the use of credit ratings and public listings as a measure of transparency has its drawbacks as these measures are strongly related with the size of the firm which may ultimately impact the structure of the syndicates. Thirdly, the use of the borrower's market share as a proxy for reputation may not be appropriate as big companies can also default on their debt obligations. Its use was however due to lack of borrower's credit history.

### **5.3 Suggestions for Further Research**

This research shed light on loan syndications in South Africa and is an initial step to other possible avenues of research on syndicated loans. Another area of interest could be exploring if the growth of syndicated loans in South Africa has resulted in a lower cost of capital for the borrowers. Other studies could explore the intricate relationships with both local and foreign banks that the syndicated loans participants possess and how these influence the market. Following a study by Tereza Tykova (2007) “Who Chooses Whom? Syndication, Skills and Reputation” it will be interesting to analyze how such a study plays out in South Africa.

### **5.4 Overall Conclusions**

This report set out to study the impact of information asymmetries on the structure of syndicated loans. Strong evidence was found that information asymmetries influence the lead arranger’s retention ration with the lead arranger retaining a higher percentage for loans with severe information asymmetries. The results also show that opaque borrowers attract fewer participants for their loans and this concedes with the notion that information asymmetries affect the structure of syndicated loans in terms of the number of participants in the syndicate. This report however finds weak support for the notion that information asymmetries affect syndicate structures in terms of the type of participants. It is clear from the analysis that the type of participants is influenced by the tenor of the loan. Development institutions are comfortable with long term loans while commercial banks prefer short term loans. Rand denominated loans are mainly covered by South African domiciled banks while foreign currency denominated loans appear to attract the interest of foreign banks. Similar to traditional bank loans opaque borrowers are charged higher margins than transparent borrowers and in the case of syndicated loans the margins are even higher for borrowers domiciled in politically unstable countries. On the issue of reputations mitigating the agency problems in syndicated loans, this report finds weak support of this. Rather reputation, especially of the lead arranger, is important in attracting syndicate participants.

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