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Factors Contributing To A Successful Secondary Corporate Bond Market In South Africa

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internal and external factors, the higher the level of business risk, as uncertainty about future internal and external factors results in a greater variability in future profits and cash flow. This results in greater uncertainty or risk of default in the future.

Internal factors which impact future returns include those which alter the operating efficiency of the firm. For example, changes in management or labour problems may result in reduced operating efficiency and returns as a change in management in an organisation could result in reduced efficiency with lower returns. A company with an unstable management in a constant process of change therefore has an inherently greater level of internal business risk. Similarly a business with an unstable labour force has a greater degree of internal business risk than a company with a very stable labour force.

Companies with unstable and uncertain external factors are subject to a substantially higher level of business risk, than companies with more stable and certain external factors. These external factors may include changes in competition and markets. Therefore companies in industries with numerous competitors and numerous changes in those competitors will be subject to a greater level of business risk. Similarly, where products and markets are continually in a situation of flux, those companies, in that external environment, have a greater level of inherent external business risk (e.g. electronics manufacturers).

(ii) Financial Risk

Linked to business operating risk and an integral part of default risk, is financial risk. Financial risk is related to the manner in which a

company finances its activities, and can be assessed by reviewing its capital structure. This risk is created by the introduction of fixed financial obligations that a firm is required to meet. These obligations are a result of the need to service debt through the payment of interest and repayment of capital on maturity. Financial risk is created by the introduction of debt where a company unable to generate sufficient cash to meet debt and interest charges would be in default.

Despite this financial risk, firms are attracted to debt finance due to the leverage advantages they may obtain. Where interest charges are below the return on the funds invested, debt will reduce the companies cost of capital resulting in superior returns to the particular firm. When applied with its assumptions this is contrary to Modigliani and Miller's (M-M) theory. M-M argue that the mix of debt and equity is irrelevant in obtaining the optimal capital structure and that investors will arbitrage out any superior return enjoyed on a leveraged company's shares. This will result ultimately, in the same cost of capital, regardless of capital structure. Underlying the basic propositions of the M-M theory are several assumptions. The basis of these assumptions is that capital markets are perfect. They assume that information is costless, there are no transactions costs and no taxes exist (Miller and Modigliani - 1958 - pg.240-2).

These assumptions do not apply in practice as capital markets are in reality imperfect. The existence of imperfections restricts arbitrage and also creates costs. Costs of bankruptcy exist in the real world and consequently highly levered firms which run greater risk of bankruptcy are more exposed to this. Bankruptcy costs therefore increase financial

risk and push up the premium or cost of capital, due to the losses that may occur in the case of bankruptcy (see Fig 3.2).

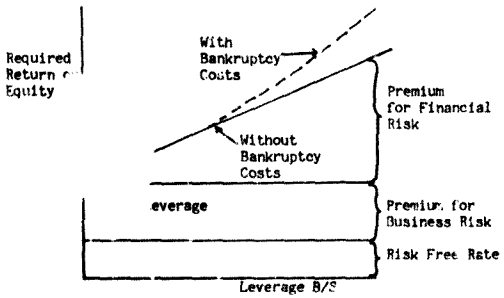


Fig 3.2

Source: Van Horne, J.C. - Financial Management and Policy - 1980 - pg.276.

Other market imperfections that disprove the assumptions of M-M also have an impact on premiums. These are not discussed in any detail as they are outside the area covered by this paper. These restrictions include the existence of taxes and the inability of investors to borrow at the same rates as companies. The effect of these is to alter the shape of the cost of capital line. The effects of tax serve to reduce the cost of capital while bankruptcy costs, increase the cost. The graph below shows the interaction of these factors and that an optimal structure is ultimately reached (Fig 3.3).

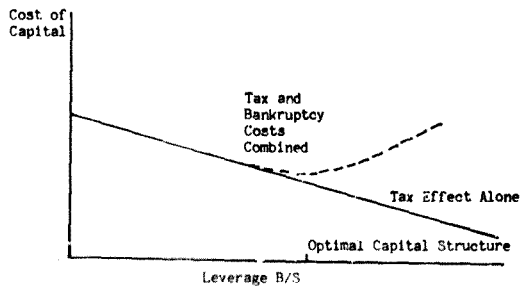


Fig 3.3

Source: Van Horne - Financial Management and Policy - 1980 - pg.283.

These market imperfections illustrate that an optimal capital structure exists in reality and that financial risk is increased by gearing which creates a risk premium. It is also suggested that this premium is reflected in both the value of equity and debt. This is due to the market imperfections adding costs to lenders, as the major risk to which lenders are exposed is failure to meet obligations and resultant bankruptcy. The recovery of capital and interest may be delayed in these circumstances and involve costs to lenders as third parties become involved whose costs must be deducted from the liquidation proceeds (even if debt is secured). Therefore in practice lenders are likely to incur costs and when debt is unsecured may not recover the full amount of their capital and arrear interest. As the bankruptcy costs, initially assumed away by M-M, do exist in practice, the increased likelihood of their occurrence will add a premium to the value of all securities, including debt.

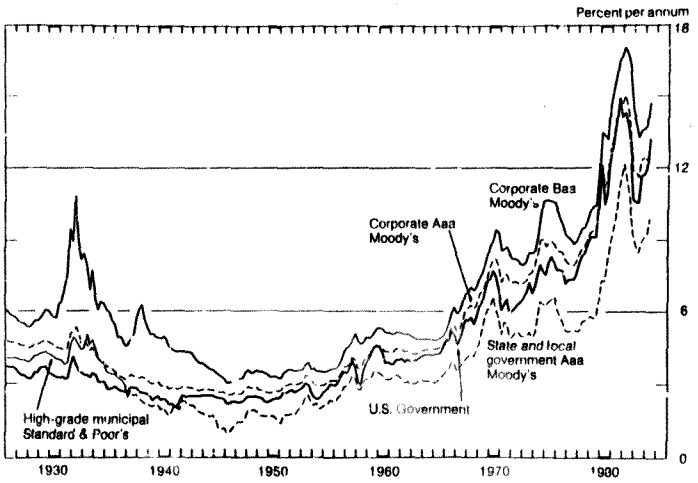
In practice, financial risk and business risk are also inter-related. Where earnings are erratic and business risk is consequently high, the risk of failure is higher and as a result pushes up financial risk. Therefore improved operating efficiency can reduce business risk. This, as Frederick Joseph points out, is essential to reducing financial risk, as it is the firms' operating ability and its cash generating capabilities that ultimately services the debt (*Financial Executive* - October 1986). Stable operating performance ensures more predictable cash flows and provides greater assurance that debt will be serviced.

3.3 The Impact of Risk on Yield Curves

All the risks identified do in some or other way affect yields. The systematic risks which impact yields, result only from movements in the factors identified previously. For example, purchasing power levels or interest rates are not risks in themselves and at a point in time the effect on bond prices will be the same across all categories of bonds. Yields will move as a result of changes in interest rates or inflationary expectations. The risk is therefore that bond yields will alter as a result of changes in these factors.

Unsystematic risks differ in that they are reflected in a bond premium or spread. Therefore a specific category will at any particular time (for the most part) enjoy a certain level of unsystematic risk (be it default or marketability risk) whereas bonds are exposed to systematic risk and react to changes in it. The diagram below (Fig 3.4) shows the yields for classes of bond over a period of time in the United States. The bonds in the chart include Municipal, Government, High grade and Medium grade corporate bonds. The chart illustrates that spreads exist

between the various classes of bonds, depending upon the risks to which they are exposed at a given time and how they interact.



Source: Investment Analysis and Portfolio Management
Cohen, Zinbarg and Zeikel - pg.462.

As indicated by Figure 3.4, unsystematic risks affect the premiums attaching to bonds and are therefore critical to understanding the valuation of bonds other than riskless government bonds. The impact of these is examined in the following section, which analyses the effects of the most important of these risks, namely default risk.

Before examining the effect of default risk on yields, it is necessary to briefly assess the impact of the various other components of unsystematic risk. These components include marketability risk and issue specific risks. Marketability risk is likely to be impounded into security prices by the level of activity in a particular security. Therefore less marketable issues are likely to trade at a premium as compared to more marketable issues.

Issue specific risks, such as a call option on bonds, are likely to have a similar effect, as an issue with a call option is likely to trade at a premium as compared with a similar issue without such an option. Other issue specific risks include reinvestment risk, the effect of which is similar to interest rate risk, and is not dealt with in this paper.

3.3.1 The Impact of Risks other than Default

The previous section has briefly examined the various risks affecting the values of corporate bonds, the most significant of which include marketability risk and call risk. These are "quantified" by markets and are impounded in the bond prices. These risks are therefore in themselves not likely to inhibit trade because of difficulties in their quantification and consequently in the determination of fair bond values.

Similarly, the effects of other unsystematic risks such as price risk and reinvestment risk, as well as systematic risks such as interest rate and purchasing power risk will not be impounded in a bond price premium, as these risks are risks of change as opposed to level and do not affect bond values at a point in time.

Default risk is, therefore, the only remaining risk and its impact on bond prices as illustrated by U S. research is very significant. The importance of quantifying bond risk is therefore critical to the valuation process, as is well illustrated by the research in the following section. This research highlights that bond prices are affected by their default risk and that default risk is well quantified by the quality ratings afforded corporate bonds in the United States.

3.3.2 The Impact of Default Risk

The research in this section shows that changes in economic conditions which increase the risk of failure, result in changes in default risk and as a result the yields on bonds. The research indicates that yields are affected by credit risk and that information is of significance in the valuation process.

Soldofsky and Miller analysed the interaction of risks, by measuring the standard deviations in returns of various categories of bond. Their analysis showed that the standard deviations of annual yields on long-term government debt was 5,12% whereas that in AAA grade bonds was 4,02, and 4,34% and 4,21% on AA and A grade bonds respectively (Soldofsky and Miller - Journal of Finance, June 1969, pg.444). This result would appear incorrect without understanding the interaction of various risk components, and without understanding the effects of default risk.

Long-term government bond yields are only affected by interest rates, purchasing power and market levels. Changes in their yields would only

arise as a result of changes in these factors. The risks to which government bonds are exposed would therefore include interest rate risk, purchasing power risk and market risk. Corporate bonds on the other hand are affected by other risks, and in particular they are affected, to varying degrees, by business or default risk (depending on their quality).

The risk components discussed above will offset each other at various stages of the business cycle. This is evidenced by the fact that yield variations are smaller in the case of corporate bonds, as compared with government bonds. The interaction of the above risks, is a result of their offsetting each other during the various stages of the economic cycle. During an expansionary upward movement in the economic cycle investors regard these bonds as improving in quality. This reduces the level of default risk to which these bonds are exposed, thereby reducing yields. However, the increased demand for money during an economic upturn causes interest rates to rise and prices to fall with these reduced levels of default and higher interest offsetting each other. This interaction does not occur in the case of long-term government bonds which are only affected by interest rates and other systematic factors such as market and purchasing power levels (Soldofsky and Miller - Journal of Finance, June 1969 - pg.445). The above analysis therefore provides evidence indicating that yield curves on corporate bonds are partly affected by the exposure of corporations to default risk.

In Soldofsky and Miller's analysis of the effects of the 1958 economic recovery on bond returns, further evidence was provided as to the effects of credit risk on bond yields. In their study they found rising

interest rates causing government bond yields to rise and prices to fall. A negative return of 5,3% was experienced on these bonds during this period. High grade bonds experienced a 0,5% negative return and lower quality bonds showed positive returns (Soldofsky and Miller - Journal of Finance, June 1969, pg.443). The results of the research completed indicate that the level of default risk declined due to the improved economic climate, resulting in lower yields.

The above findings are supported by Altman and Nammacher in their analysis of correlations between Treasury bond and Corporate bond yields. They found that yields on Treasury bonds and AAA-A corporate bonds have correlations of 0,86. Treasury Bonds have correlations of 0,77 while corporates with ratings have even lower correlations of 0,51 (Altman and Nammacher - Financial Analysts Journal - July/August 1985). This further illustrates the effects of default risk and the interaction of interest rates and default risk on yields. In the case of low-grade bonds the exposure to failure is higher and the impact of default risk is greater, as indicated by the lower correlation with treasury bonds.

Further effects of default risk and changes in bond exposure to this risk are illustrated in the empirical research discussed below. This research indicates that poorer bond quality and increased exposure to default risk will cause bonds to trade at a premium. The poorer the quality the greater is the bond premium, which indicates the significance of default risk in the valuation process.

(a) Empirical Studies on the Impact of Default Risk on Yields

Having established that default risk impacts the value of bonds the research discussed below highlights how bonds of lower qualities trade at premiums in relation to investment quality bonds. However, the results of these studies are not entirely conclusive, as some of the findings suggest that premiums on low grade bonds are in excess of risk, while others argue that these returns are fair. A review of research of company risk adjusted yields is provided below. In addition, in order to understand these relationships, research on the effects of economic conditions and the effects of interest rate movements on behaviour is analysed.

Weinstein (1987) reviewed the performance of low-grade bonds during the period 1962-74. The analysis did not distinguish between periods of stable and unstable interest rates and further, failed to analyse the effects of changes in the economic cycle. Weinstein found that the realised returns on lower-grade speculative issues were greater than those on high-grade bonds but that after adjusting for the effects of risk these excess returns were not significant (Weinstein - Journal of Portfolio Management - Spring - 1987).

Weinstein's study was completed by adjusting for differences in systematic risk (the unsystematic having been diversified away). Systematic risk contains an element of default risk, as global factors such as the economic cycle affect all corporate bonds. The systematic exposure of low-grade bonds to default risk is greater than high-grade bonds, although the extent of this component varies with the economic cycle. The risk adjusted returns during the period 1962-7[illegible] may

therefore have been higher as a result of the relatively good economic conditions during this period. It is therefore suggested that returns could well be in line with the quality ratings with which bonds are provided, and that bonds were in fact valued according to their respective ratings.

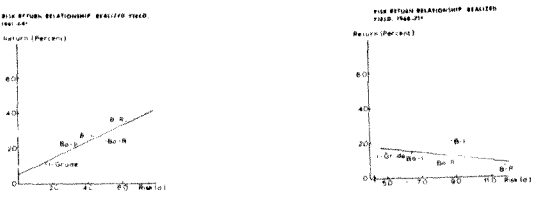
Ma and Weed (1986) in a study of takeover "junk bonds" (low-grade) found that these bonds were not mispriced on a yield to maturity basis. The results suggest that risk is properly discounted and that there is no significant evidence to indicate that these instruments are mispriced (Ma and Weed - Journal of Portfolio Management - Fall 1986).

Altman and Nammacher (1985) showed that low-grade bonds enjoyed substantially higher returns as compared with government bonds. During the period 1978 to 1983 they found that net returns were 4,9% to 5,8% above the government index and that default experience averaged 1,52% (Altman and Nammacher - Financial Analysts Journal - July/August 1985).

This study, despite these findings, did not conclude that low-grade bonds were mispriced, but that returns were impressive even after default. It was suggested that low-grade bonds are inherently riskier.

Joehnk and Nielsen (1975) found that high grade bonds have lower risk premiums. The researchers provide several factors that may explain why premiums on low-grade bonds appear excessive in relation to those of high-grade bonds. In the first instance, they argue that the risk of default is not only the risk that bonds will default but also the risk of market loss arising solely as a result of changes in the perceived

default exposure that is discounted in the value. Furthermore, they provide evidence of a downward sloping capital market line on low-grade bonds during periods of unstable interest rates (see Fig 3.5).



(a) Stable Interest Rates (b) Unstable Interest Rates

Fig 3.5

Source: Joehnk and Nielsen.

Therefore, while yields during periods of stable interest rates may appear excessive, such returns are likely to be reduced during periods of unstable rates and as a result may add an additional premium.

Although the research discussed about the bond valuation process is not conclusive, it does indicate that default risk has a major impact on the value of bonds and that these values in the U.S. adjust to discount the effects of this exposure. In South Africa, where there is no grading of bonds, it is not evident whether values would adjust correctly. It is suggested however, that difficulties in obtaining information on bond quality will impact this valuation process and inhibit the success of the corporate bond sector of the capital market as the lack of information on corporate bond quality will be an inhibiting factor. (The effect of information on a market's success is discussed in Chapter 4).

Before concluding that the U.S. market has information that is sufficiently accurate to assist in the valuation proce it is necessary to examine whether the quality rating systems discussed in Chapter 2 are accurate indicators of default risk on corporate bonds, and therefore provide investors with the necessary information to value these bonds and quantify their exposure to default risk.

3.4 The Accuracy of Quality Ratings as Indicators of Default Risk

The above research has shown that investors do rely on quality ratings to assist in the valuation process. This is indicated by the higher yields on low-grade bonds as compared with high grade bonds. In addition, the fact that low-grade bond yields rise during periods of economic recession further evidences this discounting process (Edgerton - Money, May 1978).

Altman and Nammacher, in their study, analysed default rates across bond categories. These results shown below are quite conclusive and indicate that during the period 1970 to 1984, 130 debt issues defaulted. Only 4 issues out of the total of 130 had ratings BBB or higher in the six months prior to default and only one issue had an A rating (Altman and Nammacher - Financial Analysts Journal - July/August 1985). This analysis indicates fairly conclusively that default risk is substantially higher in the non-investment speculative grade bonds of BA and below (i.e. based on the ratings system applied by Moody's Investor Services). Furthermore, the research indicates that quality ratings whether those of Moody's or Standard and Poor's are accurate indicators of defaults, and investors are therefore prudent to rely on these indices in valuing bonds and discounting risk.

3.5 Conclusion

Risk plays an important role in the valuation of bonds and predominates in the corporate bond valuation process. The corporate bond valuation process is further predominated by default risk, as shown by the research above. The magnitude of default risk as measured in the quality ratings afforded U.S. corporate bonds shows that these are extremely good indicators of this risk.

In South African corporate bond or debenture markets no formal rating system exists which could assist investors in the corporate bond valuation process. This limits the information available to the market and it is suggested that this must inhibit the pricing of debentures in the market. The lack of information will restrict the relative success of the market in South Africa (information being critical to a market's success) and although not the only factor is important in restricting the market in South Africa. It is unlikely, however, that the introduction of a rating system on its own will improve the corporate bond market, as certain structural restrictions may still preclude the effective use of this rating system. In particular, the prescribed investment structure for life assurers and pension funds would still be a major inhibitor, as this structure prescribes particular categories of investment as opposed to particular qualities. It is consequently suggested that the alteration of the prescribed investment requirement to a system of quality ratings would boost the corporate bond market significantly. These aspects are discussed further in Chapters 4 and 5.

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CHAPTER 4

THE STRUCTURE OF A SUCCESSFUL CORPORATE BOND MARKET

The corporate bond or debenture market forms part of the larger capital market. The capital market is the provider of long-term funds to companies in the private sector (e.g. South African Breweries) and to organisations and authorities in the public sector. These organisations and authorities in the public sector include the government, local authorities such as municipalities and utilities such as ESCOM, the Rand Water Board and SATS. The instruments traded in the capital market and their role are discussed in detail in the following sections, and include fixed income securities, shares, variable interest securities and negotiable documents.

This chapter will focus on factors which assist in the creation of a successful capital market and in particular a corporate bond market. It will deal with issues such as information availability and marketability which were discussed briefly in the previous chapter. In the previous chapter, the lack of information about bond credit risk (a bond rating system) was discussed. In dealing with the importance of information to a successful market the possible effects of a lack of information will be analysed. The importance of marketability of instruments and the factors that contribute to the improved marketability of securities and consequently the market's success are also discussed.

Having identified the factors which contribute to the efficiency and resultant success of a financial market, their contribution to the massive growth in the S.A. public sector debt market will be analysed.

In this analysis it will be seen that many of the factors which have contributed to its success correlate with the "necessary criteria" identified in the report. The chapter will also show that the private sector debt market is substantially smaller than the public debt market. Factors which have contributed to this, include inefficiencies in the operations of the market. These inefficiencies are to some extent a result of operational inefficiencies, while others are a result of business restrictions and market expectations. It is however suggested in the chapter that the non-existence of a successful corporate debt market is only partly as a result of these factors and that several other factors have to a lesser or greater extent also inhibited this market. These are briefly dealt with in Chapter 5.

4.1 The Capital Market and its Role

As explained in the introductory section of this chapter, the capital market is the provider of long-term finance to public and private sector organisations. This market provides organisations in these sectors with the permanent component of their finance. In the private sector, companies usually raise finance through the issue of shares or debentures (i.e. fixed income securities). In some circumstances, variable rate securities are also used to raise finance although, as indicated in a later section, these securities are seldom used and the secondary market for them is relatively unsuccessful. In addition, the instruments issued are not necessarily pure debt instruments or shares and many companies issue combinations of these instruments. Such combinations may include convertible debentures and redeemable preference shares. Convertible debentures are fixed income securities which offer investors the possibility of conversion into equity shares.

Redeemable preference shares are fixed income shares whose redemption is based on the issue terms. The income of these differs from interest and has the characteristics of a dividend, and is taxed differently.

In the public sector virtually all the finance is raised through the use of fixed income securities, although a few variable interest securities do exist. For the abovementioned reasons, the use of variable interest securities is very limited. The public sector debt market will be examined in more detail in later sections of this chapter.

The role of the Capital market should be distinguished from that of the Money market. As previously mentioned the capital market is the provider of long-term funds for periods of greater than 12 months and in certain circumstances longer than three years. The distinction between instruments in these two markets often comes about as a result of the SARB liquid asset requirements, which banks and other financial institutions are required to observe. These short dated securities trade in the Money market, while longer dated instruments trade in the Capital market. Aspects such as the issue and dealing mathematics are the same in both markets, although the market location and the intermediaries as well as their objectives may differ (W.J. Kok - 1986 - pg.249).

In South Africa trade in the capital market is dominated by institutions, who also dominate the foreign markets. However the market differs from those in countries such as the U.S. in that the public sector component forms a far greater proportion of the South African capital market. The statistics below illustrate the large public sector

component of the South African market.

TABLE 4.1 : COMPONENTS OF S.A. CAPITAL MARKETS

	1984 S.A. Volume (mill)	%
Shares	3 800	12,5%
Private Sector Debt	100	0,3%
Public Sector Debt	26 573	87,2%
	30 473	

The institutions that invest in capital market instruments include pension funds, insurance companies, banks and building societies. These institutions are required to invest a portion of their funds in what are referred to as prescribed investments. These prescribed investments are stocks issued by public sector organisations and are termed gilt and semi gilt-edged securities. A large proportion of institutional funds are therefore drawn into capital market instruments and a substantial portion of the balance is invested in other sectors. These sectors may include equities and corporate debentures, where these offer attractive returns in relation to risk. The need to offer attractive returns has resulted in public institutions offering these securities at higher yields. This has also contributed to the growth of this sector of the public debt market.

The above section introduced the role of the capital market in S.A. Before examining the factors contributing to a successful financial market, and in particular the corporate bond market, it is necessary to examine the securities that may trade in this market.

4.2 Capital Market Instruments

There are four broad categories of capital market instrument. These are fixed income securities, variable income securities, shares and negotiable documents.

4.2.1 Shares

Shares are issued by companies in the private sector and in most circumstances represent ownership in the company. These residual returns represent the profits of the company and in most cases the returns of these securities are based on profit. As shares, with the exception of preference shares, represent ownership, they have no maturity date. Due to the representing ownership they receive the residual share of profits and therefore carry more risk than other securities such as debentures.

Preference shares do not usually represent ownership and will, only in certain circumstances, have voting power. Various combinations of preference share and ordinary (equity) shares exist. These may include convertible preference shares and participating preference shares.

4.2.2 Variable Interest Securities

Variable interest securities exist, although they are fairly uncommon. These instruments have been created by the need to offer investors a real rate of return in times of inflation. The market for these instruments is, however, undeveloped and in effect no real trade takes place in these securities as a result of their being unattractive, due to their lack of tradeability. The major factors inhibiting their trade

are the dificulties involved in valuing them in the secondary market. These difficulties are due to the variable patterns of income which makes future earnings difficult to predict and their present value difficult to discount (M.J. Cook - 1986 - p.262).

Mortgage bonds and some debentures are subject to variable rate terms but are unlisted. A more recent issue of variable rate debentures in S.A. was that of Highgate investments on the JSE in the latter part of 1987. In the public sector some variable interest securities have been issued, although their lack of attraction has resulted in them being discontinued.

4.2.3 Negotiable Documents

These represent options or rights to purchase or sell shares at a particular date. The terms of these instruments may vary. The market for these instruments, for example, an option to sell or purchase debentures, is identical to that of the particular security.

4.2.4 Fixed Income Securities

These instruments make up the largest section of the S.A. capital market, and finance a substantial portion of the public and private sector's long-term capital expenditure. Trade in the public sector of this market is substantial, making up about 90% of total trade in the S.A. secondary capital market.

The public sector instruments are referred to as gilts and semi-gil's. These instruments are guaranteed by the government in the case of default. Government stocks (RSA stock) are known as gilts and are risk

free (i.e. totally free of default risk). Semi-gilts are "lower" category instruments and consist of public authority stocks such as Escom, SATS and municipal authorites.

The private sector raises finance through some marketable instruments (debentures) and through negotiating long-term loans with bankers and other financial institutions. Mortgage bonds and participation mortgage bonds are further types of long-term finance developed to provide borrowers with funds but are generally not publicly traded. Debentures are the only major category which are publicly traded. In some circumstances these instruments are listed on the JSE. The JSE provides a secondary market for trading these stocks although, as shown in a later section of the chapter, trade is limited and debentures are generally unattractive securities. The reasons for this lack of trade are also discussed in a later section.

The public sector debt market is substantially larger than the private sector debenture market. The factors that have contributed to this market's growth and size are also discussed in a later section.

Securities in the public debt sector of the market are divided into seven categories. The determination of these categories is based on the size of and credit worthiness of the issuer and the degree to which securities are traded (Blench, 1983). The categories are determined by the Public Investment Commissioner, and are used to comply with the prescribed asset requirements, as well as to provide a basis for valuing the various categories of instrument.

The categories are listed below, together with the basis for valuing each category (Table 4.2).

TABLE 4.2 : TABLE OF GILT AND SEMI-GILT CATEGORIES IN SOUTH AFRICA

	ISSUERS	BASIS OF VALUATION
Category 1 :	Republic of South Africa	Yields at current market levels
Category 2 :	Escom, Landbank, SATS and Post Office	Yields at current market levels
Category 3 :	Major Corporations and Cities	75 points above category 2
Category 4 :	Other major Cities, Corporations and utilities	90 points above category 2
Category 5 :	The remaining major municipalities, utilities and government guaranteed loans	100 points above category 2
Category 6 :	The remaining municipalities, medium sized corporations and boards	125 points above category 2
Category 7 :	Foreign governments including their development boards and associates	175 points above category 2

Sources : Johannesburg Stock Exchange "Valuation of Gilts and Semi-Gilts" September 1987.

Before examining the growth in the public debt market and factors that have contributed to its growth, factors necessary for a successful bond market will be reviewed.

4.3 Factors Necessary for a Successful Secondary Corporate Bond Market

The previous sections of this chapter focused on the role capital markets and the basic structure of the market in S.A. In addition, the instruments traded in these markets were examined. The following

section expands on the structure of the S.A. market, but first examines factors necessary for a successful corporate bond market. The focus of this report is on the corporate bond market and the factors are discussed in that context.

4.3.1 A Secondary Market and its Importance

A secondary market is a market in which existing issues of securities are traded. The success of a secondary market assists the market for new issues, as the ability to trade in an issue subsequent to its initial issue makes it more attractive. Investors are more willing to invest in securities in the primary or new issues market where they are aware that they will be able to easily dispose of or liquidate that investment in the future (Reilly - 1981 - pg.138).

A successful secondary market is therefore of benefit to both lenders and investors. The factors which will contribute to a successful market will be examined and analysed in relation to the S.A. markets.

4.3.2 Factors that Contribute to a Successful Market

Several authors have provided factors that contribute to a successful market. These are in essence factors that draw the particular market closer to perfection, and are well summarised by Reilly (Reilly - 1981 - pg.136);

1. Buyers and sellers enter a market to buy and sell securities quickly at a fair price. As a result timely and accurate information on the price and volume of past transactions and similar information on prevailing supply and demand should be

provided.

2. Liquidity and marketability are critical and key to the success of any market. This, in essence, refers to the ability of buyers and sellers to be able to trade quickly at prices very close to those of the previous transactions. The effect of individual transactions on security prices must therefore be insignificant.

3. Furthermore, the markets must be internally efficient - internal efficiency implying a lower level of transaction costs with buyers and sellers being able to transact at costs that are economically related to the transaction involved.

4. The markets should also be externally efficient in pricing the particular security. Security prices should therefore be able to reflect all relevant information, which should be available to buyers and seller. In addition, external efficiency considers the speed with which the market adjusts to this information.

The importance of the above factors in ensuring a successful financial market and in particular a successful secondary bond market are discussed in the following sections. This review analyses these factors in two sections. The first section examines the effects of historical information and external efficiency (i.e. the impact of information), while the second section deals with the importance of operational efficiency and liquidity and marketability of securities. The factors are broken into these two broad categories due to their inter-relationship with each other.

4.3.3 The Impact of Information on Secondary Bond Markets

The availability of information necessary to assist investors in making decisions is important to the success of financial markets as the availability of information and its quick impounding into security prices ensures that these prices are fair. In the above circumstances, investors would not be able to make excessive returns consistently, unless able to obtain additional information not available to the rest of the market.

The availability of information to a particular market is important, as investors are less likely to become involved in a particular market where they are aware that they do not have access to all information and conversely would be attracted to markets in which information was more available.

Information which would assist in creating an efficient market would at least include information about past behaviour. As identified in point one of the previous section, such a market would be one in which accurate information about prices and volumes of past transactions, as well as prevailing supply and demand is available. External efficiency would further be improved in a market in which all public information is fully reflected in prices. This would include not only information about past behaviour, but also information about the economy, the company and the industry (West, R.R. - 1981 - pg.23).

Thus information on the credit risk to which particular companies are exposed would assist investors in a corporate bond market. A system of credit ratings such as that in the U.S. would provide valuable

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Thus information on the credit risk to which particular companies are exposed would assist investors in a corporate bond market. A system of credit ratings such as that in the U.S. would provide valuable

information about the expected future yields on bonds, to all investors, as is evident from the research in Chapter 3. In circumstances where a system of credit ratings does not exist, the information available to investors would be limited as only a few very highly skilled investors would have the ability to analyse this information. This would provide less skilled investors with public information that is otherwise difficult to interpret. As a result opportunities to create excessive returns would exist. This could detract from the particular market with fewer investors entering into it.

In South Africa the inadequacy of information on credit risk and bond ratings limits the debenture market to a few very skilled investors. Were this information readily available it is possible that more investors would become involved, as they would be able to analyse all public information to make a fair return.

Although all investors have access to this information, they are restricted in their analysis of it. It may be argued that they could use the services of brokers to analyse this information. However, although brokers in South Africa may provide valuable information to assist investors in the equity market, they do not provide this service in the debenture or corporate bond market. It is therefore only a very limited number of highly specialised institutions that can properly interpret public information in this market, thereby limiting the players in the market to a handful.

The external efficiency of the market is inter-linked with the next section, dealing with operational efficiency, marketability and

liquidity. Where the availability of information restricts the number of participants, the liquidity and marketability of securities are also restricted. Further, the importance of information about the credit or default risk of bonds necessitates that participants incur substantial costs to obtain this information. This also inhibits the operational efficiency of the market and detracts from participation in the market. This is discussed in more detail in the section of this chapter dealing with the South African debenture market.

4.3.4 Liquidity, Marketability and the Operational Efficiency of a Secondary Bond Market

Liquidity and marketability of securities have been identified as important to the success of a financial market. This is of particular importance in a bond market, as a substantial portion of the returns in these markets is made through trading, as opposed to buy and hold strategies.

Liquidity implies the ability to dispose of an asset quickly at a known price. Where an investor holds a security and is able to dispose of it almost immediately, this market would be referred to as liquid. A market in which an investor cannot dipose of the security immediately, but requires a long period of time, would be an illiquid market. The second aspect is the ability to transact at a certain price. Where a security can be disposed of rapidly but at a substantial discount this security would lack marketability. Therefore in order that a market be both liquid and the securities be marketable, it is necessary that participants buy or sell the securities rapidly at a certain price (Reilly, F. - 1981 - pg.136).

Markets that are not operationally efficient are usually not liquid and securities are not normally marketable. This is a result of barriers created that restrict entry and inhibit trade. Operational or internal efficiency enables buyers and sellers to obtain transaction services as cheaply as possible, given the costs associated with these services. These transaction costs can be split into two categories of broker and dealer services. Broker services which include advice offered and transaction and portfolio administration are paid for explicitly in the form of brokerage. Dealers costs are usually paid in an implicit manner, by the creation of a spread between a dealer's buy and sell price (West, R.R. - 1981 - pg.21). Therefore in order that these charges do not inhibit the market's operational efficiency, brokerage should be related to the cost of advising clients and concluding transactions. In the case of dealer costs, the spread between buyers' and sellers' prices which is the dealer's margin, should closely approximate these costs. The removal of barriers limiting brokers and dealers would (as discussed in a later section) serve to reduce costs as a result of increased competition.

Operational efficiency is therefore key to the success of a bond market, as a market in which transaction costs are low attracts traders and facilitates opportunities for market-makers. These market-makers many of whom are financial institutions, enhance the marketability of securities, and the liquidity of these markets because in offering a certain price for the security the market-maker enables the investor to dispose of the security quickly. Where transaction costs are high market-making is rendered unattractive. Similarly, traders are driven

from markets where high transaction costs will result in reduced profits.

In the United States, although little empirical research has been done on the operational efficiency of corporate bond markets, it is suggested that these markets are operationally efficient as there are relatively few barriers to becoming a broker or dealer and as a result competition is intense. The effect of this is to move brokerage and dealer spreads to levels consistent with the cost of the service (West, R.R. - 1981 - pg.21).

The removal of restrictions limiting entry and those selling brokerage would therefore result in increased operational efficiency as the elimination of barriers allows a greater number of dealers and brokers to participate thereby reducing costs as a result of the increased competition.

In the next section of this report the South African bond markets in its two segments (i.e. public sector and private sector) will be analysed. The apparent success or lack of success in a particular sector will be examined to ascertain whether the existence or non-existence of factors discussed in this and previous sections have affected it.

4.4 The South African "Gilt" and "Semi-Gilt" Markets

This market has grown substantially over the past twenty years, and now comprises over 80% of the total South African capital market. The market has experienced a number of changes to its structure and this together with changes in the manner of trading have contributed to this

growth. In this section this growth is considered in the context of the factors necessary for a successful market. The spectacular growth and huge trading volumes in the secondary public debt market suggest that it is a successful market. The growth in trading volumes in the market since 1980 is shown in Table 4.3 (below) and the growth of public debt in the graph below (Fig 4.1).

	1980	1981	1982	1983	1984	% Change 1980–1984
Nominal Volume of Gilts Purchased (000 000's)	4 219	5 100	16 640	23 071	26 573	+530
Volume of Shares Purchased (000 000's)	648	567	600	750	644	– 24

TABLE 4.3 - TABLE OF GILT MARKET VOLUMES VS EQUITY VOLUMES

Source : Max, Pollak & Freemantle, July 1985.

The table shows the significant growth of the public sector debt, since 1980. The factors that have contributed to this are discussed later in the report.

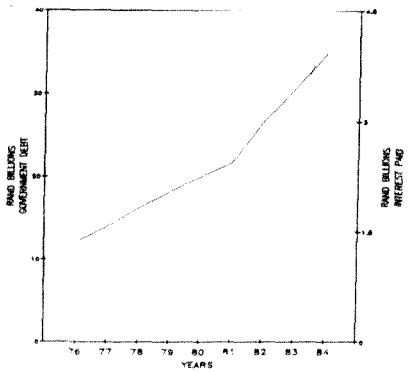


Fig 4.1 : Growth of Public Sector Debt.

Source : Max, Pollak & Freemantle, July 1985.

4.4.1 Factors Contributing to the Growth of the Public Debt Market

Prior to 1976 the market was essentially a primary market, with various public corporations issuing instruments to specific institutions. These institutions were required to hold these investments in terms of their prescribed asset requirements. There was very limited trade in the secondary market and the trade that did occur was largely a result of the necessity of institutions to maintain their assets at prescribed levels (Blench - 1983).

The factors discussed below which have contributed to the growth of the gilts market are important to understand as they may provide some explanation for the negligible growth in activity in the corporate bond or debenture market in South Africa.

(a) The Impact of Inflation

The occurrence of high rates of inflation was the first factor to have an impact. Prior to 1976 inflation was relatively low and as a result interest rates remained low and fairly stable. Subsequently inflation rates rose resulting in higher and more volatile interest rates. These volatile interest rates resulted in large fluctuations in bond prices and substantial capital gain opportunities that were created for traders. Therefore more traders were drawn to the market due to attraction of higher returns. Through the use of hedging strategies traders could cover themselves and make attractive returns on both sharp upward and downward movements in market rates. For example, by obtaining a put and call option on a particular security, traders could take advantage of movements in either direction, provided these were substantial. This therefore introduced a greater number of buyers and

sellers into the market, which improved the marketability of the securities and also provided greater liquidity in the market.

(b) Amendments to JSE Regulations

As transaction costs on the JSE were high and in excess of the cost of completing transactions, the majority of trade occurred outside of the JSE in the over-the-counter market where transaction costs were lower.

In 1978 the JSE regulations were amended to allow stockbrokers to participate in this market for their own account. This introduced more participants into the market which helped improve liquidity in the market and the tradeability of stocks. In addition brokers' commission rates were cut, reducing transaction costs and attracting further trade to the JSE.

The changes in amendments and the more volatile levels of interest rates were coupled with several structural amendments that affected the South African capital markets. These included amendments to the prescribed asset levels. These levels were increased by the government in 1977 and together with the growth in institutions in the period from then to the early 1980's, resulted in a substantial growth in the size of the market. The growth in the level of public debt is well illustrated by Fig 4.1. Market size is an important factor in a successful bond market, as transactions need to be sufficiently large for buyers and sellers to trade effectively and make use of hedging strategies.

A substantial portion of this trade was attracted to the JSE by the improved operational efficiency of the market. This was a result of

lowered transaction costs which attracted more participants and alleviation of restrictions limiting participants by allowing stockbrokers to trade for their own account. This played a large part in increasing the marketability of these securities on the JSE and in making the JSE a more liquid market. The higher volumes on the JSE also resulted in the separation of this market in 1980 and the opening of a separate "gilts" floor in that year. The opening of a separate market also assisted trade, creating conditions necessary for further expansion of this market (Dickman, A. - September 1983 - pg.15).

(c) Competitive Yields

Yields on these instruments were also made more competitive and market orientated by the issuers during this period (Dickman, A. - September 1983 - pg.9). This made institutions more willing to trade in the particular instruments and also assisted the growth of trade in this secondary market.

(d) Marketability

The importance of marketability of instruments has been stressed by many of the large institutions involved in the market as the marketability of instruments on the secondary market makes new issues more attractive. Furthermore participants are able to trade more easily and take advantage of yield fluctuations in such a market. Larger issuers such as ESCOM, SATS and the GPO have therefore made themselves market-makers in certain issues of their securities, by quoting buy and sell prices for these securities. In addition, these issuers have also consolidated their less marketable issues. ESCOM consolidated 16 of its less marketable stocks in 1985. This is part of its programme of

consolidating 66 of its less marketable issues into 3 issues (W. Kok - 1986 - pg.249). These strategies have greatly assisted in improving the operational efficiency of the market by rapidly providing a certain price to investors. Furthermore, the policies of these authorities has been to issue new stock through tap issues on existing marketable issues which has limited the issues in circulation to those which are marketable. This has gone a long way to further improving the gilts and semi-gilts markets.

This section has focused on factors that have resulted in the growth in the semi-gilts and gilts markets. These are mainly structural and are factors that have contributed to this market's operational efficiency. However it is necessary to review whether this market is efficient in impounding information rapidly into its security prices. No research has been done in South Africa on the efficiency of gilt and semi-gilt markets. However prices do react quickly to changes in interest rates suggesting that yields do reflect all publicly available information and that new information is impounded instanteously. This suggests that this market can be regarded as efficient, which further contributes to the fair pricing of securities and helps improve the market, making it more successful.

The factors that have contributed to the success of the semi-gilt and gilt markets, are reflected in the growth in size and trade. However a very limited number of issues do in fact trade as the statistics shown in Chapter 5 indicate, suggesting that the market is only partly successful. The factors limiting trade in these "unsuccessful" issues are discussed in that chapter.

4.5 The South African Debenture Market

Shares and debentures are the two broad categories of security that private sector companies may use to finance their long-term capital requirements. These instruments were identified and discussed in the section dealing with capital market instruments.

Although debentures are fixed income securities and therefore have similar characteristics to gilts and semi-gilts they trade on the "main floor" of the JSE together with shares as the small volumes of debenture trade (discussed below) have never necessitated or suggested its removal from the main board. It is suggested that the impact of this on the success of the debenture market is insignificant. When the gilt and debenture markets are compared it is apparent that the gilt market grew successfully before the separation of these trading floors.

There are over 130 straight debenture issues listed on the JSE with a market capitalisation of stock in issue of approximately R1 212 million. The value of debenture trade during 1987 represented approximately R130 000 000. This represents only 11% of the total issue value as compared with almost 25% on the gilt and semi-gilt markets (See Appendix I). Thus the market is relatively small both as regards volume of activity in the secondary market and the total value of securities in issue. The number of new issues coming to the primary market is also minimal. This suggests that the South African debenture is not a relatively successful section of the South African capital market particularly when compared in size to the gilts and share markets. The gilts market in 1987 amounted to about R29 billion in market capitalisation and the equity market to about R55 billion with trade of

R16 billion in gilts and R2,25 billion in equities (JSE - Annual Report - 1982). This section therefore examines the efficiency of pricing and operations on the JSE in order to assess how these factors affect the debenture market's success. The effect of market size in itself may have significant impact, and is examined separately in Chapter 5.

The very limited amount of trade that does take place suggests that prices do not adjust rapidly to changes in publicly available information. In interviews with stockbrokers and merchant bankers it was suggested that the actual number of separate transactions taking place is relatively few with individual transactions in some cases representing more than 10% of the total annual trade. The low transaction volumes indicate that individual transactions may have significant impact on prices suggesting that transactions may take place at prices which do not reflect all publicly available information. From this it can be deduced that the South African debenture market is probably not efficiently priced and is therefore not a "fair game" market, thus inhibiting the market's success and limiting trade.

Inter-linked with the efficient pricing of securities is the operational efficiency of the market. Some of the factors that inhibit the attaining of fair prices may also be attributed to the operational inefficiency of the market. In examining this operational efficiency which is key to assessing a market's success, it is first necessary to focus on the transaction costs involved.

In South Africa transaction costs do not only includ brokers

commission, but marketable securities tax. This tax is charged on all purchase transactions and until 1983, was 1% of the purchase consideration involved. The tax was abolished in 1983 and it was suggested that this would contribute to an improved trade in this market (W.J. Kok - 1986 - pg.261). This market has however not grown substantially and only limited trade still occurs due to the existence of other structural complexities which are discussed later in the section. Brokerage on debenture transactions is low - about 0,25% of the consideration. While this may not represent the true cost of the transaction it is similar to that on equities and in itself should not be a major factor inhibiting trade (JSE - Rules and Regulations). However, in the case of fixed interest security traders who continually buy and sell, these costs could become significant and may to some extent inhibit this trade.

In the section dealing with operational efficiency it was indicated that markets that are not operationally efficient usually include barriers that restrict entry, resulting in high costs for services. It is believed these costs are not of major significance in the South African market. However, despite this, the South African market appears thinly traded and there is an absence of market-makers to make securities more marketable and the market more liquid.

The absence of significant activity in this market can further be attributable to restrictions on institutions. These restrictions create barriers that limit institutions in their activities, and are the "prescribed asset requirements" which stipulate that institutions must hold a specified portion of their investments in categorised

investments. These categorised investments are the gilt and semi-gilt securities identified in Table 4.2. As a result institutions have a substantial portion of their funds invested in these fixed income securities. Further investments in fixed income securities would therefore be unattractive as although these securities are traditionally more stable they provide lower returns than equities. There is therefore limited participation by these institutions in the market, which would probably have been more active had the investments prescribed been based on a credit rating system as opposed to a specified list. As institutions traditionally dominate fixed income securities markets these restrictions severely limit participants in the debenture market (Fabozzi and Groppelli - 1981 - p.15). In addition these institutions are often the market-makers in these securities, these market-makers having contributed to the growth in the gilts and semi-gilts markets (W.J. Kok - 1986 - pg.250).

It is evident that the limited number of participants in the bond market is partly the result of prescribed asset restrictions which make trade difficult as the issuers do not create markets in their own securities (this aspect is discussed in Chapter 5).

The above factors together with the limited trade in the debenture market suggest that the market is not operationally efficient. The restrictions on operational efficiency are significant and appear to be a major factor inhibiting the secondary corporate debenture market.

4.6 Conclusion

This chapter examined the role and components of the capital market.

The market is a very important provider of finance to companies in the private sector and authorities in the public sector in order to finance their long-term expenditure. The instruments used to finance these activities include shares, variable interest securities and fixed income securities. The most significant of these instruments are fixed income s[illegible]ities. These, as indicated, make up over 85% of the total market activity of which the vast majority is in the public sector.

The gilts and semi-gilts markets can be classified as efficient both in the impounding of information into security prices and in their operational efficiency as the factors identified as necessary for a successful market appear to exist in this sector.

As the statistics on activity in the debenture market indicate, this market appears to be an unsuccessful market as the factors identified as necessary for a successful market do not appear to be present. The market does not appear to be efficiently priced and furthermore restrictions imposed through the prescribed asset requirements make securities illiquid and unmarketable. Transaction costs do not appear to be substantial, particularly after the removal of the 1% marketable securities tax in 1983.

Additional factors that could be inhibiting this market's success are discussed in Chapter 5. This chapter also provides recommendations on factors that could improve the market's success. At this stage of the report it is suggested that removing or altering the prescribed asset requirements may have a desirable impact which will allow institutions to become involved in the corporate sector and may thereby introduce further participation and stimulate the market.

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