



**A Study of the Effect of STRATE (Share Transaction Totally Electronic),
Equity/Electronic Settlement in the South African Market and the Position of
STRATE in Emerging/World Markets (2000 – 2002/3)**

By

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DECLARATION

I, Goolam Hoosen Bhabha, declare that this research report is my own, unaided work, except as indicated in the acknowledgements, the text and references. It is being submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at The Graduate School of Business, University of Natal. It has not been submitted before, in whole, or in part for any degree or examination at any other institution.

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Respondents to the questionnaires dispatched to financial institutions and Standard Corporate Merchant Bank.

ABSTRACT

Formalised markets for the trading of securities have been impacted upon to the same degree as other business entities by the advent of electronic commerce. Globalisation has furthermore forced these markets to adapt their operation with a view towards improving efficiency while simultaneously catering for increased demands on their capacity.

Clearing and settlement of securities is a core financial function on which fundamental confidence in the financial market depends. It is also an area experiencing rapid growth, profound technical and structural change, and infrequent but severe market shocks.

Growth has been tremendous. For example, the value of shares traded annually in world markets rose nearly 63 times between 1980 and 2001. Advances in telecommunication technology, has brought far-reaching changes in the characteristics and supply of financial products and services, and in trading and settlement systems. Changes have also fuelled cross border activities. The South African equities industry has not escaped this dramatic paradigm shift and has itself initiated STRATEgic projects, all with a view of catapulting South Africa into the world's financial markets. It is also meeting these challenges, has often been expensive and met resistance amongst individual and professional investors who have become accustomed to established ways of trading securities. To counter these challenges and resistance (and further justify the expense and effort in transforming), various contentions (such as an increase in trade volumes arising in greater liquidity levels) were forwarded. The introduction of the **STRATE** (Share Transactions **T**otally **E**lectronic) system by the Johannesburg Securities Exchange (**JSE**) is an example of an exchange adapting its operation to meet new challenges. This exploratory research examined whether the contention that the transition to an efficient electronic settlement system STRATE, has been successful, the effect of STRATE equity/electronic settlement in the South African market and to determine the position/standing of STRATE in comparison to other developing/emerging and world markets. An analysis of the STRATE system from inception to current status was done as well as a comparison of the South African settlement system to other emerging and world markets. A Questionnaire was sent to various major Financial Institutions (banks) and

investment professionals in the employ of equity broking firms, to ascertain their opinion as to the impact of STRATE's result/success of the transition to an effective electronic settlement system and to determine STRATE's position in comparison with emerging/developing countries and world markets. The views of the respondents are that STRATE will increase trade volumes although it may perhaps be too early at this stage to note a difference. The major themes elicited from the respondents are that they have a greater confidence and faith in the workings of the market, lost share certificates and lack of an ease of settlement infrastructure prevented effective settlement previously, barriers to private investors have been removed, share certificates are in some instances missed, STRATE makes stock broking and investing more cost effective or easier, there is a greater liquidity potential for the Johannesburg Securities Exchange, an increase in market activity due to greater and more efficient settlement of trades, principal risk being reduced, increased foreign investment, a better international image as regards settlement through the adoption of best international practice has arisen, greater ease of transaction should lead to an increase of trade volumes, the benefits of STRATE as regards trading volumes are not yet apparent, the benefit is apparent and poor market conditions have prevented the benefit from becoming apparent.

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Chapter 1

Introduction and Background to the Study

1.1 Introduction

The settlement of share transactions in South Africa has remained largely unchanged since the early 1960's when the introduction of both a clearing house for settlement of inter-broker deals and a certification process did away with the need to issue share certificates in denominations of one hundred (Singer, 1997). During the early 1960s the concept of a weekly settlement and accounting period modelled on the London Stock Exchange was introduced and this reduced the flow of paper in the market place by reducing the numbers of cheques and physical share certificates in daily circulation. As a consequence of this South Africa was then seen to be, one of the most advanced stock markets in the world. With the introduction of a Centralised Securities Depository for equities, the South African financial market has begun to regain this image.

Since 1995 the JSE Securities Exchange has introduced trading efficiencies which has witnessed the number of deals a day increasing from around 3 000 to 18 000 (Source: Sunday Times – Business Times – May 20, 2001). The successful introduction of the Johannesburg Equity Trading (JET) system highlighted the deficiencies of a paper-based system. Further, the growing use of the internet, declining mortality rates, the liberalisation of Pension Funds and the relaxation of exchange controls were encouraging investors to invest more. With the number of securities transactions growing rapidly, a need arose to introduce a settlement infrastructure which could support this growth and mainly remove the inefficiencies inherent in the traditional paper based environment.

Table 1.1: A representation of Increased number of On-Exchange trades

(Source: STRATE Limited (2002): STRATE handbook. Johannesburg: Johannesburg Securities Exchange)

Increased number of On-Exchange Trades	
Month	Average Number of Trades per day
February 1998	13 994
February 1999	13 313
February 2000	19 788
March 2000	35 363
March 2001	44 511
March 2002	29 958
November 2002	26 994

Whilst South Africa was isolated from the remainder of the world during the 1960s to the early 1990s, changes to the local market infrastructure was not necessary as the need to conform to international norms and to “play by international rules and standards” were not necessary because there was limited international investment on the South African equity market. However, its re-entry into the international market place in the 1990s has made it necessary to progress rapidly in establishing a set of acceptable standards in its equity market if it is to attract international inward investment to develop as an economy and a country. Without the establishment of these standards foreign investment managers will probably favour investment in other developing countries that can demonstrate their country’s commitment to implementing such equity market changes.

1.2 Background of the study

Since 1972, there had been no changes in the share system in South Africa, and as a result had fallen behind the rest of the world. These high levels of risk attributable to the outdated scrip system were unacceptable to the rest of the world and it was discouraging

foreign investments in South Africa. Overseas portfolio managers wanted to invest in a system similar to their own.

South Africa was among the last of the world's 20 emerging bourses to enter the electronic settlement arena, prompting the sceptics to question whether dematerialisation would work in this country and whether STRATE, the organisation responsible for the dematerialisation process on the JSE, would benefit from the experience of others that had travelled the same hazardous road.

Share certificates have been around for as long as shares have existed. They are the pieces of paper many investors have hidden away in a drawer somewhere to prove that they are in fact the rightful owner of those specific shares. Although the system has worked for many years, trading & settlement in paper shares has always proved a tedious and drawn-out process that often resulted in no trading at all. In the past, up to 60 percent of trades on the Johannesburg Stock Exchange (JSE) Securities Exchange failed because either, the seller never had the shares to sell in the first place or the buyer never had the money to buy them. Fraud and theft of paper shares were also constant threats, hence, the introduction of dematerialisation.

Dematerialisation is simply a technical term referring to the process whereby paper share certificates are replaced by electronic records of ownership. Investors hand in their certificates, which are then sent to the relevant transfer secretary for validation. Once the authenticity of the certificate has been verified, the actual conversion process begins. The main aim behind dematerialisation was to reduce the risks that had developed with physical settlement over time.

Although the sceptics were proved wrong and dematerialisation succeeded in South Africa, it did not come without its initial teething problems. The fact that the implementation of STRATE was delayed, the market took some time to finalise the structure and composition of STRATE, which only came into being in 1998, also cast a lot of doubt in the mind of the industry.

STRATE was borne out of a need to make the settling of equity transactions simpler, safer and more efficient. The JSE was languishing at the bottom of the ratings of settlement risk amongst emerging markets and carried the burden of this image at an international level. The GSCS Benchmarks, which measure the international securities industry, consistently placed South Africa last out of the 20 emerging markets under review. Improvements had to be made.

Table 1.2:A representation of Settlement Risk amongst 20 Emerging Markets

(Source: STRATE Limited (2002): STRATE handbook. Johannesburg: Johannesburg Securities Exchange)

<u>Settlement Risk amongst 20 Emerging Markets</u>					
Source = GSCS Benchmarks					
Settlement Risk includes factors such as: interest rate and overall cost of failed trades					
Worst	1997	1998	1999	2000	Ranking
India	(2.11)	18.76	41.48	71.42	(16/20)
Ireland	62.10	50.77	67.51	67.27	(17/20)
Indonesia	38.22	74.11	56.61	67.22	(18/20)
Venezuela	(1.90)	60.41	53.08	46.31	(19/20)
South Africa	(1.18)	(1.28)	0.14	36.41	(20/20)

In January of this year (2002) the JSE took a leap into the digital age, when all securities completed their migration to a paperless system (STRATE). All trades in listed investments are now settled electronically.

1.3 Value of the Research

The benefits include:

- Keeping abreast with the electronic settlement system of emerging/developing countries and world markets
- To ensure that the South African equity market does not lag behind world markets
- To attempt to determine the South African markets ranking/position as compared to the emerging/developing countries as well as the world markets
- To develop and identify trends after the implementation of STRATE
- To determine the success and continuation of STRATE
- To identify the differences in the dematerialisation process and the operational fundamentals of STRATE compared to other developing countries and world markets.

These findings will form the basis of a report to management.

1.4 The Problem Statement

Has the implementation of STRATE been successful and led to an improvement in South Africa's equity markets position/standing in comparison to other emerging/developing countries and world markets?

South Africa has suffered from the isolation of global financial business for thirty years since the early 1960s; political change in 1994 facilitated an opening of the markets and an increase in foreign investors. Up to that point, the custody businesses were often seen as non-core services provided (and sometimes neglected) by the financial services industry.

During the last couple of years there was and is a sea change sweeping through investment communities, both retail and institutional. While basic functions remain constant, global markets are in the throes of major structural change. New modes of exchange are emerging and major intercontinental players are consolidating and acquiring new businesses (Bateman, 2001). With this new level of progress and change, local markets can anticipate an increase in trade volume.

The investment and securities fields are the principle means of creating wealth within a capitalist society (Correia et al, 2000).

Savings, pension fund monies and invested funds are put to work within formal markets where they are used to purchase instruments and securities. Instruments and securities (such as bonds or equities) are the mechanisms companies or governments issue in order to raise capital and fund expansion (Feinberg, 2001). Everybody in a market economy has the potential to be impacted upon (often profoundly) by the performance of the markets where these instruments and securities are invested.

Formal markets serve as a barometer of perceived economic prospects. Markets are driven up or down by the influence of a number of factors including socio-economic, political and perception (Correia et al, 2000). With the importance of formalised exchanges so apparent, it is critical that they function as efficiently as possible and have as few hindrances to trade and the settlement of those trades as possible.

Globalisation and the advent of electronic commerce have made the free movement of capital easier (Ohmae, 2000). Markets themselves have begun to compete amongst each other and are required to hold their share against substitute products.

Various means of remaining competitive are possible. STRATE and its simplification and ease of operation are submitted as one of those means.

1.5 Aims and Objectives of the Research

Business research, is defined by Emory, as a *systematic inquiry that provides information to guide business decisions* (Emory 1995:11)

Two aims of the study may be identified:

- 1) To determine whether the implementation of STRATE has improved South Africa's equity markets position/standing in comparison to other emerging/developing countries and world markets.
- 2) To identify and discover the effect/result/success of the transition to an efficient electronic settlement system, STRATE, from relevant themes by investment professionals and organizations.

The following sub-problems (or research questions) are derived from the aims listed above:

- An efficient electronic settlement system will increase market activity and the number of shares traded;
- The South African market with the implementation of STRATE will become a leading and sophisticated world market in electronic settlements;
- More funds will be allocated for investment in South Africa in the future as it will be an attractive emerging market;
- What relevant themes may be elicited from the responses of a range of investment professionals, concerning the introduction of the STRATE system and its benefit to the industry?
- Shares held electronically (dematerialised) are safe from theft, damage and from being destroyed;
- Dematerialisation of shares is significantly related to trading electronically in equity.

1.6 Research Methodology

The research question is one of a *descriptive nature* and will not have any causal or correlation studies. *The descriptive survey method* or what is sometimes called the *normative survey method* is employed to process the data that come to the researcher through observation. The method of research that looks with intense accuracy at the phenomena of the moment and then describes precisely what the researcher sees is called the *descriptive survey*. The name implies the assumption that whatever we observe at any one time is normal and under the same conditions could be observed again in the future. The basic assumption underlying such an approach is that given phenomena

usually follow a common pattern or norm writes Leady in his book entitled Practical Research (Leedy 1988:140).

1.6.1 Method of Research

The method of research has followed a survey basis with primary data collected from self-completed questionnaires sent by e-mail to a sample of local financial institutions during March 2003.

The sample of the questionnaire was taken from the securities industry publications and may be regarded as representative of the total populations. The sample consists of responses from a selection of professionals in the securities field regarding the value of STRATE. The professional respondents represent a homogenous group and were selected because of their familiarity and frequent interface with the STRATE system.

1.6.2 The South African Market Questionnaire-STRATE

In order to canvass the views of certain sectors of financial institutions in South Africa a questionnaire was sent to a random set of names located in Johannesburg and Cape Town extracted from the Johannesburg Securities Exchange (JSE) website. The method of selection was using the *lottery method*. Each name listed was given a number; each number placed in a “hat” and a sample size of 50% of the total was drawn from the “hat”. The population was the financial market participants of South Africa as listed on the JSE website. The website is regarded as a prime source of data on financial institutions that have their business in the South African securities market and therefore is regarded as representative of the population under survey.

A copy of this questionnaire appears in the appendix to this document.

The sample was selected from the names of financial institutions within the following categories in the website:

- Portfolio management companies
- Stock-broking firms
- Central Securities Depository Participants

1.6.3 Secondary Data

Secondary data was collected from library searches, extracted from publications, journals, securities industry magazines and information stored on the internet.

1.6.4 Data Analysis

The primary data obtained from the returned self-completed questionnaires have been coded and the responses input into a computer using a database analysis program. Coding of the answers was effected manually, and input into a computer database using a Microsoft Excel computer program. After the analysis of the data, conclusions and recommendations are made based on findings.

1.7 Limitations of the study

The Study was confronted with difficulties that imposed limitations on its scope:

- 1) The absence of accurate, up to date information;
- 2) The unwillingness of some investment professionals to share information, even though the information was of a non-confidential matter;
- 3) The threat of insider information since I am at present a contractor at Standard Corporate and Merchant Bank (SCMB), a STRATE Central Securities Depository Participant (CSDP).

Given the constraints outlined above it is suggested that a thorough analysis of available data, modified by the views of industry experts, does not provide a reasonably accurate prediction of the aforesaid aspects and provide a realistic prediction of the future of the South African equities market and the success of the transition to an electronic settlement system.

Some investment professionals were extremely helpful in completing the questionnaire, and the provision of additional information, while some were reluctant to share their views; not to divulge pertinent information on internal procedures to competitors, even

though it was mentioned that the questions were of a general nature on the topic and the information was of a confidential nature and merely for research purposes.

1.8 Structure of the Research

Chapter 2 of the study contains a Literature Review. The chapter details a list of key concepts used in the investment industry. A word on the literature sources surrounding STRATE follows; as well as a detailed discussion on the operational fundamentals of STRATE and included is a comparison of STRATE and a foreign equivalent together with an investigation of the relevance of the writings of researchers Kenichi Ohmae (2000) and Michael Porter (1980) on STRATE.

Chapter 3 contains the research methodology of the study. The research aims, design and procedure are described. The chapter describes the qualitative method and the component sampling STRATEgy and a discussion on the ethical considerations thereof.

Chapter 4 presents an analysis and discussion of the results obtained through the application of the procedures described in chapter 3. The chapter presents the results of the qualitative research questionnaire distributed to investment professionals and a discussion thereof and the comparison of STRATE's settlement index with emerging markets.

1.9 Summary

This chapter has given an overview of the need for a central securities depository and an electronic settlement system in the South African securities/investment industry. It highlights the fact that the old paper based scrip system was totally outdated and the South African securities/investment industry needed to be, revolutionised. South Africa had fallen behind the rest of the world, had to catch up and increase foreign investment rather than discouraging it.

The contention of whether the implementation of STRATE has been successful and has led to an improvement in South Africa's equity markets position/standing in comparison to other developing countries and world markets is investigated in this research qualitatively with regard to a questionnaire. A qualitative analysis of the result/success of the transition to an efficient electronic settlement system, to determine whether fund managers world wide would confidently invest in South Africa in relation to other emerging markets due to the implementation of STRATE; and to ascertain if STRATE can increase the volume of shares that are traded every day on the South African market is presented.

Chapter 2

Literature Review

The STRATE system and its fundamentals

2.1 Introduction

This literature review aims to present a critical review of the available literature pertaining to the main concepts of the study (Saunders, Lewis & Thornhill, 2000).

The STRATE system will be reviewed, with particular reference to its characteristics, history and nature, in order to provide an insight into the effect/success of its implementation and the transition to an efficient settlement system. Secondly, the operational fundamentals of STRATE are discussed. Finally, a comparison of STRATE and a foreign equivalent, CREST follows.

2.2 Key Concepts

For the purposes of this literature review, certain important concepts are defined to aid the reader in the understanding of the industry.

A financial market (which can include a stock exchange) can be defined as “a market for the carrying on of the business of buying and selling financial instruments, taking place – a. on an exchange or at any place; or, b. by means of any system or facility” (Financial Markets Control Act, 1989, section 1).

Securities (which STRATE settles) are instruments traded on exchanges - (Financial Markets Control Act, 1989, section 1).

Dematerialisation can be defined as “The elimination of physical certificates or documents of title, which represent the ownership of securities so that the securities exist only as electronic records” (STRATE Limited, 2002, p149).

Settlement is defined by the STRATE Handbook (STRATE Limited, 2002, p159) as “the completion of a transaction, whereby securities and corresponding funds are delivered and received, into the appropriate accounts of clients”.

Scrip is “a document embodying or confirming the issuing of securities” (STRATE Limited, 2002, p159).

2.3 STRATE – a word on the literature sources

STRATE is the acronym for ‘Shares Trading Totally Electronic’. STRATE is aimed at achieving secure, electronic settlements of transactions (Thompson, 2000).

Literature that has been published on the chosen area of research as regards STRATE, dematerialisation and the success of the system after implementation is taken from the STRATE Handbook, journals disseminated as part of the publicity campaign to promote STRATE, media reports and literature concerning the implementation of comparable foreign systems. The information from the sources relates directly to the study and is important to the study in terms of understanding the STRATE system.

The STRATE Handbook is published by the JSE and contains concise summaries of the nature of the system, parameters, processes to be followed and a history of the system and future objectives of the system.

The STRATE handbook is complemented by monthly publications of the publication ‘STRATE Talking’. The journal seeks to keep the investing public and listed companies informed of developments within the ambit of its operation. The journal is characterised by a publication of a number of statistics and notification of projects that are critical to the implementation and further operation of STRATE.

A considerable media campaign accompanied the implementation of STRATE – as could be expected considering the importance of the project. The attention has continued now

that dematerialisation is complete. Media reports critical of the costs involved in the system and criticisms of what have been viewed as teething problems by both the investing public and investment professionals have arisen. Media and press reports concerning STRATE can be divided into categories of those that favour the system and those that are highly critical.

The STRATE system is reviewed, with particular reference to its characteristics, history and nature.

2.4 STRATE - an Introduction

The successful introduction of the Johannesburg Equity Trading (JET) system highlighted the deficiencies in the JSE's paper-based settlement system. The demise of the open outcry floor in favour of the screen based JET system, contributed to a massive leap in turnover and back-office support services were incapable of handling the increase in daily transactions efficiently in a paper-based environment.

This increase in market activity augmented the inherent risks of a paper-based system. A manual system is very risky and cumbersome. Share certificates can be lost or stolen and very risky and cumbersome. Share certificates can be lost or stolen and very effectively copied. The risk of fraud and taint was very high. Furthermore, the frequent delays in settling transactions created uncertainty for investors as to the exact cost for the purchase or sale of shares. With the increasing number of trades being handled by the JSE, the international opinion of the South African market was that settlement was too high. The risk and inefficiencies of the market demanded a change.

2.5 The need for STRATE

The change to electronic settlement was not introduced for the sake of being different. On the contrary, the move was vital to the future of the JSE Securities Exchange - for a number of reasons.

The JSE aims to ensure that most of the trade in South African shares takes place in Johannesburg, rather than in London or New York, where the trade in SA shares has doubled over the past four years!

In addition, South Africa needs to compete with other markets, particularly emerging markets, for the investment from Global Fund Managers.

This goal demands that South Africa must remain globally competitive, and must move in line with international standards by ensuring that we have an efficient and secure settlement system. The current paper based system may be tried and tested, but it has failed to cope with the huge increase in trade volume that has taken place over the past four years. The back-office systems of brokers and transfer secretaries were becoming increasingly bogged down. South Africa's settlement rating was one of the worst in the world before STRATE was introduced, creating a negative image in the marketplace.

The massive risk of fraud incumbent in the old paper-based system was yet another factor inhibiting foreign trade on the JSE exchange. Share certificates were easy to reproduce, and the non-contractual, one-week settlement account period represented additional settlement or replacement risk to investors. Many international investors were simply not prepared to take these risks.

2.6 Life before STRATE

Under the old system the settlement mechanism provided a “weekly account” period where trades entered into a first calendar week, at the end of which, trades were netted and adjusted to the common ruling price at the close of market each Friday. Any failed trades simply would be carried over to the following settlement week.

The intensely manual nature of physical settlement and the sheer quantity of paper often resulted in failed trade rates of more than 50%. With settlement payment being completed via physical cheque, cash management became almost impossible to forecast with any degree of accuracy. These problems were compounded further by the soaring trade volume that followed the influx of foreign participants in 1995, when membership of the JSE was extended to international and corporate entities. Additional strain was placed on the faltering paper-based settlement system when trade volume experienced another hike in 1996, following the introduction of JET, the electronic screen-based Johannesburg Equities Trading platform (which has since been superseded by SETS).

Furthermore, both retail and institutional investors were subject to the considerable costs and frustrations associated with the risk of tainted scrip-a situation where share certificates either were lost or stolen and subsequently negotiated using forged transfer documentation. Difficulties with income collection-and especially corporate action processing-also would test the patience of the international network management community.

With no end-to-end processing and very low levels of technology, local providers were able to support only the most basic custody-related services. As a result, there was little competition amongst custodians in South Africa, a fundamental requirement for an industry striving to develop. Consequently, international perception of South Africa’s domestic custody industry was of low standards and high risk, and justifiably so.

2.7 The pre-STRATE system of share market transactions in South Africa

The pre STRATE settlement system was archaic and fraught with financial risks. The system involved stockbrokers who acted for the buying and selling parties. Custodian banks that held the physical share certificates in their vaults were instructed by the selling stockbroker, on behalf of his client, to remove the share certificates in respect of the sale from the vault and hand over these, in addition to a signed transfer deed, to the stockbroker who acted on behalf of the buying party. This transaction could only be effected if the stockbroker acting on behalf of the buying party handed over a cheque for the purchase price at the same time. The custodian bank of the selling party then banks the cheque into the selling client's bank account, whilst the custodian bank of the buying party will "on deliver" the certificate and the signed transfer deed to the Company Registrar in order to register the name of the new owner of the shares into the company's records. If this process occurred without a problem the whole transaction may be completed in two weeks. If there were delays on any side the process could have taken months. The risk that one leg of this extended transaction failed, that was quite common and therefore a risk of non-receipt of ownership by the purchaser or non-receipt of cash by the seller was not an impossibility.

The financial risks involved could have been that the share certificate was a forgery, and this was only discovered at the Company Registrar, once the cheque had been paid, or the share certificate had been handed over in return for the cheque, which was then dishonoured by the paying bank. Either the share certificate or the share could be lost or stolen in transit between the parties involved and when these transactions amount to millions of Rands the international investing companies became nervous. The need for an electronic CSD became imperative to reduce these risks in the settlement system, streamline the process and reduce the time frame from weeks to minutes. Whilst the old system of settlement of share transactions in South Africa adequately performed the task at hand, it was nevertheless outdated with international standards. It also maintains all the risks and inefficiencies inherent in a paper-based system. Share certificates circulating in the market place, by means of physical delivery, carried with them the risk of fraudulent action, loss and theft whilst requiring the maintenance of cumbersome

administrative processes. The overall costs within such an environment tend to be higher than with an electronic settlement system. The establishment of a CSD for equities in South Africa therefore benefits by the reduction in administrative costs and improved efficiency.

2.8 The Features and Benefits of STRATE

The many benefits of STRATE and key features of electronic settlement are discussed and highlighted:

The benefits of STRATE naturally emerge from the variety of advanced, technological features and business principles incorporated in STRATE's underlying software, SAFIRES (Southern African Financial Instruments Real-time Electronic Settlement system). SAFIRES is an adaptation of the Swiss settlement system, SECOM, which has been providing investors with secure and efficient settlement for years.

The features of STRATE's system are numerous and each provides a very significant, risk-reducing benefit to the market as a whole.

2.8.1 Electronic custody of shares

Under STRATE, shareholding is recorded electronically by each of the Central Securities Depository Participants (CSDPs) and collated at CSDP level within STRATE, South Africa's Central Securities Depository (CSD) for equities. These electronic records take the place of the register of shareholders kept by transfer secretaries on behalf of companies. The records of the CSDPs are balanced and reconciled every day with the records kept in SAFIRES, where the total balance of dematerialised shares is kept.

Investors receive regular statements detailing their electronic holdings and, as these statements are not negotiable instruments, investors need not fear the loss or duplication of such statements. These statements take the place of share certificates.

This is in direct contrast to the paper settlement environment where risks of lost, forged or stolen documents abound. Naturally, the costs associated with the replacement of such documents are also eliminated under STRATE.

2.8.2 Security of the system

The electronic records of shareholding are subject to extensive controls. In fact, as mentioned previously, SAFIRES has been in use in Switzerland for years and, thanks to a sophisticated encryption and authentication device in the coding of the software, the security of the electronic records has never been compromised.

Furthermore, STRATE utilises the renowned S.W.I.F.T network (Society for Worldwide Interbank Financial Telecommunications) for the relay of electronic messages. S.W.I.F.T is a network owned by all the banks in the world and therefore the provider of choice for all major financial institutions, globally. This is the most secure network in the world with consistent 99% up-time since its inception.

2.8.3 Electronic settlement of share transactions

At the point of settlement, the electronic records are updated real-time via book-entry.

Settlement via book entry is therefore both secure and efficient. It is no longer necessary for the seller to submit his share certificate to his broker for further submission to the transfer secretary who issues a new certificate in the name of the buyer. This manual process is risky, administratively burdensome and time consuming.

2.8.4 Rolling settlement

Rolling settlement refers to a settlement environment in which transactions (securities and funds) becomes due for settlement a set number of business days after trade. In South Africa, rolling settlement is done on a T+5 basis (where T= trade date). Rolling settlement represents a significant departure from the 'account period' methodology employed up to now whereby trades of any given week are settled from Tuesday of the following week.

Investors know that the trade will settle five business days later and can plan / budget accordingly. The ‘account period’ methodology of the paper-based settlement environment operates on an indefinite basis; some transactions remain unsettled for months. As every day is a trading day, under STRATE every day is also a settlement day (for the trades which took place five business days before).

2.8.5 Contractual settlement

Contractual settlement is a market convention embodied in the rules of the JSE, which states that a client has a contractual obligation to cause a JSE trade to settle on settlement day. The JSE, in its capacity as Settlement Authority, ensures that all on-market trades entered into by two JSE member firms settle five days after the trades are entered into.

Investors obtain the assurance that their transactions will settle on the specified settlement day. The appropriate cash and share accounts will be debited / credited on settlement day and the risk of delayed settlement and loss of earnings is vastly reduced.

2.8.6 Simultaneous final irrevocable delivery versus payment (SFIDvP)

SFIDvP refers to the principle whereby the delivery of shares by the seller and payment for those shares by the buyer occur simultaneously. SFIDvP is enabled by, reserving the shares and cash before the point of settlement in order that they are ready for simultaneous, electronic transfer on settlement day. This transfer is irrevocable and the finality of the transfer is upheld by the amendments to the Companies Act (1973) and in terms of the Custody and Administration of Securities Act (1992) and the CSD Rules.

Buyers need not fear that, having paid the requisite amount for a said number of shares, the seller will fail to deliver the shares in question or vice versa. Both legs of the settlement occur simultaneously, providing assurance to both buyer and seller. Transfer of ownership is immediate upon settlement and principal risk is effectively eliminated. Principal risk refers to the risk whereby a party to a trade will lose the full value involved in the transaction. This could occur when there is a delay between the payment and transfer of ownership of the securities.

2.8.7 Connectivity through SAMOS

In 1998, the South African Reserve Bank granted STRATE permission to use its computing infrastructure, SAMOS (South African Multiple Options System), as the development platform for SAFIRES. The main benefit that SAMOS brings to the South African financial markets is that it provides for final and irrevocable payment. Similarly, STRATE provides the investor with contractual settlement and finality of ownership transfer.

By synchronising scrip ownership transfer through STRATE with the payment thereof through SAMOS, the equity market is able to provide local and international investors with SFIDvP, as explained above. SAMOS provides for final and irrevocable payment settlement, while STRATE provides the investor with real-time settlement and finality of ownership transfer. By making the SAMOS settlement infrastructure available for the settlement of financial market transactions, the Reserve Bank has greatly boosted the capability and competitiveness of the South African financial markets. The interdependence of these two systems is in line with the worldwide drive towards consolidation and the resultant economies of scale.

2.8.8 Accuracy of the shareholders' register

The electronic register is updated real-time on T+5 when the simultaneous transfer of shares and funds takes place.

This means that all trades will be reflected on the register of shareholders for dematerialised shares in the STRATE environment as there will be no outstanding share transactions except for trades effected during the last five days. This is in stark contrast to the paper-based environment, which allows up to six months for the register of shareholders to be updated. Listed companies wishing to obtain an accurate idea of their shareholders will find themselves in a far more efficient position in the STRATE environment.

2.8.9 Compliance with G30 recommendations

The Group of 30 (G30), a private group of prominent financial industry participants, in 1989 proposed nine standards for improving the world securities industry's efficiency and reducing settlement risks. STRATE complies with all these recommendations and even surpasses certain of the guidelines to ensure that the risks in the settlement process are further minimised.

Foreign fund managers operate within the parameters of local regulations, which invariably demand a balance between risk and return. STRATE's adherence to internationally accepted settlement standards will result in the enhanced global status of the South African market, increased foreign investment and exchange and, consequently, an improved economy.

The nine recommendations tabled in 1989 are:

1. All comparisons of trades between direct market participants should be accomplished by T+1 (the day after the trade has been struck).
2. Indirect market participants such as institutional investors should be members of a trade comparison system that achieves positive affirmation of trade details.
3. Each country should have an effective and fully developed central securities depository, organised and managed to encourage the broadest possible industry participation.
4. Each country should study its market volumes and participation to determine whether a trade netting system would be beneficial in terms of reducing risk and promoting efficiency. If a netting system would be appropriate, it should be implemented.
5. Delivery versus payment (DVP) should be employed as the method for settling all securities transactions.
6. Payments associated with the settlement of securities transactions and the servicing of securities portfolio should be made consistent across all instruments and markets by adopting the "same day" funds conventions.

7. A “rolling settlement” system should be adopted by all markets. Final settlement should occur on T+3 (three days after the trade was struck).
 8. Securities lending and borrowing should be encouraged as a method of expediting the settlement of securities transactions. Existing regulatory and taxation barriers that inhibit the practise of lending securities should be removed.
 9. Each country should adopt the standard for securities message developed by the International Organisation of Standardisation (ISO Standard 7775). In particular as defined in the ISO Standard 6166, at least for cross border transactions.
- (G30 1989:10)

The G30 proposed major reforms for Global Securities Markets, to increase safety, reduce investor costs and strengthen market efficiency for international clearance and settlement of securities.

The Report’s twenty recommendations:

Creating A Strengthened, Interoperable Global Network

1. Eliminate paper and automate communication, data capture, and enrichment.
2. Harmonise messaging standards and communication protocols.
3. Develop and implement reference data standards.
4. Synchronise timing between different clearing and settlement systems and associated payment and foreign-exchange systems.
5. Automate and standardise institutional trade matching.
6. Expand the use of central counter-parties.
7. Permit securities lending and borrowing to expedite settlement.
8. Automate and standardise asset servicing processes, including corporate actions, tax relief arrangements, and restrictions on foreign ownership.

Mitigating Risk

1. Ensure the financial integrity of providers of clearing and settlement services.
2. Reinforce the risk management practices of users of clearing and settlement service providers.

3. Ensure final, simultaneous transfer and availability of assets.
4. Ensure effective business continuity and disaster recovery planning.
5. Address the possibility of failure of a systematically important institution.
6. Strengthen assessment of the enforceability of contracts.
7. Advance legal certainty over rights to securities, cash, or collateral.
8. Recognise and support improved valuation and closeout netting arrangements.

Improving Governance

1. Ensure appointment of appropriately experienced and senior board members.
2. Promote fair access to securities clearing and settlement networks.
3. Ensure equitable and effective attention to stakeholders' interests.
4. Encourage consistent regulation and oversight of securities clearing and settlement service providers

2.8.10 Ability to settle all financial instruments

The SAFIRES system is able to settle all kinds of financial instruments: equities, bonds, money market instruments, derivatives and unit trusts.

If STRATE were to settle all financial instruments, investors would benefit from an efficient system in the settlement of all their investment transactions. The utilisation of STRATE for the settlement of all financial instruments would lead to significant economies of scale. Since STRATE's profits are capped, such savings would be passed on to investors by mean of a reduction in settlement costs. Indeed, settling all financial instruments in the same environment would create consolidation, streamlining, cost savings and marketing opportunities for all affected industries. It would also increase market liquidity, eliminate operational risk (the risk that improper operation of trade processing or management systems will result in financial loss) and enhance market efficiency.

Investment managers will also be able to compile a more accurate risk profile for the assets under their management because all financial instruments within a portfolio would be subject to the same settlement procedures.

2.8.11 Combination of gross and net settlement

Since STRATE's netting engine was fully implemented on 6 November 2000, STRATE has been in a position to offer both gross and net settlement.

Some products are better settled gross than net, and vice versa. The ability to offer both methods of settlement is an advantage to all market players, who invariably offer multiple investment products.

2.8.12 Electronic execution of corporate actions

STRATE executes all corporate actions electronically. For example, interest, dividends and proceeds will be credited to the clients' accounts.

The electronic execution of corporate actions is quick and secure. Payments will be transferred electronically with same-day value. Investors will therefore benefit from a dramatically increased level of efficiency and cost effectiveness.

2.8.13 Protection against tainted scrip

The tainted scrip problem typically arises when genuine share certificates are lost or stolen, and subsequently negotiated with a forged transfer document. The fraudulent transfer results in the person who holds a genuine share certificate and claims the right to the securities indicated on it, to no longer be reflected in the register of members as the holder of these securities. Instead, the subsequent holder, who holds tainted scrip, evidencing title to the same securities, has dematerialised these shares and is reflected as the holder of these securities in the electronic register.

Naturally, investors will want to claim compensation for the failure of the market players to ensure the safe maintenance of their legal title in the paper-based environment.

Therefore, STRATE established a Dispossessed Members' Fund - much like an insurance policy - with cumulative cover of R2 billion, which offers a cost-effective and convenient solution to the investor and increased protection for all market players. This ensured that the transition process into STRATE was not affected by the tainted scrip legacy of the paper-based environment.

Tainted scrip is an inherent problem in a paper-based settlement world. Although under the STRATE system, tainted scrip will be eliminated, cognisance has to be taken of the fact, that there may be a problem of shareholders who discover at the point of dematerialisation that they have fallen prey to fraudulent activity. STRATE has taken the responsibility of preparing the market to deal with this potential problem. These dispossessed shareholders will need to be compensated for the failure of the market players to ensure the safe maintenance of their legal title in the paper-based environment.

A possible route of recourse for such dispossessed shareholders has, in the past, been an application for rectification of the register under s115 of the Companies Act (1973). This process was, however, lengthy and expensive for all concerned. The solution came in the form of a Dispossessed Members Fund (DMF) whose objective is to provide quick, efficient recompense to bona fide disposed members in a dematerialised environment. STRATE called upon all parties due to benefit from the elimination of tainted scrip in the market, to contribute to the Fund.

2.8.14 Increased market regulation

STRATE is the regulator of the CSDPs and has a responsibility to ensure the certainty of market transactions. The JSE regulates qualifying stockbrokers. The regulation of the market players is significant as CSDPs and qualifying stockbrokers act as agents for investors and have a statutory and contractual duty to protect the records of the investor in the electronic environment.

Investors gain the peace of mind that all business processes associated with electronic settlement are regulated by STRATE and the JSE under the authority of the Financial Services Board.

As illustrated by the examples above, the key features of electronic settlement contribute to a massive reduction of risk in the South African market. This increased South Africa's standing as an investment destination for international investors who will undoubtedly provide a significant boost to both trading and liquidity. For a country so desperately in need of foreign investment, the importance of the STRATE initiative cannot be overestimated.

Greater trading volumes and easier settlement would have the positive effect of promoting South Africa as an investment destination and improve liquidity. The improved liquidity that greater investment in South African markets would promote would contribute to a better money supply within the country. The media have (Business Day Reporter, 2003) have ratified the contention that STRATE has led to increased trading volumes through improving the settlement efficiency of the JOSE. This ratification is based on the findings of GSCS Benchmarks, a British publication measuring the effectiveness of international securities exchanges.

The knowledge of how STRATE impacted upon trade volumes would be valuable to the industry in that adequate planning around more trades and greater certainty in anticipating the availability of instruments. The nature of stock trading makes it possible for an investment professional to sell an instrument he does not own. Participants can profit from price movements between times of sale and delivery of the instrument.

2.9 Operational Fundamentals

As international investors continue to look for new and ever more fascinating countries in which to invest, so the competition among emerging markets becomes keener. One of the key areas in making a market more attractive is to improve its operational efficiency and to limit failed trades.

STRATE provides the South African market with the ability to settle transactions both timeously and efficiently, ensuring that settlement in the South African market is a low risk and efficient process.

2.9.1 The System

STRATE's executives, after several initiatives to utilise existing systems in the country to perform clearing, settlement and depository functions, concluded in mid 1997 that there was no system in South Africa capable of doing the work required by STRATE. In September 1997 a team of banks and JSE representatives spent time in Switzerland and concluded that the Swiss system was the right system for South Africa as Switzerland was one of the few countries to comply with the G30 recommendations and in particular to achieve true simultaneous, final and irrevocable delivery versus payment. In May 1998, the agreement to buy the Swiss system was concluded. The successful implementation of this system in April/May 1999 marked the beginning of a new era in South African equities settlement.

SAFIRES (South African Financial Instruments Real Time Electronic Settlement System) and its corresponding front end system SAFE (Safires Front End) have made the transition from a paper –based to electronic-based environment possible.

2.9.2 The Process-Equities

The process begins with the investor, who will place an order for trade with a JSE member firm. This trade is classified as being an “On-Market Trade”. The JSE member firm enters the order into Jet, where it will be matched automatically with an opposite order. The matched trade will then be passed from JET, for broker-to broker trades, or BDA, for broker-to-client trades, to SAFIRES, the processing system of STRATE. SAFIRES will send instructions to CSDP's to settle.

Off-market trades are trades in uncertified securities not concluded through the JET system and which are reported by the seller and the purchaser of the uncertified securities to their relevant CSDP, for settlement through the CSD. CSDP's through a “commit”

process, confirm to SAFIRES that settlement may proceed. The commit process is a conditional undertaking by the CSDP to ensure that the transaction will settle on settlement day i.e.: that the securities and/or funds are available, on settlement day, to effect the transfer of ownership. On settlement date, SAFIRES confirms the availability of shares through the “reservation process”. If reservation at CSDP level is successful, SAFIRES proceeds to send a request for the transfer of funds to the South African Reserve bank (SARB). SARB facilitates the movement of cash between the participants through the South African Multiple Option Settlement system (SAMOS). Cash obligations are netted across transactions, per participant, per payment run. Once the availability of bank funds has been confirmed, and money has been transferred between SARB bank accounts at CSDP level, SAFIRES will transfer ownership within CSDP’s uncertificated securities accounts in the SAFIRES system. For transactions that do not involve payment (account transfers and free of value orders), transfers will be effected on settlement date provided the participants have sufficient security balance.

Confirmation of a successful settlement is then related to the CSDP, who reflect the entry in its books at client level. Settlement is completely secure because the transfer of funds and shares happens simultaneously; in a contractual transaction that is considered to be both final and irrevocable. At the end of the business day, transactions that could not settle (either due to lack of security or funds) will be treated as failed.

2.9.3 The Process-Warrants

Warrants are options that are issued by financial institutions or other approved warrant issuers and traded on the JSE. Warrants entitle the holder to buy or sell a specific number of shares in that company at a specific price (the exercise price), at a specific time or during a specific period in the future. Warrants are traded on the JSE in a similar way to equities.

2.9.3.1 Settlement of Warrants within the STRATE Environment

New issue: The Listing Department will approve the warrant issue within four days of formal application, after which the Listing Department will allow two business days, to

enable STRATE to finalise the administration prior to listing. In addition to the normal application the issuer will need to furnish the Listing Department with their STRATE CSDP details including their Safe Custody Account Number in SAFIRES. The requisite Master File Data for the warrant will be loaded in the CSD. On activation date the issued warrants will be credited to the Safe Custody Account of the issuer in the CSD.

Trading of Warrants: Warrants will be traded and settled in the same manner as equities.

Benefits of settling Warrants through STRATE: STRATE Issuer Services will act as the Transfer Secretary, which means there will be no physical certificates in the environment.

- STRATE will balance the nostro account on a daily basis.
- No more cheques issued by the investor and issuer.
- Beneficiary download on a monthly basis.

2.10 Share issues

All shares listed on the JSE Securities Exchange have already entered STRATE, which means that shareholders are obliged to convert their share certificates into an electronic format before they can trade with them.

2.10.1 Dematerialisation

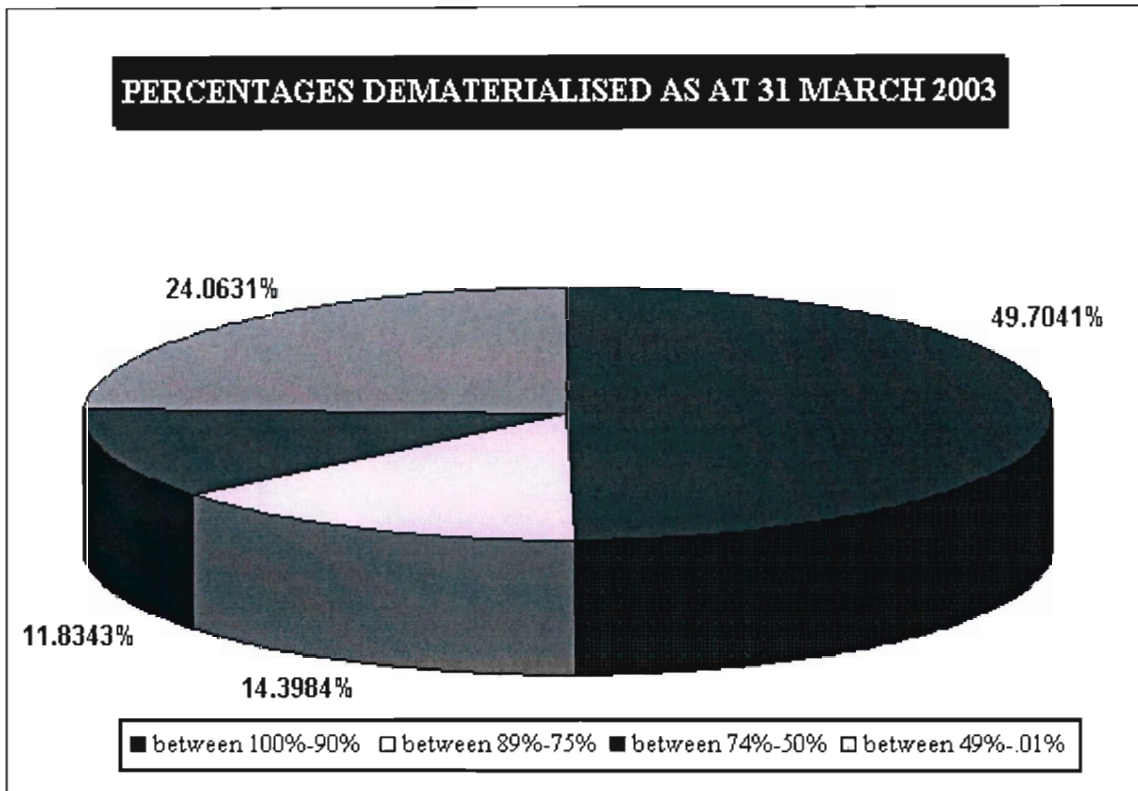
Dematerialisation is the exchange of scrip (physical certificates and certified deeds) for an electronic record of ownership of securities. Section 91A of the Companies Act was introduced to facilitate the dematerialisation of securities.

September 27, 1999 was a significant landmark in South African equities history. This date marked the event of the first dematerialisation of 21 154 825 Harmony Gold Mining shares. Monday October 25, 1999 signified the first trading of dematerialised Harmony shares and thereafter Monday 1, 1999, was the date STRATE undertook the very first electronic settlement of shares in South Africa.

Figure 2.1: Dematerialisation Statistics as at 31 March 2003

Percentages dematerialised	No of counters
Between 100%-90%	252
Between 89%-75%	73
Between 74%-50%	60
Between 49%-.01%	122

Total 507 Dematerialised counters in Safires at the 28 February 2003



Research shows that for every country, the process of switching to electronic settlement is different. In Australia, for example, the introduction of electronic settlement was preceded by two years of dematerialisation, while in India only 200 companies were migrated during the first year of electronic settlement. STRATE elected a phased implementation. The dematerialisation process has been gradual with a dematerialisation schedule being published in all main media and defining the start dates from when securities for each issuer are due for formal dematerialisation. The dematerialisation

schedule further specifies the first day for trading for electronic settlement and the date of first electronic settlement. Changes to the JSE Rules and Listings requirements have resulted in the market practice, that once a security is announced to participate in STRATE and the settlement start date has passed, that physical securities are no longer “good for delivery” i.e.: cannot be used to effect the transfer of ownership.

In short, the dematerialisation witnesses an investor approaching either a CSDP directly, or via a member firm, to effect the process. The CSDP communicates electronically with the transfer secretary concerned, while simultaneously surrendering the physical share certificates (in the agreed format). The transfer secretary confirms that the share certificate is valid, cancels the original certificate and deletes the certificated record on the register of members. The transfer secretary immediately advises the CSD of the successful dematerialisation order – the ISIN and quantity of shares. The CSD credits the CSDP’s account in the CSD and the CSDP credits the client’s account in the electronic sub-register. Once the shares are dematerialised and reflected as an electronic entry, they may be sold or transferred.

The steps leading to the dematerialisation of a share included the advertisement in the media to the general public that the specific stock was due for de-listing. Companies furthermore notified their shareholders. Shareholders were invited to submit their share certificates to their brokers who ensured that they were transferred to a CSD. Alternatively, non-controlled shareholders dealt with a CSDP directly. The shareholder received a receipt while the transfer secretary of the company concerned certified the validity of the share certificate. Once verified, the shareholder receives monthly statements of their holdings.

A CSDP is responsible for trading a security on behalf of its client and relaying the information to STRATE. Statements and queries are dealt with by the relevant CSDP. STRATE updates the record of the transaction on the share register of the affected company and guarantees the rolling settlement of the transaction within T+5 with SFID.

Because STRATE remains the custodian of all records, the likelihood of share data becoming tainted is greatly reduced. Scrip is replaced by electronic record.

Shareholders can, at a price, elect to re-materialise their share records. To trade the shares further, the shareholder will be required to dematerialise the stock once again. There is no statutory requirement that shares be only held in an electronic format.

The easier arrangement brought about by STRATE was envisaged as being likely to lead to greater participation of the general public in the activities of the JSE. This factor, and the relative ease within which securities could be traded was seen as ultimately resulting in increased volumes of the trade of shares.

Wessels (2002) holds that the investors keenest to dematerialise their holdings were institutional investors (such as pension funds and unit trust fund management companies) who hold up to 82% of the market's capitalisation. Individual shareholders have been slow to dematerialise their shares and have missed the window period when they could have done so without incurring a fee.

Before STRATE, South Africa ranked poorly in terms of the integrity of its settlement system. The subsequent risk was upheld as making the country an unattractive destination for international investment, leading to stunted levels of trade and liquidity (Singer, 2002;Bolin, 2002).

The advent of the STRATE system has allowed South African companies to register on foreign exchanges and still maintain a presence in South Africa. Electronic settlement allows all trades involving South African companies, to be settled by STRATE regardless of where they occur in the world (STRATE Handbook, 2002).

The introduction of dematerialisation has not been welcomed with the enthusiasm that the proponents of STRATE initially anticipated that it would be (Singer, 2002). STRATE contends that the principle issues of complaint surrounding STRATE's implementation

have come from company transfer secretaries schooled in the previous manner of conducting settlement. These officers have sometimes experienced difficulty in adjusting to STRATE. Computer problems have, on occasion, resulted in delays in the issuing of statements of share ownership – further adding to criticisms of the system.

2.10.2 Duty of Care

It is accepted that the process of dematerialisation is vital in the control and detection of tainted scrip. As stated above, in order to dematerialise securities, the investor will hand his share certificates to his chosen CSDP, or via his broker to the CSDP of the broker's choice. The investor warrants the genuineness of the share certificate. This deposit of the share certificate does not result in any cancellation of the certificate and the holding still appears in the certificated register of members. At this point, both the broker and the CSD participant carry out a level of verification before certificates are lodged with the transfer secretary who undertakes the dematerialisation thereof. Both the broker and the CSD participant have a duty to physically validate the certificate and are entitled to reject any certificate which, to an ordinary person, appears to have been tampered with.

The duty of care, however, falls hardest on the Transfer Secretary, who is also entitled to reject a particular submission for dematerialisation where it does not satisfy as to the regularity of the scrip. It is the Transfer Secretary who controls the process of dematerialisation and has the primary means to detect tainted scrip. The verification of share certificates is indeed part of the duties normally performed by a Transfer Secretary. It is from this duty that the entire debate about liabilities arising from tainted scrip arose and which laid the foundation for the formation of the Dispossessed Members Fund.

2.10.3 Settlement

Settlement can be defined as the process whereby a trade in equity or another instruments results in the transfer of ownership of the equity or instrument in return for payment (Thompson, 2000).

The system used to identify, trade ownership of shares and settle these transactions was previously based on paper certificates called scrip. Scrip was notoriously difficult to administer and required a delay between the trading of a share and settlement because of the high levels of manual intervention required.

The Johannesburg Stock Exchange (the forerunner to the current Johannesburg Securities Exchange), because of administrative limitations, settled scrip on a Tuesday only. The ‘horse shoe mechanism’ that characterised the trading of scrip on a paper basis effectively left shareholders and investment professionals unaware of exactly how long it could take before settlement for traded shares would be arrived at. If a trade was concluded on a Tuesday, the transaction was processed a week later at the earliest. The delays made the introduction of equities lending (whereby tradable stocks are lent between financial institutions so that security for deals can be arranged without having to make a purchase) in South Africa difficult to manage and has resulted in the country lagging behind comparable jurisdictions because of these pre-STRATE impediments.

The nature of trading on formal markets makes it possible for a broker to sell an instrument that he does not yet own. This presents an opportunity for investment professionals to profit from price movements between the time of the sale and delivery of the instrument. In order to properly engage in these types of transaction to a greater degree of effectiveness, an electronic settlement system is required as settlement will occur in real time and bring about a greater degree of certainty to trades. It was not uncommon for trades to remain unsettled for months after the transaction was first entered into. Payment for the shares was effected upon the transfer of the share certificates, thus complicating the management of cash flows.

Participants in the share markets justifiably complained of delays when trading, and difficulties in budgeting and planning the business of a company effectively when little certainty as to settlement times was available. Commentators have described the JSE before the appointment of CEO Mr. Russell Loubser - and the measures introduced by him - (STRATE included) as being run along the lines of a co-operative, removed from

the wants and legitimate concerns of the companies impacted by its operation (Theobald, 2002). STRATE is the largest, most expensive element in the correction of this position. Other measures that have been introduced include the opening up of membership of the JSE to non-South African citizens, the changing of exchange rules enabling brokers to act in their own right buying and selling for their own account and not necessarily as agents as they had to previously and the establishment of corporate membership of the JSE (Mbendi, 2003).

Delayed settlement resulted in losses as share prices fluctuated in the period between the transaction and settlement. Delays severely curtailed the ability of investment managers to purchase and dispose of shares as quickly as they are required to in some instances in order to grow investor value.

Scrip is furthermore easily forged or manipulated (STRATE Handbook, 2002). Human error further compounded the problem of share certificates containing incorrect data. 'Tainted' scrip resulted in a large number of share certificates reflecting incorrect information and leading to disputes as to the ownership of the instruments.

The STRATE system replaces paper-based records of share ownership with electronic records, an advent termed 'dematerialisation'. All electronic trades are settled within five business days (T+5). Every weekday (not only a Tuesday) is recognised as a trading day. The STRATE system requires the JSE contractually to settle all trades within this period, thus greatly reducing the risk of loss as a result of a delayed settlement. The JSE has announced that all trades would be settled within three days from as early as 2003 (Wessels, 2002).

The principle of simultaneous final irrevocable delivery (SFID) of securities ensures that delivery of the securities and payment for them occurs simultaneously.

STRATE allows for the settlement of instruments other than shares. Futures, options, warrants, bonds and units of collective investment schemes such as unit trusts, can be

settled and traded using the STRATE system. The computer infrastructure used by STRATE runs on proven technology utilised by the London and Swiss Stock Exchanges.

The public and brokers are not able to deal with STRATE directly. STRATE as the Central Shares Depository, or CSD, deals directly with a number of CSD participants. A participant, or CSDP, deals directly with brokers and the public.

2.11 Regulation and Risk

Emerging markets face the same issue that today's developed first world markets faced in their earlier stages decades ago; How to build a safe securities market that will attract both domestic and foreign investment to increase local and international monetary flows into the market, to ensure a healthy and thriving environment.

A common issue facing all countries in the development of its securities markets is safety. A cornerstone of a safe, stable securities market is a safe and reliable clearing and settlement system and market participants who operate effectively, efficiently and accurately.

STRATE Ltd in conjunction with the JSE acting as Settlement Authority focuses on achieving safety in the clearing and settlement system so that domestic and foreign investors are comfortable that their trades will be brought to completion no matter what chaos or confusion the market may be experiencing.

The risk management framework of STRATE, acting as regulator of the CSD and its licensed participants must ensure that the securities market is empowered with the knowledge, information and controls that will enable it to operate accurately and efficiently. Regulation solutions need to make the market safe for domestic investors and attract foreign liquidity.

Regulation is about affecting behaviour. It can proceed through imposed, prescriptive and detailed rules or by creating disincentives for inappropriate behaviour. STRATE uses a

combination approach. The aim is for regulation to have a beneficial impact on organisations processes and operations.

Definition: Operational Risk is the risk that deficiencies in information systems or internal controls will result in unexpected loss. The risk is associated with human error, systems failures and inadequate procedures and controls.

Operational risk covers such a wide area that it is useful to subdivide operational risk into two components: Operational Failure Risk and Operational Strategic Risk.

Operational Failure Risk – arises from the potential for failure in the course of operating the business. A firm uses people, processes and technology to achieve business plans, and any of these factors may experience a failure of some kind. Accordingly, operational failure risk can be defined as the risk that there will be a failure of people, process or technology within the business unit. A certain level of the failures may be anticipated and should be built into the business plan. It is the unanticipated, and therefore, uncertain failures that give rise to the key operational risks. These failures can be expected to occur periodically, although both their impact and their frequency may be uncertain.

Operational Strategic Risk – arises from environmental factors, such as a new competitor that changes the business paradigm, a major political and regulatory regime change, earthquakes and other such factors that are outside the control of the firm. It also arises from major new strategic initiatives, such as developing a new line of business or re-engineering and existing business line. All businesses rely on people, processes and technology outside their business unit, and the potential for failure exists there too – this type of risk is also referred to as External Dependency risk.

The focus at STRATE has been driven by a desire to raise and maintain the standards of integrity within the financial markets as a whole. This is being done through the monitoring and policing of all licensed participants and other system users in conjunction

with the other appointed regulators in the market to ensure that both local and foreign investors can view the SA market as operating honestly.

2.11.1 Risk Management in Emerging Markets

Understanding risk in emerging markets is a critical risk success factor for management today. Risk management is about controlled decision making rather than risk avoidance. Balancing risk and reward is increasingly important but reward does not come without risk.

Definition of Risk: the taking of deliberate actions to shift the odds in our favour and to increase the odds of good outcomes and to decrease the odds of bad outcomes.

Our ability to manage risk effectively is dependent firstly on being able identify potential risks, and secondly being able to measure those risks. Setting strategy is a key element in managing risk because it sets the direction for the business as a whole. Businesses survive and prosper by taking risks, provided they are managed effectively. To do this they must decide what risks they want to/can afford to take by setting an appropriate strategy, which must be supported by putting in place a risk framework that is robust and adequately resourced.

In emerging markets, the approach to risk management must be different because the type of risks and the ways in which they can be managed are not the same as in developed economies.

Lack of development and/or instability, are the key characteristics, which distinguish emerging markets. Today, there is a need to open up to increase income levels, which includes a willingness to accept more investment by foreign companies and/or ownership of local companies. Though the potential rewards may be high for companies looking to invest in these markets this will only come to those that understand and manage risk effectively. For those just entering the market place it is important to learn from others' mistakes to ensure that disasters are avoided-forearmed is forewarned. In the future

companies will succeed not through bigger and bigger risk management departments, but through line managers understanding and managing risk effectively.

2.12 STRATE's role as Regulator

One of the main challengers of regulators is to keep up with and adapt to continuous changes – some of which are international in nature. Regulation must be flexible. The regulatory structure in South Africa is dynamic and since the 1980's major changes have taken place. The office of the registrar of Banks and Building was transferred from the department of Finance to the Reserve Bank in 1987 and the Office of the Registrar of Financial Markets was established as a statutory body i.e.: the Financial Services Board (FSB) in 1989.

This responsibility has been apportioned to STRATE by the Financial Services Board, in keeping with their stated objectives of “Self Regulation”. The challenge that STRATE assumes lies primarily in the need to create heightened awareness for this role. In addition there is a need to entrench the benefits of effective regulation in a market that has previously suffered through material indisciplines. These negatively affect the international investment environment.

As the regulator of the CSDPs, STRATE has a responsibility to ensure the certainty of market transactions and a statutory and contractual duty to protect the records of the investor in the electronic environment. Investors gain the peace of mind that all business processes associated with electronic settlement are regulated by STRATE to ensure that inefficiencies and risks associated with this market are minimised wherever possible.

STRATE has adopted a risk-based approach to its regulatory responsibilities. Every entity operating within the STRATE environment is obliged to carry and manage certain risks. These are inherent in the role that they each perform in the settlement process and require a heightened level of understanding the pro-activity to ensure that these risks are not aggregated in the market.

The matrix below highlights seven broad risk categories and dominant carriers of each. Looking specifically at the CSDPs it is apparent that they, along with the brokers, carry the bulk of the specific risks. These need to be effectively managed if the market is to avoid undue systemic risk as a result of any consolidation onto STRATE of unmanaged risk at the CSDP level. Herein lies one of STRATE's primary operational obligations.

Table2.1: A representation of the Seven broad Risk Categories

(Source: STRATE Limited (2002): STRATE handbook. Johannesburg: Johannesburg Securities Exchange)

<u>RISK MATRIX</u>				
RISK	STRATE	Settlement Authority	CSDPs	Brokers
Principal	<u>NO</u>	NO	YES	YES
Tainted Scrip	NO	NO	YES	YES
Settlement/ replacement Price	NO	YES T+O to final confirmation	YES From final confirmation	YES T+O to final confirmation
Credit	NO	YES	YES	YES
Liquidity	NO	YES	YES	YES
Systemic	YES	YES	<u>YES</u>	YES
Operational/ Technological	YES	YES	YES	YES

As has already been mentioned, STRATE itself carries an aggregation of all these risks in the market place, dependent upon how well they are controlled by the individual parties. Uncontrolled or poorly controlled risks introduce higher levels of systematic and operational risk to the STRATE environment. Clearly these need to be contained to ensure that the levels of integrity and system performance are maintained.

STRATE's regulatory responsibilities need to be measured against a specific standard and in an effort to align itself to international best Methodologies have been developed to monitor key CSDP activities on a daily basis in an effort to ensure that the levels of understanding of risk have been enhanced with each of their operations. In this way, and through regular intervention, STRATE strives to ensure that the market as a whole is not

exposed to unnecessary risk practise STRATE has we have accepted the workings of the Group of 30 (G30) with which to do this.

The introduction of electronic settlement and custodianship to the South African market has brought with it a need for higher levels of discipline and risk management.

This was foreseen by the legislation, which requires that STRATE fulfil a regulatory function. “STRATE is the overseer of risk in the custody and settlement arena,” Singer explains.

“The self-regulatory approach imposes on STRATE the requirement to make and enforce the rules that govern this environment. The approach adopted in the legislation is consistent with that adopted in other markets.” STRATE, she notes, thus has two functions:

- The operation of a CSD (Central Securities Depository); and
- The regulation of its own operations as well as those of its licensed CSDPs.

The regulation of the broking community remains within the ambit of the JSE Securities Exchange, which also carries SRO (Self-Regulating Organisation) status in the South African regulatory structure.

“We have taken settlement into the 21st century, in the process creating certainty of settlement, vastly reducing risk and elevating the status of the JSE Securities Exchange to a level that no longer discourages foreigners from investing here,” says Singer.

Specifically, STRATE’s duty as a regulator is to:

- Monitor the performance and compliance of the CSDPs;
- Ensure effective management of operational and business risk;
- Investigate breaches;
- Apply effective and appropriate discipline; and
- Maintain system and performance integrity.

2.13 Corporate Governance

Corporate governance is important for the economic health of corporations and society in general.

Definitions: “Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment”. The Journal of Finance, Shleifer and Vishny.

“Corporate governance is the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation, such as, the board, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. By doing this, it also provides the structure through which the company objectives are set, and the means of attaining those objectives and monitoring performance.” OECD, April 1999.

The definition supported by STRATE is simply:

“Corporate governance is about promoting corporate fairness, transparency and accountability” J Wolfensohn, president of the World Bank, as quoted by an article in Financial Times, June 21, 1999.

Governance is more than processes and procedures – it is not just a business matter – it involves relationships. Companies have learnt that they can create better products and provide higher levels of service with the full “mental” participation of their employees and by “positive linkages” with third parties. It covers a full set of relationships between management, employees, stakeholders and shareholders, regulators and the industry/community in which it is located.

Good corporate governance should be fostered for a number of reasons. A primary need is that poor governance can harm economic performance and ultimately effect financial stability. This is because poor corporate governance structures lead to poor decision-

making. Weak processes and ineffective procedures and controls prevent early warning signs appearing and hence highlighting deteriorating conditions within an organisation. Transparency and accountability attracts new business – it gives financial incentive to the investing community. In order to attract and retain large pools of capital from investors, there needs to exist credible and recognisable corporate governance arrangements. Weak corporate governance undermines confidence in a financial system and markets as a whole.

The McKinsey & Co Investor Opinion survey in June 2000 found that in excess of 84% of the more than 200 global institutional investors, indicated a willingness to pay a premium for the shares of a well-governed company over one considered poorly governed but with a comparable financial record. In short – board practices are at least as important as financial performance. Organisations stand to gain from improving the way they operate. There should be a “culture” of continuous questioning and discussing and working towards better practices.

It is in context of growing awareness of the importance of good corporate governance that the King Committee released a report on Corporate Governance in South Africa. The draft report issued on 18 July 2001, provide guidance to organisations on how they can go about implementing the structures and processes in order to achieve effective risk management. It is these risk management practices that give investors comfort and confidence to invest. The King report places a major emphasis on Risk Management as the cornerstone to internal control, and states that the responsibility for risk management lies with all levels of staff (including compliance officers) but is ultimately that of the directors/board of each organisation.

The King Report defines risk management as the “process of deciding which risks to avoid, control, transfer or accept”. It recommends that a comprehensive set of controls, which are assessed on an on-going basis, should be established to ensure that risks are identified, evaluated, managed and mitigated and that overall company objectives are attained. Models and frameworks, as well as disclosure procedures, should be used in

order to support and report on business objectives, safeguard investments and protect investor interests.

King II (as the report is known) expects that “the system of internal control should be embedded in the operations of the company and form part of its culture. The objective should be to ensure that all likelihood of significant control failings or weaknesses occurring is minimised. To achieve this it is necessary for the directors to ensure that people at all levels of the organisation understand the significant risks which are relevant to the tasks, which they perform. They must also ensure that control strategies are applied which are relevant to these risks and that the fundamentals of good risk management and internal control are carried out. Early, rather than late, warning of potential control failings and weaknesses should also be provided”. KING REPORT II report was released on 26 March 2002.

The STRATE board support the principles of openness, integrity and accountability. Following the publication of the King Report of Corporate governance and the subsequent release of the King 2 report, the board assesses the company’s policies on an ongoing basis to ensure that they meet current requirements. The policies relate, inter alia, to the duties of the board and to the delegation of powers to the various board committees, and specific responsibilities and the level of authority. Two independent non-executive directors were appointed subsequent to the year-end with specific expertise in Corporate Governance and Risk Management.

Relevant law and regulation, the standard participation contract, established terms and conditions of participation, the by-laws and rules of the depository and directives all govern the relationship between the depository and its participants.

STRATE is subject to periodic examination by the regulatory authorities (FSB) and independent accountants. The regulatory authority has various remedies available for breach of applicable statute or other requirements, namely fines, suspension of depository activities, and termination of depository activities. In terms of the Custody and

Administration of Securities Act, 1992, certain powers have been delegated to the Controlling Body of STRATE as a self-regulatory organisation. The Controlling Body of STRATE enforces compliance with the conditions of participation in terms of the CSD Rules. There have been no such enforcement actions in the last three years.

2.14 The need for Straight Through Processing (STP)

The financial services industry has recognised the need to move to more streamlined processes – more automation and less manual intervention. Such processes can be defined by the principles of Straight Through Processing (STP). STP in the equities market refers to the automated seamless processing of electronic messages relating to bank payments and securities trading, together with the associated transactions such as corporate actions, product/security master file set-up and customer account information. Measurement of the level of STP in any organisation or system is against three benchmarks – cost, accuracy of data and speed. The drivers to achieve STP come in many forms – globalisation of financial markets, the rise of e-business, the industry's move towards shorter transaction and settlement cycles, technological convergence, the migration from cross-border trades to no borders, exponential increases in message and trading volumes plus the continuing relentless drive to cut operating costs.

Straight through processing is the end, to end automated processing of transactions between institutions, from, for example, trade enquiry to final settlement. It involves the seamless, electronic transfer of information to all parties involved in the relevant trade cycle utilising standardised information flows, technologies and infrastructures. Achieving STP is complex: institutions need to electronically capture the right information, in order to efficiently and effectively carry out their business from initial enquiry to clearing and settlement. Accessing the appropriate internal and external systems and integrating these in a seamless value chain can be a major inhibitor. Nevertheless, a fully integrated STP capability linking all the areas of the transaction chain – banks, brokers, institutions, exchanges, private investors and the end-customers – is seen as a strategic requirement, for it reduces errors, through lost or incorrectly input orders or instructions, cuts administrative costs, allows for faster clearing and settlement

times, and reduces the risk and cost of capital. The means adopted within the STRATE environment to achieve this objective, has been the use of SWIFT.

2.15 The research of Kenichi Ohmae, Michael Porter and their relevance regarding the impact of STRATE

Research done on the writings of Kenichi Ohmae and Michael Porter with regard to STRATE.

2.15.1 Kenichi Ohmae

The impact of STRATE on trading volumes can be evaluated against the writings of Kenichi Ohmae (2000).

Ohmae (2001) holds that a ‘new economy’ has appeared as a result of the information revolution. The new economy is characterised by increased volumes of business and the extent to which information is processed.

The advent of the new economy has had a greater impact on the financial services sector than any other sector of the economy (Business2.0 Staff, 2001). The processing of information (for which financial services charge fees) has become dramatically more powerful from a revenue generation point of view than moving physical products (Business2.0 Staff, 2002). As the technological capability available to business doubles every eighteen months, a phenomenon termed ‘Moore’s Law’ (Intel Silicon Showcase, 2002), participants in the new economy are faced with ever-present challenges of remaining competitive.

The advent of the information technology revolution has allowed commerce to operate at unprecedented levels of speed and increased volume. Ohmae (2001) contends that businesses either adopt the principles of the new economy or face extinction and a dramatic decline in an ability to compete. Ohmae sees the advent of the new economy on commerce as being dramatic on human existence as the discovery of new continents in human history during the seventeenth and eighteenth centuries.

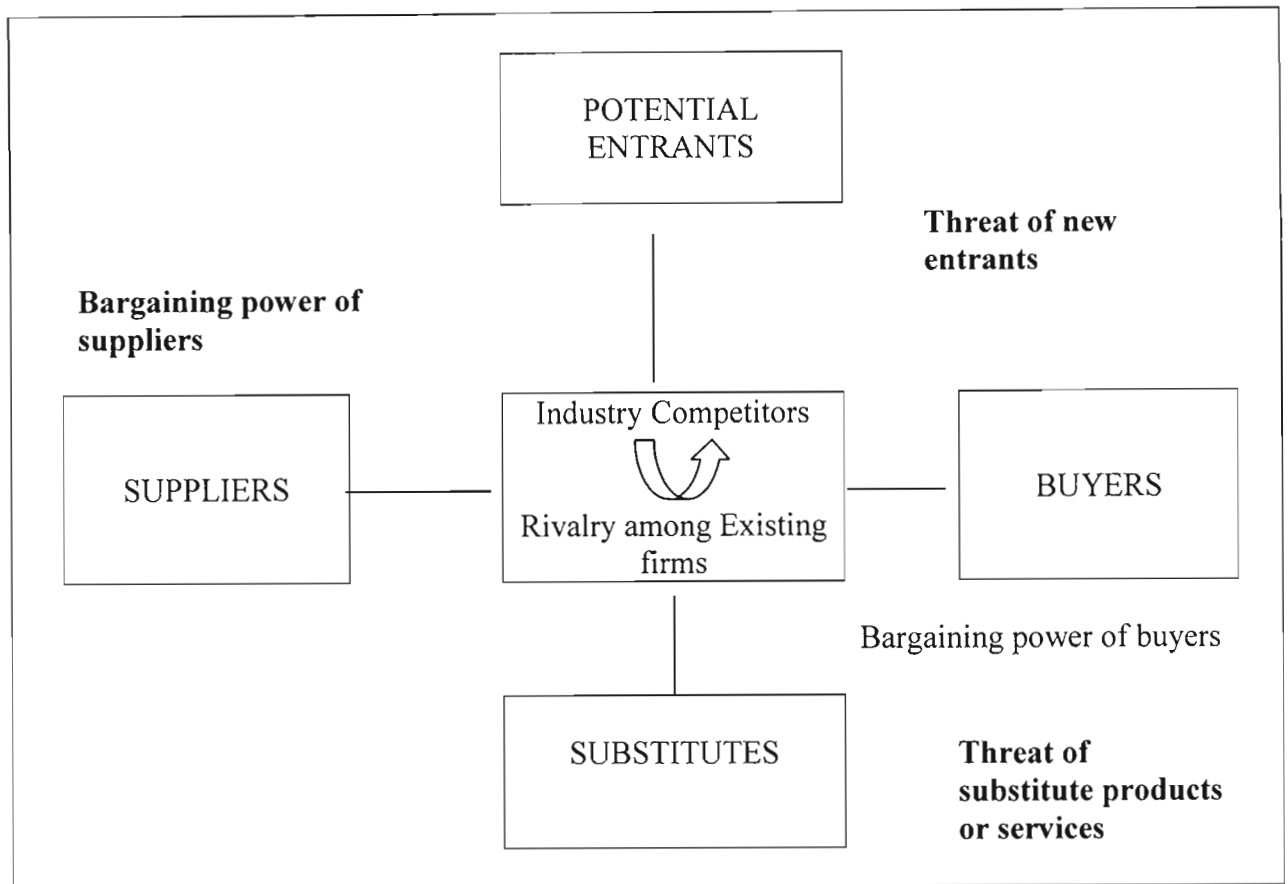
To Ohmae the new economy is characterised by a move away from physical business tools (such as scrip) towards electronic apparatus (such as STRATE) that make interaction easier. The advent of dematerialisation and conversion of scrip into electronic records can be seen as part of the move of stock exchanges into the new economy in an effort to avoid extinction.

2.15.2 Michael Porter

Michael Porter has emerged as an authority on corporate STRATEgy. Porter's models for the analysis of environments within which businesses operate have become a standard against which new STRATEgic tools are evaluated (Pearce & Robinson, 2000).

Porter's Five Forces Theory on Industry Structure may be utilised to better comprehend environmental factors and STRATEgise around them. Porter's model has enabled enterprises to more effectively interpret the environment around them.

Figure 2.2: Porter's Five Forces Theory of Industry Structure (*Source: Porter, M. Competitive STRATEGY, New York: The Free Press*).



From an interpretation of Porter's Model applied to the JSE, the following aspects become apparent as to how STRATE's implementation can be interpreted as a necessary response to the exchange's environment.

Regarding Potential Entrants: although the process of registering a stock exchange in terms of the Stock Exchanges Control Act of 1985 is expensive and difficult, the advent of technology has made it relatively easy for local investors to trade on foreign markets via tools such as the Internet. Hasenfur (2002) reports that Rudi Bam, a controversial former JSE official, is in talks with a consortium to launch a rival exchange termed the Africa Unlisted Share Market.

The globalisation of world economies has stretched the reach of exchanges that used to only be national in terms of their reach. A South African investor could now as easily invest in London as he or she could in Johannesburg if the former was more alluring in terms of superior process and settlement.

Technology has made exchanges to become entrants on each other's previously protected ambits. Stock exchanges have thus become Industry Competitors, a role that was unlikely to be envisaged before the movement of capital across national borders became so commonplace (or necessary to commerce) and was made easier by technology. To strengthen their positions, STRATEgic alliances between exchanges (such as that of the LSE and JSE sharing a common settlement system and moves towards a full merger of the Australian and New Zealand exchanges – James, 2002) have occurred.

As regards Buyers, investors and asset managers are capable of investing anywhere in the world (within regulation) where they will be satisfied that they can more effectively control their investment.

Should investors be able to liquidate an investment and take advantage of a turn in the market in a foreign jurisdiction more easily, they are more likely to invest in that foreign market. Singer (2002) identified this need amongst investors as one of the critical requirements for the introduction of STRATE on the JSE. Superior control enabling investors to manage their purchases of financial instruments more effectively will ultimately result in them seeking a better infrastructure or environment in which to trade.

Substitutes are possible within the investment industry. Investors have begun to investigate non-traditional savings vehicles such as hedge funds. Hedge funds can be defined as substitute investments that attempt to capitalise on adverse movements of the underlying economic indicators (such as the declining Rand or climbing interest rate) that would usually result in an erosion of investor value. Hedge funds thereby move in the opposite direction of what would normally be seen as an adverse market trend and use/ utilise a philosophy alien to traditional investments. Investment professionals are

becoming more attracted to the idea of using hedges within more traditional investment products (Holmes, 2003), an advent highlighting the growing legitimacy of substitute products.

Hedges are largely exempt from the normal requirements for registration of an investment vehicle and are not traded on exchanges in the way that some indices and unit trusts are in certain instances.

Private equity trading (whereby the shares of private companies that cannot by law or definition be registered on a public exchange are traded amongst risk inclined investors looking for a high return) is a further example of a substitute to investment on a formal exchange.

Suppliers, or companies, exercise a great deal of influence on the environment of exchanges. Poor exposure to investors, ineffective settlement or inadequate risk mitigation could result in a company moving its listing. South African companies that have moved their primary listings to London (in order to be able to potentially raise superior capital) include Dimension Data and Anglo-American. To counter these dangers, especially as the powerful Pacific exchanges of Japan and Taiwan are within reach, the Australian and New Zealand exchanges have begun talks on combining their operations to strengthen their bargaining power and influence (James, 2002).

2.16 Implementation of STRATE

The local market was well aware of the need to address the inadequacies posed by a paper-based settlement system, leading to the formation of STRATE as far back as 1996. However, this was only the beginning of a long-term project. Not wanting to reinvent the wheel, STRATE purchased the license for the Swiss SECOM system and established a contract with TATA Consultancy Services (TCS) to develop it in line with the unique and specific requirements of the local custody industry. Additional work was required to redraft the Companies Act, amend the Custody and Administration of Securities Act, and draft the new Uncertificated Securities Act. The government demonstrated considerable

support for the STRATE project by allowing these constitutional changes to be made relatively quickly and with a minimum of bureaucratic fuss.

The JSE made some significant steps in improving South Africa's front-end trading capability during the 1990s. The formation of STRATE and the introduction of an electronic settlement system enabled these developments to be maintained successfully and South Africa's securities industry to align itself with international best practise.

STRATE was introduced as South Africa's new Central Securities depository. Acting as the regulator of the securities industry at the same time, it has forced all traders wishing to trade shares in South Africa to dematerialise their share certificates. It is now only possible to trade shares electronically. The effects of this change have been wide-ranging, and have acted as the catalyst for a whole series of changes in the South African equity industry. ABSA's Duncan Smith explained: "The fraud that was inherent in the paper environment has been reduced substantially, which has resulted in a safer settlement environment for investors".

STRATE can boast that since it's inception there has not been a single failed trade. STRATE now has true delivery versus payment within the equities market, with all cash transactions being settled through the South African Reserve Bank's SAMOS system, and this has reduced the risk inherent in dealing with cheques. With this shift towards automation, the equity industry can increase their focus on client service substantially, which has become the main differentiator between custodians in the market. Response time for client queries is particularly important, as is the ability to tailor own products to meet the client's specific service levels.

STRATE has profoundly affected the industry. Its direct effects have been significant enough. By making everything electronic, the risk of failed trades is essentially eliminated. The same move also significantly reduces the opportunity for fraud in the system, as the possibility of inventing new share certificates is eliminated by the electronic entry requirement in STRATE. This, of course created significant problems

for the industry, as investors worried that they would loose money when fraudulent certificates were exposed. But in fact, the problem has helped STRATE on its way to dematerialisation. By taking out an insurance policy against this possibility that expired in September 2002. STRATE had forced investors worried about the possibility of fraud to dematerialise their certificates early. This has significantly aided STRATE's dematerialisation programme. Further risk reductions have been made by changes in the cash market, moving from a cheque-based system to the new electronic, through the South African Reserve's SAMOS system.

With the implementation of STRATE, share certificates, representing the ownership of equities, are replaced with an electronic record of ownership. This takes place via the process of dematerialisation. The new paradigm of an environment without share certificates could be quite daunting for many shareholders!

STRATE was initially a project driven by the JSE Securities Exchange South Africa (JSE) to establish a new electronic clearing, settlement and custody system for securities listed on the JSE. STRATE Ltd., a public unlisted company, is South Africa's Central Securities Depository (CSD) for equities and enables share transactions to be settled electronically. This eliminates the flow of paper share certificates from the seller to the buyer so that the buyer can take transfer and appear as the new owner. Electronic transfer requires the dematerialisation of share certificates in STRATE Ltd. Dematerialisation eliminates certificates and other documents of title representing the ownership of equities. After the dematerialisation process is completed, securities exist only as electronic records on a computer database which contains all the information relating to the shares and their ownership.

STRATE has overcome many obstacles, offering investors true Simultaneous Final Irrevocable Delivery-versus-Payment via the central bank's national payment system's concurrent batch processing line, a crucial building block in the globalisation of South Africa's securities markets.

Once recognised as a market with one of the most primitive settlement systems in the world, the securities industry in South Africa has changed beyond all recognition in the last few years. Replacing the much-aligned and labour intensive paper-based settlement system, STRATE (Shares Traded Totally Electronic), South Africa's electronic Central Securities Depository, has radically enhanced the market's securities infrastructure in terms of technology, liquidity, sophistication, and market regulation.

Jointly owned by the JSE Securities Exchange, South Africa's four major banks, and Citibank, STRATE originally was introduced in 2000, under a process of reverse liquidity where the most illiquid securities were dematerialised first. The large counter stocks, which represented the highest portion of trades executed on the JSE, began settling in the STRATE environment earlier last year (2002), the benefits and efficiencies of which are now being felt.

However, why did a market that ranks among the top 15 bourses in the world take so long to introduce an electronic settlement system? Monica Singer, chief executive at STRATE, sees this as a significant advantage: "Moving to an electronic settlement environment at such a relatively late stage meant STRATE could learn from the successes and failures of other countries. At the same time, we discovered that South Africa has its own unique set of market circumstances and, therefore electronic settlement had to be customized to suit the market."

Moreover, South Africa was able to draw on its own experiences of the immobilisation of the bond market some years earlier. David Price, director at SCMB, explains: The transition of equities went far more smoothly than with bonds. The market learnt from the bond dematerialisation process, hence the phased implementation of STRATE and dematerialisation and the better results."

Sitting at the heart of STRATE is the SAFIRES processing system (Southern African Financial Instruments Real-time Settlement)-effectively a customised version of the robust and flexible Swiss (SECOM) SIS settlement system. Unlike in the UK, electronic

settlement for equities and warrants is now compulsory in South Africa, with all cash transactions settled via the South African Reserve Bank's SAMOS system. Crucially, the JSE guarantees settlement of all on-market trades via its JSE Settlement Authority. This relative unique capability is why STRATE is able to claim a 100% settlement success rate for on market trades. "The definition of a failed trade is one that does not settle on the day it is required to. STRATE's record of zero fails means that all trades that were meant to settle did so within the required allocated time frame. Where some might argue there have been some transactions that did not settle, this was due to lack of performance by one or more of the parties concerned, and not the JSE. (No failed trades at market level only at broker level onwards). Foreign capital investment is being encouraged, not least to generate additional volume and revenue, but also to provide greater market liquidity. As the risk/reward methodologies of global fund managers begin to change, so too will their own geological asset allocation policies.

Jim Micklethwaite, senior analyst at Thomas Murray, observed this shift in risk profile. "The successful development of STRATE has significantly decreased the risk exposures associated with safekeeping and settlement in South Africa." "The majority of equities and warrants are now dematerialised and settlement is executed on true Delivery versus Payment (DvP) principles."

As it is inevitable with such a significant market development, local providers have been examining how the resultant efficiencies can be used to enhance other aspects of their service offerings and provide alternative revenue streams. One idea is a complete and much needed overhaul of client service, now recognized as a key differentiator in the market. Elsewhere, custodians have made assets to align their businesses with changes in the market.

STRATE has introduced a new way of thinking in South Africa. Local competition is much more aggressive, forcing business philosophies and sales strategies to be redefined. Singer observed that the settlement environment has shifted now from a low-cost/high-risk profile to a market with lower risks but higher costs. The cost of investment in new

technology and training, as well as administrative, operational, and executive time assigned to facilitating this new regime, will be offset ultimately by the efficiencies of electronic settlement.

STRATE's plans for the future-The securities industry is a constantly moving target, but Singer is very bullish about the road ahead. "We are already a premier emerging market. We have a sophisticated first-world system that is fully prepared to take its place in the international arena" she argues. However, of the nine standards established by the G30 to improve efficiency and reduce settlement risk amongst international financial markets, South Africa is still one card short, with the move from T+5 to T+3 planned for 2003. In addition, moves to extend the instrument types eligible to settle via STRATE faltered when the company lost out to UNEXcor, the CSD for bonds, in its bid for the right to settle money market instruments.

One possibility is to expand further beyond the boundaries of South Africa. Namibia is now executing trades via the JSE's SETS trading platform and settling in the STRATE environment. A regional exchange covering all SADC member states of Southern Africa needs further research.

Following the trend of consolidation among international exchanges and depository platforms, alliances with more developed financial markets appear to represent a greater priority for South Africa's securities industry. Part of this strategy includes a five-year deal with the London Stock Exchange to allow the JSE to take advantage of the technology capability of the LSE's SETS trading platform. It is planned also that this initiative will enable both LSE and JSE members to apply for cross-membership of their respective exchanges, although certain exchange controls need to be relaxed or phased out altogether before this can be achieved properly. Nevertheless, the FTSE/JSE Africa Index Series was launched officially on June 24, 2002, providing South Africa with an internationally recognised securities index and further emphasizing the JSE's ambition to align itself with international investment standards.

STRATE is planning to merge with UNEXcor (the Universal Exchange Corporation) and CD Ltd (The Central Depository). This is a very exciting time for South Africa's settlement environment, as it will be brought in line with international best practise and the recently updated G30 recommendations.

Once the integration process has been bedded down, it is expected that the new entity, which will use STRATE as the integration vehicle, will achieve a standardised, cost effective and efficient settlement mechanism for all financial instruments, thereby further improving the international competitiveness of South Africa's financial markets. Another major development is the development of a Central Securities Register (CSR) model for use in the South African markets. This CSR, will dramatically simplify the complex reconciliation chain that currently prevails in the South African market, enabling the download of shareholder details given to listed companies to be provided in the future on a real-time basis.

According to STRATE, the merger will be an important step forward in terms of risk management and will enable South Africa's settlement framework to benefit from additional economies of scale made available by allowing all financial instruments to be settled in one application.

There is no doubt South Africa's securities industry has experienced considerable change and reform in the past year. The domestic equity settlement system that existed prior to STRATE was essentially the same one that was established in 1972. The political change that took place eight years ago extended international access to the country's economy and financial markets. This led to a thorough and lengthy effort to establish an electronic settlement system intended to be the equal of any in the world. STRATE has galvanised the securities industry, forcing local custodians to redefine their service offerings and changing the mindset of international perception. It was a long time coming, but like a fine wine, well worth the wait.

2.17 Global Links

In 1990, the Governor of the Bank of England, Eddie George, defined nirvana as: “A situation where an investor in Tokyo can buy a sterling security in London from a counter party in New York with settlement on the same day.”

The most pressing securities industry initiatives worldwide are enhancing systems for straight through processing. As mentioned, achieving STP and having the ability to seamlessly process millions of daily transactions without re-entering data, is a major goal of the securities industry. STRATE is acutely aware of the need to keep abreast of such global developments.

Cross border trades are increasing at an annual average of 20 percent. International investors seek liquidity, a single economic solution, real-time settlement, asset security in terms of regulation and corporate governance, and global settlement standards. STRATE’s vision is to be the regional provider of choice for world-class clearing, settlement and depository services for all financial instruments, in order to attract these global investment flows and so enable economic and financial growth in Southern Africa.

STRATE’s strategy is to focus on making STRATE and the JSE competitive with the rest of the world.

2.17.1 A comparison of STRATE and a foreign equivalent

For the purposes of comparison, the system of settlement of the London Stock Exchange (LSE), Crest, will be utilised. The systems utilise a comparable computer network and common trading system in SETS. Both are attempts at empowering investors. The volumes traded on the JSE are very small in comparison to those traded on the LSE (Theobald, 2002).

The Bank of England developed Crest from an earlier aborted 1980’s project called Taurus. Crest was launched in July 1996. The company currently managing the system, Crestco, is a consortium of European financial services firms. STRATE is a private

company wholly owned by the JSE. Both systems possess the functionality to settle in more than one currency simultaneously.

Crest is capable of settling trades in equities, warrants and loan stocks. The system cannot support the settlement of futures, gilts, unit trust investments or options as STRATE can. In 2000, 58.2 million equity settlements worth £48.8 trillion were settled (Crestco, 2001). Like STRATE, Crest operates across international borders (the United Kingdom and Ireland) while STRATE settles for South Africa and Namibia. Crest is not the sole system of settlement in the United Kingdom and Ireland, it runs parallel with a scrip based system akin to what the JSE previously utilised called Talisman (Newton, 1996).

As material settlement is still possible, companies may elect to make use of it. Unlike the South African advent of dematerialisation, participants in Crest elect to take part in the system and were not forced to dematerialise their scrip as part of a statutory and exchange control to remain listed. Because of the election exercised by Crest participants, the system has not attracted unfavourable attention regarding higher fees that STRATE has. STRATE regularly attracts such criticism in recovering its costs despite arguments that the levels of risk it has eliminated justify the fees (Bolin, 2002).

Unlike STRATE, Crest is merely a settlement system maintaining the records of electronic ownership although the system of relationship between broker, the public and shareholder is comparable. Crest is subsequently not as an integral and immovable component of an exchange. Subsequently, scrip holders have not been required to dematerialise their scrip in order to trade. Crest does not manage a system of central securities depositories in the manner that STRATE does.

In conclusion, STRATE is a more encompassing system than Crest. STRATE is capable of handling more types of instruments and is distinguishable through it being compulsory.

2.17.2 America's Central Depositories Association (ACSDA)

It was announced in May 2002 that STRATE was invited to become a member of the America's Central Depositories Association (ACSDA). This was the first time that a Central Securities Depository operating in a country outside the Americas had been invited to join the association.

"We are obviously honoured to have been asked to join the ACSDA," says Singer. "STRATE has accepted the invitation rather than applying for membership of the equivalent European association, largely because we have more in common with the emerging markets of the Americas than with Europe's CSD's realities."

ACSDA's by-laws provide for membership of the association by countries outside the Americas although such membership is limited to one-third of the total number of members.

The benefits for STRATE to be part of this association are:

- The attendance of yearly conferences regarding the latest issues, trends and developments in the industry
- Contacts with other CSDs for advice and recommendations
- Forum to discuss issues affecting emerging markets
- As the USA and Canada are leading the way forward to T+1 and other industry initiatives, this will allow STRATE to learn from their experiences without the need to reinvent what already exists in the industry
- Representation at an international forum where STRATE will be part of a bigger group than at this stage.

2.18 Summary

This chapter contains a Literature Review. The chapter details a list of key concepts used in the investment industry, and a word on the literature sources surrounding STRATE was mentioned. A detailed discussion on the operational fundamentals of STRATE is carried out as well as a comparison of STRATE and a foreign equivalent together with an

investigation of the relevance of the writings of researchers Kenichi Ohmae (2000) and Michael Porter (1980) on STRATE is included.

South Africa's securities industry has come a long way in a short time. In the last few years it has gone from a relatively primitive market to one of the more sophisticated markets in the world. Since its inception as South Africa's electronic settlement system for equities, STRATE has performed a dual-role, also acting as the regulator for the industry. Whilst this has not been without its difficulties, it has also presented great opportunities for change in South Africa's securities industry. STRATE's introduction was imperative and necessary for the market; it was the only way in which South Africa could improve its settlement efficiency rating. A direct correlation exists between STRATE's introduction and South Africa's climb up the ranking ladder of emerging and world markets. The focus at STRATE has been driven by the desire to raise and maintain the standards of integrity within the financial markets as a whole.

The success of STRATE is evident from the drop in failed trades and broker transgressions of the JSE Securities Exchange's rules and directives. The transition to an efficient electronic settlement system has not only led to increased market activity but also a much-improved international perception of the South African market.

Chapter 3

Research Methodology

3.1 Introduction

The research question is one of a *descriptive nature* and will not have any causal or correlation studies. *The descriptive survey method* or what is sometimes called the *normative survey method* is employed to process the data that come to the researcher through observation. The method of research that looks with intense accuracy at the phenomena of the moment and then describes precisely what the researcher sees is called the *descriptive survey*. The name implies the assumption that whatever we observe at any one time is normal and under the same conditions could be observed again in the future. The basic assumption underlying such an approach is that given phenomena usually follow a common pattern or norm writes Leady in his book entitled Practical Research (Leedy 1988:140).

For the purposes of this study, a qualitative method was used to report on the effect of STRATE, Equity/Electronic Settlement in the South African Market and the position of STRATE in Emerging/World Markets. The qualitative approach allowed insight into the complexity of factors that influence the impact of STRATE in the South African Market in general. It is suggested that the qualitative approach offers a discerning examination of the impact of STRATE in the South African Market.

Content analysis is utilised.

According to the steps detailed by Lieblich, Tuval-Mashiach and Zilber (1988), analysis begins with a selection of the subtext, where relevant parts or texts of the account are selected for the research questions, and then placed into new subtexts or 'files'. This is facilitated by the uses of a questionnaire. Content categories are then defined, and in this study, two categories were pre-defined: positive feedback and negative feedback. All pre-defined categories were read openly to define further content categories, or themes and

further themes within these categories are expected to emerge. This is followed by the sorting of material – actual sentences or quotes into the categories. Finally the sentences or sections of text are processed descriptively, to generate a representation of the content universe in the group of respondents. Answers to the research questions may be formulated at this point (Lieblich, Tuval-Mashiach and Zilber, 1988).

This chapter will outline the research aims. The research design and procedure are discussed, detailing the research questions, the sampling strategy and selection of data and participants, and the questionnaire questions. Finally the method of analysis is described, including steps in the process of analysis.

3.2 Research Aims

The research aims may be stated as follows:

- 1) To determine whether the implementation of STRATE has improved South Africa's equity markets position/standing in comparison to other developing countries and world markets.
- 2) To identify and discover the effect/result/success of the transition to an efficient electronic system, STRATE, from relevant themes by investment professionals and organizations.

The following sub-problems (or research questions) are derived from the aims listed above:

- An efficient electronic settlement system will increase market activity and the number of shares traded;
- The South African market with the implementation of STRATE will become a leading and sophisticated world market in electronic settlements;
- More funds will be allocated for investment in South Africa in the future as it will be an attractive emerging market;
- Dematerialisation of shares is significantly related to trading electronically in equity.
- Shares held electronically (dematerialised) are safe from theft, damage and from being destroyed;

What relevant themes may be elicited from the responses of a range of investment professionals, concerning the introduction of the STRATE system and its benefit to the industry?

3.3 Research Design and Procedure

The following research design, structure and procedure was adopted.

3.3.1 Research Questions

Following on from the aims of the proposed study, specific research questions were posed:

1. What is the effect of STRATE, equity/electronic settlement in the South African market and to determine the position/standing of STRATE in comparison to other developing/emerging and world markets?
2. What themes are elicited from the accounts of investment professionals regarding whether the transition to STRATE has been successful?

3.3.2 Description of the Method of Research

The method of research has followed a survey basis with primary data collected from self-completed questionnaires sent by e-mail to a sample of local financial institutions during March 2003.

Survey sampling is the process of choosing, from a much larger population, a group about which one wishes to make generalised statements so that the selected part will represent the total group. Such a sample must be very carefully selected so that it will faithfully represent the particular group being studied. No matter how good the gathering of data is, from such a group, the survey cannot be accurate if the people in the sample are improperly selected (Leedy 1988:158). As Emory states *“much folklore surrounds the question of sample size; one false belief is that a sample must be large or it is not representative. This is much less true than most people believe”* (Emory 1995:205).

The sample of the questionnaire was taken from the securities industry publications and may be regarded as representative of the total populations. The experience of the British Social Survey points to the fact that response rates of 80% can be achieved, if the respondent's co-operation is secured, if the idea can be put over that the survey is of importance to *him* personally, and if the questionnaire is short, and simple (Owen:1977:259).

Sampling in terms of the qualitative study is purposive (as is the sampling technique of the quantitative study). The sample consists of responses from a selection of professionals in the securities field regarding the value of STRATE. The professional respondents represent a homogenous group and were selected because of their familiarity and frequent interface with the STRATE system.

Procedure:

Structured questions were used. That is, all respondents were asked a standardised, identical set of questions (Saunders, Lewis & Thornhill, 2000). While the initial contact with respondents was made by telephone, the questionnaire was sent to them formally by e-mail, and returned by e-mail, that is, in a written form.

The type of data elicited from the recording of the opinions, experiences and perceptions of the sample of sixteen respondents is primary data as detailed by Saunders, Lewis & Thornhill (2000). Primary data are those data that are experienced firsthand. It is "new" data, or data gathered specifically for the purpose of the research, and has not been collected before for some other purpose.

Secondary data has been collected from publications, library searches and Internet access.

3.3.3. Ethical considerations

No ethical problems were anticipated. The respondents participated voluntarily and were requested to sign a consent form allowing the writer to use their names and employers for the purposes of the study. None of the respondents objected. A copy of the form distributed to the respondents is attached as an annexure (Annexure A) to the study.

3.3.4 The South African Market Questionnaire-STRATE

In order to canvass the views of certain sectors of financial institutions in South Africa a questionnaire was sent to a random set of names located in Johannesburg and Cape Town extracted from the Johannesburg Securities Exchange (JSE) website. The method of selection was using the *lottery method*. Each name listed was given a number; each number placed in a “hat” and a sample size of 50% of the total was drawn from the “hat”. The population was the financial market participants of South Africa as listed on the JSE website. The website is regarded as a prime source of data on financial institutions that have their business in the South African securities market and therefore is regarded as representative of the population under survey.

A copy of this questionnaire appears in the appendix to this document.

The sample was selected from the names of financial institutions within the following categories in the website:

3.3.4.1 Portfolio management companies

Portfolio management companies are companies, which manage cash of individuals or companies, investments for pension and provident funds, and insurance and assurance companies by investing such cash on a stock exchange in order to achieve the best return on these investments. The investments made by such companies extend to billions of Rands in value and were represented by huge amounts of paper certificates. Such certificates were stored in company vaults or with local South African custodians, therefore the inclusion of this sector of the South African securities industry is relevant in terms of their expectations and requirements of a Centralised Securities Depository for equities.

3.3.4.2 Stock-broking Firms

Stock-broking firms are companies that act for the buyers and sellers of equities on the JSE and as such are intermediaries and earn revenue by charging a brokerage commission on each deal. The relevance of their inclusion in the questionnaire is that their whole system of operation changed when physical paper certificates of title to investments are abolished through immobilisation and dematerialisation.

Names were extracted from the Johannesburg Securities (JSE) website. The list represents all stockbrokers in Gauteng and a few from Cape Town, South Africa and is therefore representative of 90% of South African stock-broking firms.

3.3.4.3 Central Securities Depository Participants

A Central Security Depository Participant's (CSDP) is as a depository institution accepted by a central securities depository (CSD) as a participant. There are seven CSDP's to date. As a CSD participant, the compulsory role is that of custodian and the performing of clearing and settlement services by interfacing with STRATE. The STRATE compliance officer was contacted at each CSDP and included in the survey. The contact details for each CSDP was received from STRATE Limited.

The questionnaire was sent by e-mail during the first week of March 2003 and a response date of the 31st March 2003 was requested. The response to the questionnaire was a 50% response rate.

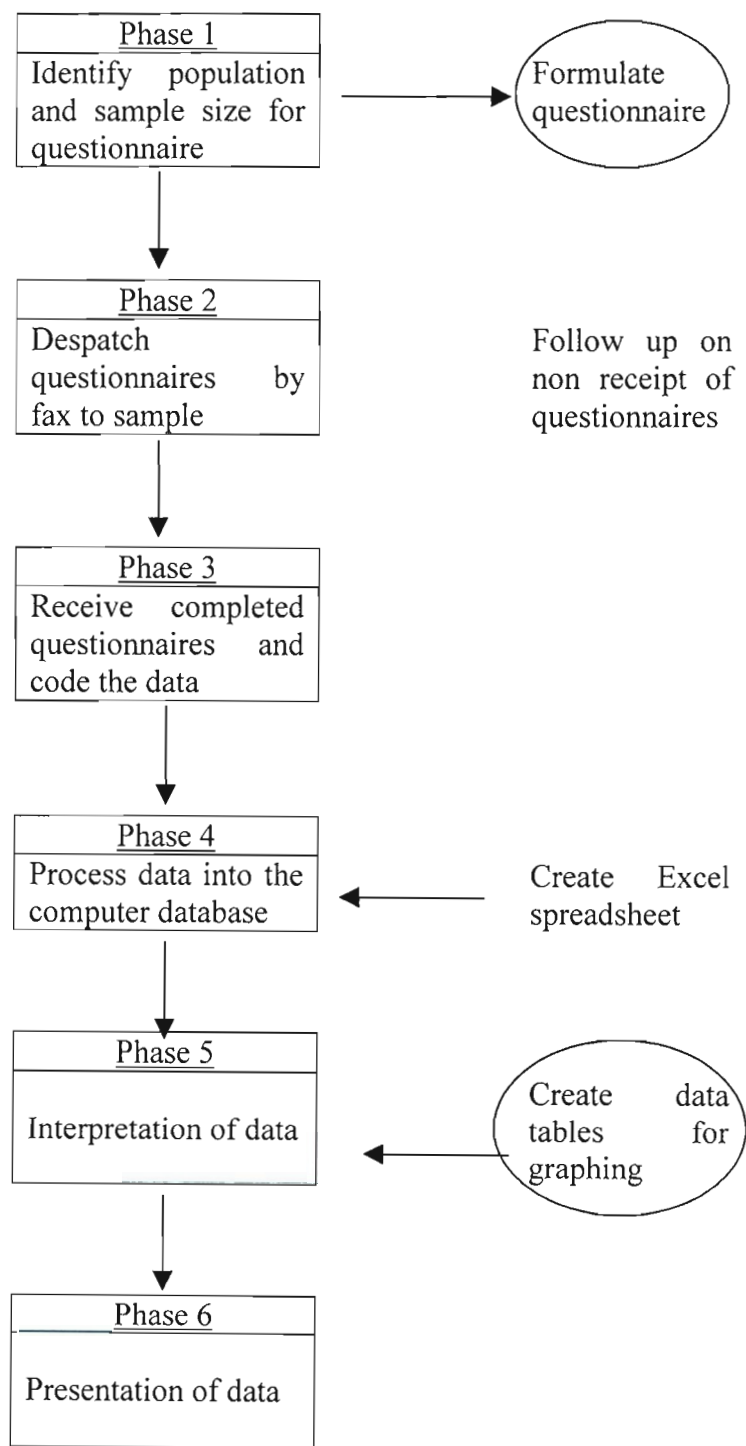
3.3.5 Secondary Data

Secondary data was collected from library searches, extracted from publications, journals, securities industry magazines and information stored on the internet.

3.3.6 Data Analysis

The primary data obtained from the returned self-completed questionnaires have been coded and the responses input into a computer using a database analysis program. Coding involves assigning numbers to answers so that the responses can be grouped into a limited number of classes or categories (Emory 1995:381). Most questions in the questionnaire involved an open question. After preliminary evaluation of answers to each open question was made, a list of response categories, were created for each item. Although most responses could be accounted for by these categories, an “other” category was established to meet the coding rule of exhaustiveness. As Emory explains, *“if there are a large number of “other” response, it suggests that coding classifications may be too limited...failure to present an adequate list of alternatives is especially damaging...any answer that is not specified in the set will surely be under represented in the tally”* (Emory 1995:381). Coding of the answers was effected manually, and input into a computer database using a Microsoft Excel computer program.

Figure 3.1 – A flow diagram of the process of data collection, data coding processing, analysis and presentation



3.4 Summary

A qualitative method was used to report on the effect of STRATE, equity/electronic settlement in the South African market and the position of STRATE in emerging/world markets in this study. The research aims, method, design, procedures and the ethical considerations thereof are outlined in this chapter. A flow diagram of the process of data collection, data coding processing, analysis and presentation is illustrated in the chapter.

Chapter 4

Interpretation and Analysis of the Research Results

4.1 Introduction

This chapter presents the results that emerged from the qualitative analysis. The data from the questionnaire, has been analysed and input into a computer database using Excel, a Windows based program. The raw data is reproduced hereunder in the format of the questionnaire results.

Most questions in the questionnaire involved an open question. After preliminary evaluation of answers to each question was made, a list of response categories was created for each item. Where answers did not fit into categories another category, (other) was created. The answers to the questions have been reproduced using these categories, with a short description of the response.

This chapter will also identify themes. These themes will be referenced to the literature sources listed in Chapter 2. An evaluation of the results of the investigation will be made.

4.2 Questionnaire

The responses to the questionnaire from a sample of 16, are as follows:

4.2.1 Responses to Questions

Question 1

Was the transition to an electronic settlement system necessary (STRATE)?

All respondents (100%) agreed that the transition to an electronic settlement was necessary.

The following detailed responses were given:

- Trades took a long time to settle and could have rolled on indefinitely, under the old scrip system.

- Better international image as regards settlement through the adoption of best international practise.
- Increased investor confidence.
- Deficiencies in paper-based settlement system eliminated.
- Greater liquidity potential for JSE.
- Tainted and invalid scrip reduced dramatically, reduced risk.

(other) Less failed trades

Ensures contractual settlement

Reduced entitlement claims

Question 2

Does electronic trading reduce the risk of investing on the JSE Securities Exchange?

The following detailed responses were given:

- Lost, tainted and fraudulent scrip is reduced, more secure industry
- Settlement of trades is secured/guaranteed by JSE
- Greater liquidity potential for JSE
- Reduction of error and failed trades
- Better attraction for overseas investors

(other) Risk reduced, by less human input error

Ensures contractual settlement

Reduced entitlement claims

Settlement period shorter

Question 3

What are the pros and cons from an investor's perspective of STRATE achieving a secure, electronic settlement environment for share transactions on the JSE Securities Exchange?

The following detailed responses were given:

Pros:

- Electronic settlement of share transactions, all trades settled
- Barriers to private investors investing removed
- Rolling settlement, transactions (securities and funds) become due for settlement a set number of business days after trade, T + 5
- No failed on-market trades on the JSE
- Contractual settlement, client has a contractual obligation to cause a JSE trade to settle
- Simultaneous final irrevocable delivery versus payment (SFIDvP), delivery of shares by the seller and payment for those shares by the buyer occur simultaneously

Cons:

- Dematerialisation stock to be available when shorting the client
- Taking jobbing out of market, reduced volumes of ADR - American Depository Receipts
- Lack of understanding and some of the complexities associated with electronic settlement
- Higher costs of electronic settlement

Question 4

Will an efficient electronic settlement system increase market activity and settlement of trades? Please explain

The following detailed responses were given:

- Not as expected but ideally should increase market activity, however due to factor's such as increased settlement costs, decreased market capitalisation, war etc investment has been hindered
- Has been the case in a number of countries in the world
- Reduces the uncertainty of taking a view on the market and as settlement can be predicted, it would be beneficial for market activity
- Greater liquidity potential for JSE, as revealed by certain global custodian companies recently and foreign investors and trade will be more favourable

- Risks can be managed more effectively and this in turn may introduce various aspects of guaranteed settlement in the market over time

Question 5

Has the implementation of STRATE been successful and is STRATE comparable to first world / class settlement systems? Please explain.

The following detailed responses were given:

- Best international image as regards settlement through the adoption of best international practise
- Implementation of STRATE has been successful
- Greater confidence and faith in the workings of the market
- Definitely comparable if not equal to first world systems
- Originated from the Swiss Based System, based on the fact that the Swiss System met international requirements
- Adheres to and achieves 90% of the requirements set out by G30 organisations
- No failed trade at market level

Question 6

The establishment of a CSD is a recommendation of an international "Group of 30 organisations". This recommendation has been embraced by many industrialised "first world" markets and most emerging markets. Do you think that this recommendation is valid for South Africa? Please explain.

The following detailed responses were given:

- Barriers to private investors investing removed
- Streamline the procedures etc of the industry
- The pre STRATE settlement system was archaic, inefficient and expensive
- It has made South Africa competitive with major international exchanges and improved South Africa's image as an investment destination
- Greater liquidity potential and increased transaction volumes due to electronic trading

Question 7

Has your organisation experienced a cost benefit by having electronic equities settlement via a CSD? Please explain

The following detailed responses were given:

- Smaller broking firms have not experienced a cost benefit due to increased costs
- Administrative costs reduced as back office systems computerised, less back office staff and overdraft basis trading cost
- Investing, stock broking made easier and more cost effective
- Intangible benefits, settlements more efficient, greatly reduced risk in terms of fraud, tainted scrip etc
- Many CSDPs busy recouping capital costs invested
- Future cost benefits possible in CSDPs, system has long term benefits
- Cost not the only benefit, electronic settlement required to attract foreign capital

Question 8

Has the implementation of STRATE improved South Africa's settlement risk position/standing in comparison to other developing countries and world markets? Please explain

The following detailed responses were given:

- The international benchmarks and ratings highlight the fact, e.g. GSCS benchmarks, Thomas Murray International
- Using systems such as Swift and Samos, settlement efficiency has almost nullified risk
- Better international image as regards settlement through the adoption of best international practise
- Considered as one of the better developing countries
- More secure investment environment and industry
- Position increased due to surveillance, internal controls and investor discipline

Question 9

Before the implementation of STRATE, there was a principle risk. Do you think that this risk has lessened with electronic settlement and delivery versus payment via the CSD?

The following detailed responses were given:

- Greater confidence and faith in the workings of the market
- Risk of lost, fraudulent and tainted scrip reduced
- Since the implementation of STRATE and the SFIDvP methodology principal risk has been almost eliminated
- The simultaneous transfer of securities and cash ensures that both parties receive value at the same time
- Settlement is ensured before the trade takes place, thereby eliminating the associated risks

Question 10

Since STRATE has been implemented and operational, what do you think the benefits are to your organisation?

The following detailed responses were given:

- Settlement delays of trades reduced completely
- Cost reduction, back office administration costs as well as lower staffing costs, more efficient business processes
- Makes investment, stock broking easier more cost effective
- Guaranteed settlement, reduced scrip lending costs
- Major reduction in all risks in the industry
- The industry can concentrate on better client service

Question 11

Referring to your answer to question 10, do you think there are any limitations in converting to STRATE?

The following detailed responses were given:

- More expensive and created more paper instead of eliminating paper
- Scrip lending business has increased and the big players are raking in the cash
- Only totally reconciled and balanced shares by CSDPs and nominees should have been transferred on to the electronic environment
- No other alternative than to convert to STRATE, as STRATE keeps abreast of all changes/improvements/developments in the industry
- Cost and administration fees and that clients are only allowed a joint account

Question 12

Will more funds be allocated for investment in South Africa in the future, as it will be an attractive emerging market? Please explain

The following detailed responses were given:

- Most of the big market capitalisation shares have moved their primary listings overseas, which could see overseas investors investing in their own countries
- Greater ease of transaction should lead to an increase
- Poor market conditions prevents benefit from showing
- Foreign investors would invest in a safe, reliable and efficient market
- South Africa needs to become an attractive market as a whole
- South African market is secure and is part of ADR programs and gold driven
- Depends on other factors in the economy such as interest rates, stability etc

Table 4.1 reflects the themes that were identified:

Table 4.1: A representation of the themes derived from responses to the questions
(*Source:* Adapted from respondent's responses to pre-determined questions on the implementation of STRATE as well as their views of the STRATE system (2003))

Theme	Respondents responses to their views on the implementation of STRATE and their views on the STRATE system:
A	Greater confidence and faith in the workings of the market
B	Lost share certificates/ease of settlement prevented previously
C	Barriers to private investors investing removed
D	Respondents miss having a share certificate
E	Makes investment/stock broking easier/more cost effective
F	Greater liquidity potential for JSE
G	Increase in market activity/settlement of trades
H	Better international image as regards settlement through the adoption of best international practice.
I	Principal risk is reduced
J	Increased foreign investment
K	Greater ease of transaction should lead to an increase
L	No apparent benefit yet
M	Apparent benefit
N	Poor market condition prevents benefit from showing

There are a few themes evident and can be described and explained as follows. Theme A (Greater confidence and faith in the workings of the market), relates to the objective put forward by the originators of STRATE as the principal object of the exercise – to make the system easier and more reliable. The STRATE Handbook (2002) and issues of STRATE Talking make this apparent. All of the respondents advanced Theme A expressly or intimated that the system does bring about greater confidence when dealing with securities on the JSE. The transition to an electronic settlement system was necessary and overdue. The successful introduction of the Johannesburg Equity trading (JET) system a few years ago highlighted the deficiencies in the JSE's paper-based settlement system. Shares were no longer traded on a trading floor, and this contributed

to a massive leap in the number of trades each day. Back-office support services were incapable of handling this increase in daily transactions efficiently in a paper-based environment. A solution was needed to this timely manual process and therefore STRATE was implemented.

Theme B (Lost share certificates or the possibility of an ease of settlement not being possible before STRATE) was put forward by all respondents expressly.

All of the respondents indicated that STRATE has improved the trading of equities and settlement thereof. The inconvenience of lost or missing scrip is highlighted by Chapter Two, and all the respondent's feedback, with most of them even describing the system before STRATE as being amongst the worst in the world. Chapter 2 describes how the dire situation made South Africa an unattractive investment destination because of the inefficiency (Singer, 2002). The pre-STRATE scrip system is responsible for equities lending never emerging as a lucrative element of the financial services as it did elsewhere in comparative markets.

Since the inception of STRATE there have been no failed on-market trades on the JSE. This is a far cry from the past where up to 70% of trades never settled. Settlement is faster and almost guaranteed. An electronic environment makes it more secure in terms of no physical paper being dealt with which could affect efficiency. By STRATE achieving a secure, electronic settlement environment it can compete with the developed countries markets.

The advantages of STRATE achieving a secure electronic settlement environment are:

- Electronic settlement of share transactions
- Rolling settlement
- Contractual settlement
- Simultaneous final irrevocable delivery versus payment (SFIDvP)

The disadvantages are:

The implementation of STRATE has revolutionized the securities industry. People are naturally resistant to change and therefore STRATE needs to constantly educate investors about the advantages of electronic settlement. Lack of understanding and some of the complexities associated with electronic settlement can be seen as a disadvantage. Costs have not reduced as expected, as the market has had to pay for the benefits and reductions in risk since the implementation of STRATE.

Theme C (Barriers to private investors investing removed), ties to attempts to make the exchange more accessible, heighten its profile in the light of the competitive environment it suddenly finds itself in (Theobald, 2002) and encourage private investment. Institutional investors hold 82% of the JSE's capitalisation (Wessels, 2002). That respondents working for financial institutions should be concerned with the amount of market capitalisation held by private individuals is interesting as it indicates a holistic understanding of the investment market in that private investment in South Africa must increase for greater liquidity to arise. The respondents, as investment professionals and staff, realise that greater participation in the market by individuals is necessary for the success of the market. Institutional investors have no option but to participate in the market in terms of legislation (Regulation 28, Pension Funds Act 24 of 1956) while private investors do.

In light of the responses, STRATE does not appear to have sold itself well to individual investors. Theme D highlights the fact that many private investors miss having a share certificate. Many have clearly found it a major wrench to part with their physical certificates and remain outraged that they now have to pay an administrative fee to hold their shares at the CSD. "Shareholders remain attached to their share certificates because they feel these give them security," notes STRATE's Singer. Whether, this issue will lead to private investors moving away from holding JSE traded securities remains to be seen and could form the basis of a further study.

At STRATE's recent conference in London, Michael Sam, senior manager of sales and business development at SG Global Services, explored the appeal of holding a physical share certificate. He proposed this was due to:

- The tendency to cherish physical possessions
- A certificate, like money, represents a natural paradigm of intrinsic wealth.
- Fear of nominee accounts and broker bankruptcy.
- The belief that it is more expensive to own shares in electronic form than in physical form.

'Holding a physical share certificate is not, however, a sustainable option in the long run,' said Sam, who maintained that many South African investors failed to realise that:

- They cannot trade a physical share until it is dematerialised.
- They expose themselves to the threat of loss in fraud through tainted scrip,
- They no longer have recourse to compensation, as the Dispossessed Members' fund has expired.
- Nominee accounts are ring-fenced to protect the investor.
- The investor has the option of remaining an, 'own name' shareholder.
- Future legislation may force compulsory dematerialisation.

To achieve compulsory dematerialisation, Sam stressed that current legislation would need to be changed. He pointed out that scrip-less settlement reduced settlement risk and enhanced the secure acquisition and transfer of ownership of shares.

Theme E (STRATE makes investment and stock broking easier and/or more cost effective) – was acknowledged by some of the respondents. In line with the views of Porter (1980) and Ohmae (2000) raised in Chapter 2, greater efficiency allows enterprises to create barriers of entry to competition. Without this response, the system could have been judged to have not been successful (Bolin, 2002).

Theme F (Greater liquidity as a result of the introduction of STRATE) was raised by most of the respondents. It could be argued that the satisfying of all of the objectives put

forward by STRATE would necessarily lead to a greater liquidity as investors were encouraged to invest on the JSE. Greater liquidity is the goal of any exchange and poor liquidity levels an inevitable consequence of inferior settlement and trading infrastructures (Singer, 2002).

Theme G (Increase in market activity and settlement of trades through an efficient electronic system) is possible since an efficient electronic settlement system ideally should increase market activity. This has been the case in a number of countries in the world. The respondents agreed that the increase in market activity has not strictly been the case since the introduction of STRATE, because the global market conditions have hindered investment. Risks can be managed more effectively and this in turn may introduce various aspects of guaranteed settlement in the market over time.

Electronic trading as agreed by all the respondents does reduce the risk of investing on the JSE Johannesburg Securities Exchange. Volumes of trades were increased since electronic trading was introduced on the JSE. The risk of fraudulent, tainted and forged certificates, have been greatly reduced. With the better capacity for trading and settling volumes in the market, makes South Africa a better attraction for foreign investors and also enhances the possibility of shorter settlement periods.

Theme H (the projection of a better image of South Africa as regards settlement through the adoption of what is objectively viewed as international best practice) was supported by every respondent, some of whom who have great exposure to foreign investors. STRATE enables settlement to occur anywhere in the world (STRATE Handbook, 2002) and the attainment of better perceptions of operations in South Africa by foreigners is necessary for this objective.

The recommendations of an international “Group of 30 organisations” recommendations are valid for all CSD’s to ensure best international practices. In terms of other emerging markets South Africa has one of the most active and sophisticated stock exchanges. The implementation of STRATE has been successful as confirmed by all the respondents,

however one respondent said that this has come at an increased cost because this is mainly due to the fact that there are so many different players in the market. Many have argued that the STRATE system is comparable to other first world settlement systems in that we meet and exceed many of the recommendations / standards put out by the G30, International Organisation of Securities Commissions, Thomas Murray, GSCS Benchmarks etc. The STRATE system was bought from the Swiss based on the fact that the Swiss system did meet international requirements.

It is quite difficult to compare STRATE directly to other first world countries as many 3rd party organizations compare us to the other so called emerging/developing markets. In addition South Africa is rather unique in terms of the way its market operates and therefore can really be directly compared to other first world countries.

Theme I (Principal risk is reduced/buyer has the cash and the seller the securities), relates to the objective, which STRATE has been trying to achieve by implementing electronic settlement. The risk that one party loses full value of a transaction as a result of having to part with their asset (cash or securities) before being placed in possession of the replacement has been fully mitigated through the introduction of STRATE and the SFIDvP methodology employed by STRATE.

Through the reserving process which takes place, the CSD and its participants ensure that the buyer has the cash and seller the securities before submitting the trade for settlement on T + 5 and the simultaneous transfer of securities and cash ensures that both parties receive value at the same time.

Benefits to various organizations (CSDPs' and broking firms) are that there are no more settlement delays and more accurate and efficient settlement compared to the old paper-based settlement system. Respondents feel that because of the costs of new technology and systems makes STRATE expensive. Annual STRATE subscriptions, penalties and costs per trade now need to be borne by the CSDPs and Broking firm's customers.

However, STRATE ensures that once capital costs are recouped the company will make a profit and costs will decrease.

Theme J (Increased foreign investment), STRATE hopes that there will be more funds allocated in South Africa in the future. South Africa needs to become an attractive market as a whole and STRATE can contribute to that image and security. An efficient electronic settlement system ideally should increase market activity. This has been the case in a number of countries in the world.

At STRATE's recent conference in London, where STRATE hosted some 100 international fund managers, broker dealers and global custodians, some global securities custodians said they had experienced a surge in the assets of clients owning South African securities due to STRATE. One of the custodian companies revealed that they had witnessed a spectacular 80% increase in such assets in the past 12 months. (They were not willing to release their name).

Investors feel safer with a 5-day turnaround from trade-date to settlement date. The market can guarantee trades more effectively and efficiently than they could before. Markets are invested in according to global standards, including the G30 organisation and their compliance thereto, which South Africa can now be rated against and in which they rate very well.

One respondent personally does not agree. Most of the big market capitalisation shares have moved their primary listings overseas. He read a report, which mentioned that if Iscor de-listed and certainly with Sasol moving to New York, almost 50% of our market capitalization would have disappeared (as compared to 5 years ago). This report also stated that Prague also used to have a Stock Exchange, until all the companies moved their primary listings elsewhere. Is there a trend here? Why invest here if they can invest in their own countries?

The greater ease of transaction should lead to an increase in trading volumes (Theme K) was reported by all the respondents. This theme ties to that of increased liquidity being an objective of the JSE in STRATE's introduction.

Most respondents reported Theme L (that no apparent benefit of STRATE as regards trading volumes is yet apparent). The response that poor market conditions have prevented the showing of STRATE's benefits as regards trading volumes, (Theme N), was reported by 50% of the respondents. One respondent from a Stock Broking firm reported Theme M, as a result of his focus on international investors (that there is a benefit of STRATE as regards trading volumes).

The following comments can be made as regards the themes, respondent's individual responses thereto and trends identified in those responses.

A respondent would (as a portfolio manager working with South African securities) be principally concerned with South African securities and uninterested (or unaware) in the effect STRATE could have or be having during the periods of investigation on foreign equities.

Many respondents recognise that there are definite advantages to the introduction of the STRATE system and offered examples of their own experience where they came across problems relating to scrip both in a personal and business capacities.

A respondent recognizes that there are definite possibilities for STRATE to increase trading volumes of securities but holds that this will not happen until such time as equity markets have emerged from their current three-year slump. Individual investors should be encouraged more by the system as the confusing operation of scrip and the many problems associated with it have disappeared.

Against the context of the sources investigated in the Literature Review (Chapter 2), the respondents responses can be seen as part of the JSE's striving to remain relevant in an

environment where investment professionals cannot afford to tolerate problems as regards the trading and settlement of securities. If a competitor were to emerge to the JSE, such as that reportedly envisaged by Rudi Bam (Hasenfur, 2002), investment professionals could conceivably be tempted to focus their attentions apart from the JSE. The respondent lists experiences of lost share certificates in a professional and private capacity and adds that the system makes his job easier.

Respondents, with a wider field of experience than others, would have a more holistic view of the impact of STRATE. They recognise that STRATE brings very real benefits and acknowledges that the introduction of STRATE has made their jobs easier. In support of this contention, they quoted examples from their own experiences of how they were at times unable to balance different share counters in order to dematerialise 100% of the issued share capital of the companies. In the UK, the market ensured that only totally reconciled and balanced counters were transferred on to the electronic environment.

Ninety (90%) of the respondents are of the opinion that STRATE must definitely increase trade volumes, especially as regards private investors wishing to speculate - but that this has not happened yet (Theme K). The reported hostility to STRATE in certain circles and complaints surrounding fees will have to be overcome for this to happen. Singer (2002) acknowledges that some investors have been reluctant to move beyond the era of holding share certificates.

As Wessels, (2002), reports, the investors keenest to dematerialise were institutional investors. Sophisticated private investors will always be able to move their investments to a substitute market where they can hold a piece of paper satisfying their needs. Certain private investors miss being issued a share certificate and keeping it in the safe.

From 80% of the respondent's responses, it is clear that they believe it is too early to ascertain properly if STRATE has increased trade volumes (Theme L).

All the respondents indicate and agree that STRATE have made their jobs and of those around them, especially custodians, easier (Theme E). They also agree that the adoption of international best practice (Theme H) in trade and settlement will be beneficial and help boost the liquidity of the local market (Themes A and F). These factors are important in considering the assertions of James (2002) that investors are likely to move their investments to other markets if they feel these factors are missing. They hold that an increase of trading volumes as a result of STRATE's introduction can definitely be expected (Theme L).

Some of the respondents, are in the unique position amongst the respondent's of having dealt, with and been involved with, the development of STRATE. They are perhaps the most qualified to comment on the merits of the STRATE system.

They contend that international/foreign investors have invested more in South Africa because of STRATE (Theme M) as a result of the risks associated with scrip trading disappearing and being greatly reduced (Themes B and C). On an international investor level at least, the system does lead to increase trade volumes. This ties to the assertion that the system improves the image of the South African investment arena (Theme H).

These respondents indicate that the System gives them greater confidence and aids the performance of their job function (Theme E). Staff in the industry who previously acted only as clerks are furthermore empowered to reach a greater potential.

All of the respondents listed Theme A (a greater confidence and faith in the workings of the market as a result of STRATE's introduction), pointing to the fact that they believe STRATE brings a greater confidence and faith to the workings of the market. This them can be extrapolated to confirm the views of Kenichi Ohmae (2000) as regards his assertions surrounding the new economy, increased volumes of business and the extent to which information is processed, will provide competitive advantage and are necessary for an enterprise's (in this instance the JSE) survival.

All respondents further expressly indicated that they are impressed with the system (Theme A). This response indicates the JSE is on the right track in the view of the respondents towards providing a service that is of value to investment professionals.

The responses offered by the respondents point towards the JSE being more competitive and client orientated. This move towards the exchange acting more like a company as opposed to a co-operative, as described by (Theobald, 2002) in Chapter 2 – reflected in Themes A, C and H, reflects the necessity determined in terms of Porter's Five Forces Theory of Industry Structure (1980) of business entities being required to build competitive advantage through proper analysis of the environments in which they operate.

The response that foreigners are investing more on the JSE, than they had previously, because of STRATE's introduction, is confirmed by STRATE and a respondent from a Broking firm. (Theme L). It is suggested that the reason for this is that the respondent deals with local instruments and securities and foreign investors and that would make him more aware of these developments.

The themes extracted from the respondent's feedback, with reference to Porter's model, indicate that the JSE is making an earnest attempt, in the views of the respondents, to improve its operation through the adoption of measures deemed necessary for survival of an entity by Ohmae. This improvement will facilitate the exchange becoming more cost effective, competitive and place it in a position where it can better address the contending forces that could potentially threaten its operation.

The economies of scale that STRATE should facilitate by introducing world best practice (Theme H) should aid the exchange in becoming more efficient and supply it with a product differentiation that could protect the operation of the exchange. As certain respondent's comment (Theme M), the efficiency of STRATE has attracted foreign investors.

Pearce and Robinson (2000), hold that a strength held by an entity that differentiates it from competitors can be used as the basis of an aggressive expansion strategy. That STRATE is a resource that cannot be easily imitated adds further to this contention. The efficiency of the STRATE system (which some of the respondents uphold must necessarily eventually lead to an increase in trade volumes) will serve to protect the JSE from the threats it faces and conceivably form the basis of an expansion strategy.

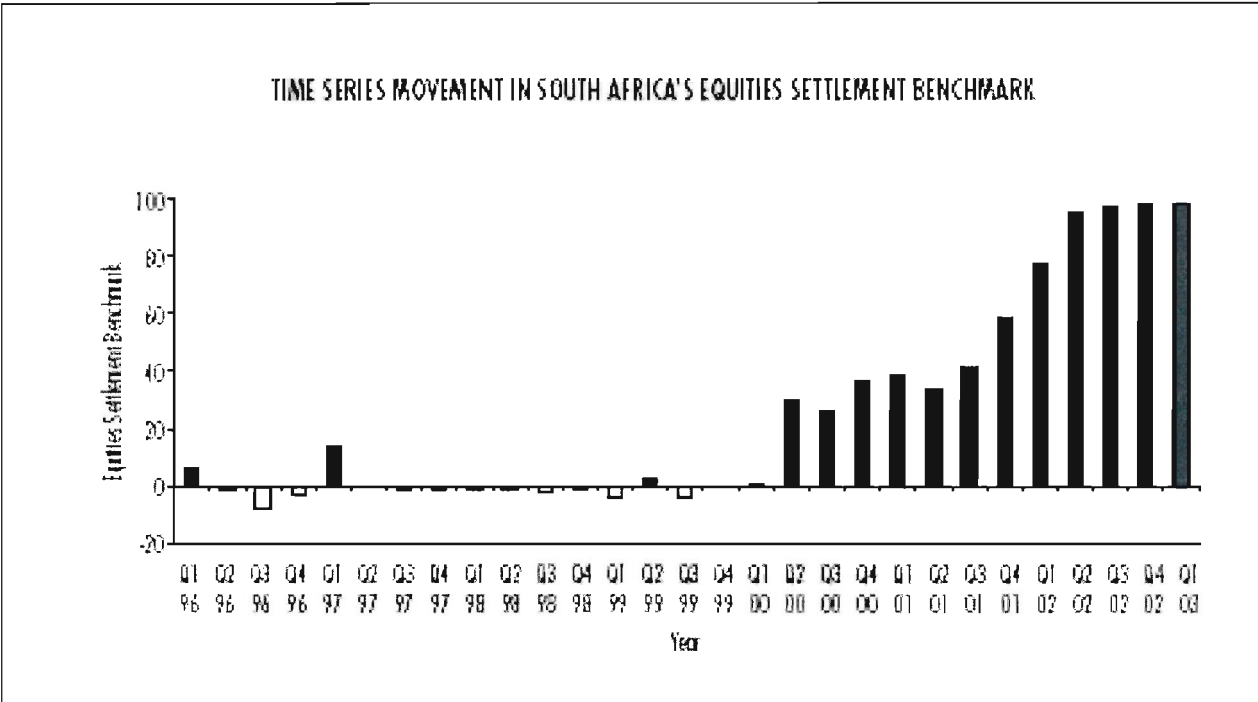
In conclusion, it can be noted that the differences in the respondent's jobs and focus necessarily impact's upon their responses in how they view STRATE. The major finding is that the respondent's hold that STRATE must eventually necessarily lead to greater trade volumes and that the implementation of STRATE has been long overdue, definitely necessary, and has been a success.

4.3 GSCS Benchmark comparison of STRATE to emerging markets

Table 4.2:A representation of the GSCS Settlement Index Benchmark – 2000 to 2003

Country	Bench mark	Pos.	Country	Bench mark	Pos.	Country	Bench mark	Pos.	Country	Bench mark	Pos.	Country	Bench mark	Pos.
	Q103			Q402			Q202			Q401			Q400	
Taiwan	99.62	1	Taiwan	99.24	1	Taiwan	99.29	1	Turkey	98.27	1	Turkey	98.30	1
Turkey	99.13	2	Poland	99.06	2	Korea	98.66	2	Korea	98.13	2	Korea	97.06	2
Korea	98.64	3	Turkey	98.86	3	Turkey	98.53	3	Philippines	96.81	3	Philippines	96.30	3
Poland	97.44	4	Korea	98.74	4	Poland	98.15	4	Poland	96.28	4	Thailand	94.11	4
South Africa	97.33	5	South Africa	98.13	5	China	97.02	5	China	95.62	5	Malaysia	93.34	5
Argentina	97.30	6	Peru	97.85	6	Pakistan	96.32	6	Malaysia	95.34	6	Peru	92.74	6
Indonesia	97.20	7	Indonesia	96.95	7	Philippines	96.32	7	Thailand	92.63	7	China	91.63	7
China	97.09	8	China	96.75	8	South Africa	95.32	8	Mexico	91.21	8	Poland	91.07	8
Philippines	96.57	9	Philippines	96.18	9	Malaysia	95.17	9	Czech Rep	91.08	9	Argentina	90.55	9
Malaysia	96.29	10	Malaysia	95.95	10	Israel	94.15	10	Argentina	89.99	10	Mexico	89.59	10
Hungary	95.57	11	Israel	94.83	11	Thailand	93.32	11	Peru	89.93	11	Hungary	86.46	11
Israel	94.34	12	Pakistan	94.49	12	Peru	93.15	12	Hungary	89.06	12	Brazil	85.36	12
India	92.95	13	Hungary	94.25	13	Hungary	92.17	13	Greece	86.65	13	Czech Rep	77.88	13
Mexico	92.94	14	Thailand	92.71	14	Indonesia	91.34	14	Brazil	84.79	14	Greece	76.25	14
Thailand	92.20	15	Czech Rep	92.13	15	Mexico	91.00	15	India	80.66	15	Portugal	74.46	15
Czech Rep	91.40	16	Mexico	91.93	16	Czech Rep	89.28	16	Portugal	79.04	16	India	71.42	16
Greece	89.71	17	India	91.77	17	Brazil	85.68	17	Indonesia	77.32	17	Ireland	67.27	17
Peru	89.38	18	Brazil	87.68	18	India	82.33	18	Ireland	73.95	18	Indonesia	67.22	18
Pakistan	83.50	19	Greece	86.09	19	Greece	78.29	19	South Africa	58.48	19	Venezuela	46.31	19
Brazil	82.76	20	Argentina	84.61	20	Venezuela	60.44	20	Venezuela	53.11	20	South Africa	36.41	20
Venezuela	79.80	21	Venezuela	65.12	21	Russia	24.34	21						
Russia	13.02	22	Russia	-4.29	22	Argentina	24.24	22						

Figure 4.1 -Time series movement in South Africa's equities settlement Benchmark



STRATE has done wonders for South Africa's rating as an emerging market. South Africa has made impressive progress in terms of all the emerging market equities benchmarks calculated by GSCS, the London based research publication. Prior to the fourth quarter of 2001, South Africa enjoyed the dubious distinction of being ranked the worst of 20 emerging stock markets in terms of settlement efficiency.

The aim of the GSCS settlement benchmark is to compare the settlement efficiency of different markets and track the evolution of settlement performance in individual markets over time. The benchmark incorporates the four components which, when combined, reflect the overall cost of failed trades to market participants. The four components comprise average trade size, local market interest rates, the proportion of trades that fail and the length of time they fail. By converting information back into a base currency, comparisons between markets become possible. The benchmarks are expressed as a score out of a maximum of 100. The lower the score, the higher the effective operational costs of failed transactions.

Since the inception of the Johannesburg Electronic Trading (JET) system in June 1996, the number of trades has been increased by up to 89,5 percent per year. Unable to cope with such high trading and settlement volumes, South Africa had been ranked the worst emerging market in terms of settlement risk, with a settlement rating as low as -1,18. This was solely on account of its settlement being paper-based at a time when the rest of the world, including emerging markets, was settling electronically.

Accordingly, the introduction of STRATE was imperative to the market – it was the only way in which South Africa could improve its settlement efficiency rating. Since settlement in STRATE started, South Africa's benchmark improved in the third quarter of 2001 to 41,62. In the first quarter, the rating improved dramatically to 58,48 prompting this comment in GSCS: 'South Africa's 40,51 percent improvement in its benchmark score during the fourth quarter of 2001 has capped a Goodyear for the market in settlement index.

In Q1 01, South Africa was rooted at the bottom of the index and lagged behind its nearest rival, Venezuela, by a disturbing 34,53 percent. However, South Africa overhauled this

deficit and led Venezuela by 5,37 percent. Consequently, Venezuela has been forced to the foot of the rankings, despite having added 4,79 percent to its benchmark score over the quarter.’ Turkey topped the rankings with a benchmark score of 98,27, followed by Korea with 98,13. South Africa’s strong settlement index gain has helped boost its ‘domestic volumes and settlement benchmark’ performance between the third and fourth quarter of 2001.

Indeed, the 40,51 percent improvement was ahead of anything other markets were able to achieve. According to GSCS, ‘South Africa had returned an impressive performance since Q4 00. The market’s domestic volumes have grown during each of the last four quarters by 23,52 percent, 5,97 percent, 18,82 percent and one percent during Q1 01, Q2 01, Q3 01 and Q4 01 respectively. As a result, the market’s relative share has grown year-on-year by 27,92 percent.’

STRATE boasts a system that is the equal to any of its peers – in both emerging and First World Markets. Consequently, there’s no reason why South Africa shouldn’t, in the near future, graduate to the top of the emerging markets settlement index. This highlights the direct correlation between STRATE’s introduction and South Africa’s climb up the ranking ladder. STRATE’s gains began early in 2001, at just the time that JSE-listed counters began moving into the STRATE environment. As the momentum grew, the ratings shot up.

The Indian experience mirrors the South African phenomenon. Like South Africa, India languished near the bottom of the rankings until it went the electronic settlement route. Its settlement index now stands at 80,66.

The introduction of electronic settlement to the South African market has brought about a quiet revolution in settlement efficiency, *writes Bob Currie*. Prior to Q2 00, the percentage of trades settling by settlement date in the South African market repeatedly dropped below 50 per cent – and poor repair rates allowed trades to remain outstanding for extended periods, causing South Africa’s Settlement Benchmark score persistently to drop below zero.

These GSCS *Benchmarks* performance statistics made unpleasant reading for senior figures in the South African securities industry – and, ultimately, alerted them to the need to put their

under performing house in order. Since the message sunk in, however, there has been no looking back. The initial phase of dematerialisation was launched in September 1999 and now all equities and warrants listed on the Johannesburg Securities Exchange (JSE) have been embraced under the STRATE umbrella, with approximately 75 per cent of the JSE's US\$174 billion market capitalisation in dematerialised format. Under the new electronic regime, the market's Settlement Benchmark score has improved dramatically, climbing from .85 in Q1 00, to 38.11 in Q1 01, and rising further to 76.94 in Q1 02, and to 97.33 in Q1 03. With less than two per cent of trades now failing to settle on SD, South Africa is fighting hard with Taiwan, Turkey, the Republic of Korea and Poland for top spot in the GSCS *Benchmarks* emerging markets settlement rankings.

South Africa's securities infrastructure is among the most sophisticated in any emerging market. 'This view was expressed by the renowned Global Investment Services, which added that the migration of all JSE-listed securities onto STRATE confirmed its position at the cutting edge of financial technology.'

Between the first and third quarter of 2002:

- South African settlement risk had improved from 76,94 percent to 96,55 percent to boost its emerging market rating from 17th to 7th out of 18 nations;
- South Africa's operational risk had improved from 66,96 percent to 75,51 percent, boosting its emerging market rating from 15th to 2nd out of 18 nations.

The ratings are calculated by CSGS Benchmarks, an internationally respected British publication that tracks settlement efficiency rates among the world's stock markets.

4.4 Summary

This chapter presents an analysis and discussion of the results obtained through the application of the procedures described in chapter 3. The chapter presents the results of the qualitative research questionnaire distributed to investment professionals and a discussion thereof and the comparison of STRATE's settlement index with emerging markets. A list of response categories was created for each item/question and this chapter also identified themes.

Chapter 5

Conclusion and Recommendations

5.1 Introduction

In this research, the importance of the investment and securities fields were highlighted.

The researcher investigated literature resources surrounding STRATE, and the writings of Kenichi Ohmae (2000) and Michael Porter (1980). The view that STRATE is a manifestation of the growing importance of electronic commerce in the operations of business (as expounded by Ohmae (2000)) and that all commercial entities need to take thorough cognisance of their environments and evaluate the threats around them to ensure their survival and formulate corporate strategy (as in Porter, 1980) was advanced.

It was put forward that STRATE is an attempt by the JSE to compete with other potential entrants in the market and substitute products.

This research was initiated after the identification of the following aims and sub-problems

Two aims of the study may be identified:

- 1) To determine whether the implementation of STRATE has improved South Africa's equity markets position/standing in comparison to other developing countries and world markets.
- 2) To identify and discover the effect/result/success of the transition to an efficient electronic system, STRATE, from relevant themes by investment professionals and organizations.

The following sub-problems (or research questions) are derived from the aims listed above:

- An efficient electronic settlement system will increase market activity and the number of shares traded;
- The South African market with the implementation of STRATE will become a leading and sophisticated world market in electronic settlements;
- More funds will be allocated for investment in South Africa in the future as it will be an attractive emerging market;

- What relevant themes may be elicited from the responses of a range of investment professionals, concerning the introduction of the STRATE system and its benefit to the industry
- Shares held electronically (dematerialised) are safe from theft, damage and from being destroyed;
- Dematerialisation of shares is significantly related to trading electronically in equity.

5.2 Recommendations

A recommendation, in respect of the aims and sub-problems, is that a different result might have been obtained had the study been conducted over a longer time period.

With regard to the fourth sub-problem listed above, the qualitative element of the research involved asking sixteen respondents twelve questions by questionnaire (what their views on STRATE are regarding its success and whether they believe STRATE will increase trade volumes) and extracting themes from their responses.

The secondary data responses were analysed and the themes are represented in Table 4. The major themes include STRATE bringing about a perceived greater confidence and faith in the workings of the market, lost share certificates and an ease of settlement pre-STRATE being prevented, STRATE resulting in barriers to private investors being removed, respondents expressing a missing of scrip share certificates being issued, STRATE making investment and stock broking functioning easier and more cost effective, the JSE having a greater liquidity potential as a result of STRATE's introduction, the increase in market activity due to greater and more efficient settlement of trades, principal risk is reduced, increased foreign investment and the JSE achieving a better international image as regards settlement through its adoption of best international practice.

Other themes extracted from the questionnaire are reproduced in Table 4. These themes include STRATE leading to a greater ease of transaction which, it was reported, should lead to an increase in trading volumes of securities, that no apparent benefit of STRATE's introduction exists yet and that poor market conditions during the period of study have

prevented any benefit of STRATE as regards increases in trading volumes becoming apparent.

It is recommended that the conclusions of the qualitative study be tested quantitatively at a later date. It is further recommended that a purely qualitative study on the impact of STRATE be conducted at a later date using a wider body of respondents. For a future qualitative study, it is further recommended that the questions asked of respondents be less broad and more specific. A greater number of questions and more diverse group of respondents (especially once the impact of STRATE has had more time to influence the opinions of investment professionals and become more familiar) could potentially enrich the body of knowledge. The respondents could conceivably further be asked about the factors that could be interpreted as limiting the findings of sub-problems, such as:

- The absence of accurate, up to date information;
- The unwillingness of some investment professionals to share information, even though the information is of a non-confidential matter;

Subsequent recommendations of this study in the light on the finding of the qualitative analyses with regard to all of the sub-problems are that a further research be undertaken once more data is available and the current slump in world securities markets has passed. A different conclusion to the findings presented (such as the one collated by GSCS Benchmarks), in consideration of the feedback from the qualitative responses indicating that STRATE must increase trade volumes could conceivably be reached if more data was available for quantitative analysis.

It is recommended that if a future study were to utilise the case study model, the case study subject company should be drawn from the JSE or STRATE or one of its competitors.

With regard to STRATE, the following recommendations are suggested:

STRATE has taken an important step forward for market efficiency, but some South African investors have been slow to adapt to the cultural change. An integrated and educational STRATE campaign should be conducted in South Africa to educate the private investors, as well investors/groups opposing the compelled switch to an electronic settlement environment,

that they little understand and which they feel provides them little advantage. The CSDPs should also be educated as they don't fully understand areas such as corporate actions, pledging of shares, portfolio moves etc.

STRATE must constantly upgrade system changes to enhance the IT systems and keep abreast any recent developments in the investment and securities industry. STRATE must aim to graduate to the top of the emerging market settlement rankings in the near future and ultimately work towards being amongst the best in the world

STRATE is adamant that the organisation must not countenance any slippage in the standards that it has established in the equities processing arena – this remains the CSD's principal area of expertise and the domain that will provide the cornerstone of it's business.

5.3 Conclusion

From the analysis of the respondent's answers, it can be concluded that STRATE would lead to increased trade volumes (it may have already as regards foreign investors) and that the system is a vast improvement on trading in scrip. It can be concluded that STRATE is and will prove to be a valuable system/tool in the functioning of investment professionals and the securities industry.

The success of STRATE is evident from the drop in failed trades and broker transgressions of the JSE Securities Exchange's rules and directives. The transition to an efficient electronic settlement system has not only led to increased market activity but also a much-improved international perception of the South African market. The introduction of STRATE has accorded South Africa phenomenal international settlement ratings.

STRATE has achieved truly world class status and has transformed the South African securities industry as one of the best in the world. The key features of electronic settlement contributed to a massive reduction of risk in the South African market, in the process enhancing South Africa's standing as an investment destination for international investors. For a country so desperately in need of foreign investment, STRATE's has boosted international investor confidence in South Africa, which is of paramount importance to the nation's future prosperity.

It can be concluded that the implementation of STRATE has been successful and has led to an enormous improvement in South Africa's equity markets position/standing in comparison to other emerging/developing markets. STRATE has developed into a viable business, which offers a range of products and significantly expanded its participation in the value chain.

The introduction and implementation of STRATE has made advances in processing efficiency, reduced risk, and has enabled South Africa's settlement framework to benefit from economies of scale, which has benefited the South African financial market.

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Appendix I

QUESTIONNAIRE:

This questionnaire seeks information to assist with a dissertation in partial fulfilment of the requirements for the Degree of Master of Business Administration for the Graduate School of Business-University of Natal. It is merely for research purposes.

This research is independent of STRATE and STRATE is in no way associated with the proposed research/study.

This research is aimed at producing a content analysis of investment professionals' views of the impact of STRATE. It is particularly interested in discovering the result/success of the transmission to an effective electronic settlement system (STRATE), and to determine STRATE's position in comparison with developing countries and world markets.

I would appreciate your assistance with your answers / views to the following questions.

Please return completed questionnaire **by no later than 31 March 2003.**

Name of respondent
Name of organisation
Type of organisation
Address of respondent
Telephone number
Fax number
E-mail address
Internet / web-site

Question 1: Was the transition to an electronic settlement system necessary (STRATE)?

Question 2: Does electronic trading reduce the risk of investing on the JSE Securities Exchange?

Question 3: What are the pros and cons from an investor's perspective of STRATE achieving a secure, electronic settlement environment for share transactions on the JSE Securities Exchange?

Question 4: Will an efficient electronic settlement system increase market activity and settlement of trades? Please explain

Question 5: Has the implementation of STRATE been successful and is STRATE comparable to first world / class settlement systems? Please explain.

Question 6: The establishment of a CSD is a recommendation of an international “Group of 30 organisations”. This recommendation has been embraced by many industrialised “first world” markets and most emerging markets. Do you think that this recommendation is valid for South Africa? Please explain.

Question 7: Has your organisation experienced a cost benefit by having electronic equities settlement via a CSD? Please explain

Question 8: Has the implementation of STRATE improved South Africa’s settlement risk position/standing in comparison to other developing countries and world markets? Please explain

Question 9: Before the implementation of STRATE, there was a principle risk. Do you think that this risk has lessened with electronic settlement and delivery versus payment via the CSD?

Question 10: Since STRATE has been implemented and operational, what do you think the benefits are to your organisation?

Question 11: Referring to your answer to question 10, do you think there are any limitations in converting to STRATE?

Question 12: Will more funds be allocated for investment in South Africa in the future, as it will be an attractive emerging market? Please explain

Please return this questionnaire by any of the following means:

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By fax to : Goolam Bhabha +27.11.636.4921

By Email to: bhabhag@scmb.co.za