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# A critical review of the restructuring of the South African capital market

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*The purpose of this paper is to critically review the restructuring process of the JSE Securities Exchange of South Africa (the JSE). A descriptive approach is used to describe this process in terms of market liquidity, supply of accurate information, low transaction costs, and efficiency of information. This restructuring process is then evaluated in terms of liquidity, value traded and number of deals. Analysis shows that, although the JSE can not be regarded as the best market in the world, there was substantial improvement on the JSE's operations after the restructuring of its operations. Summary and conclusions are presented.*

Field of Study: Equity Markets

## 1. Introduction

### 1.1 Background to this paper

The history of the JSE Securities Exchange of South Africa (the JSE) dates back to the year 1887. The JSE was founded to enable financiers to raise funds for the expansion of the fledgling mining industry in Johannesburg. Murray (1987) argues that the JSE reflects the riches of the gold mining industry as was the case in the late 1800s. For example, current top ten companies as measured by market capitalization are predominantly mining companies.

"From its establishment in 1887 to modern day, the JSE has played and continues to play a vital role in the commercial and economic development of the Republic of South Africa. The JSE stands high as the engine-room of the South African economy. Companies listed on the JSE create a sizeable part of South Africa's economic activity. Companies across the range of industry and commerce meet to raise the public capital needed to expand their businesses. In doing so, they create new jobs, products, services, wealth and economic opportunities" (JSE, 2005). Securities exchanges have consequently
acted as both pioneers of modernization and as instruments of efficient economic organizations (Murray, 1987). As the companies' profits improve, dividends are passed on to their shareholders thus creating a cycle of economic empowerment that echoes the stability and well-being of a nation (JSE, 2005). In light of flourishing economic growth, one has to be aware that an economy requires a successful financing source to sustain growth. Hence the roles and functions of the JSE are important to understand and evaluate.

### 1.2 Problem statement

Before 1994, the JSE suffered from a number of challenges which were company-specific. It is argued that these company-specific challenges were created by the peculiar economic structures of

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companies, political instability and the sanctions against South Africa (Financial Mail survey, 1992: 4). According to Reilly and Norton's (1999) requirements for a 'good' exchange, the JSE did not meet even one of these criteria because the JSE suffered from illiquidity, lack of accurate information, fairly high transaction costs as well as inefficiency of price information (Financial Mail survey, 1992: 4). The pitfalls associated with preventing the JSE from meeting these criteria before 1994 were concentration, thin trading, illiquidity, institutional investors, and to some extent single capacity trading (Financial Mail survey, 1992: 4). The JSE was thus not providing its functions properly and it trading performance compared poorly with that of other exchanges.

### 1.3 Objective of this paper

This paper presents a descriptive study that critically describes the restructuring process of the JSE Securities Exchange South Africa (the JSE) against the four specific functions of any securities exchange, namely, informational efficiency, liquidity, low transaction costs and external efficiency. This paper also evaluates the JSE in terms of liquidity, value traded, volume traded and number of deals. Specifically, this paper attempts to answer the following research questions:

- What led to the restructuring of the JSE?
- How was the JSE restructured?
- Did the restructuring process lead to improved quantitative performance in terms of volume traded, value traded, number of deals, and liquidity?

The discussion below addresses each of the above research questions.

## 2.1 What led to the restructuring of the JSE?

### 2.1.1. Concentration

Before 1994, South Africa was certainly characterized by high levels of economic concentration. "The capitalized value of all the listed companies controlled by the top four firms comprises roughly 80% of the capitalised value of the JSE" (Economic Focus, 1990: 2). It is further argued in the Economic Focus (1990) that the severity of the economic exchange controls made it impossible for South African corporate giants to invest their free cash flows abroad. As a result, much of these free cash flows were spent on securing majority ownerships in many South African companies (Economic Focus, 1990). The result of this 'in-breeding' is huge pyramidal corporate structures whose control can be sourced to a few large groups (Economic Focus, 1990).

Having such a high degree of economic concentration has an undeniably adverse effect on the JSE's ability to meet the requirements associated with a 'good' securities exchange. More specifically, concentration diminishes the function of the JSE as a 'venue'' for raising long-term capital for entrepreneurial risk takers, that is, the ability to channel savings into investments (Economic Focus, 1990). What this implies is that the majority of funds raised through the exchange mechanism are likely to be raised by a firm that is under the umbrella of one of the few large controlling groups. This points out to the modest role of the JSE as a source of new equity capital in the late 1980s. A substantial portion of money that was raised has been earmarked for companies associated with a few big financial/industrial groups. As these cash flows were directed at 'blue-chip' companies, a vast majority of listed companies on the JSE obtained no new external equity finance, which they desperately needed in order to expand their operation. These firms would as a result, stagnate (which is a death warrant in the progressive and ruthless business world). This, in turn, would lead to diminished confidence in the companies and even their eventual de-listing (Economic Focus, 1990).

### 2.1.2 Institutional Investors

Prior to 1994, the financial institutions had begun to occupy a dominant role in trading on the JSE. "A situation brought about by the vast increase in the cash flows of insurance and pension funds over the years" (Economic Focus, 1990: 2). The increase in dominance of institutional investors was paralleled by the partial demise of private investors. Annon (1990) as cited in Economic Focus

(1990), highlights two main causes for this; the first one is the intensive search for growth assets in light of high inflation and taxation which caused private investors to shift their resources from banks and building societies to instruments such as endowment policies. The second one is that private investors began to opt for instruments such as unit trusts instead of investing directly in equities. It is argued that, with the drop in direct private investor involvement, came the deterioration in the financial position of households in the economy. (Economic Focus, 1990)

Empirical evidence, as put forward in the Economic Focus (1990), suggests that institutional investors tend to focus their spending on few shares, which usually fall under the control of the corporate giants referred to earlier. Corporate giants, unlike private investors, concentrated their activities "on a narrow range of equities amounting to about 50 shares which were of 'blue-chip' status and reasonably marketable. This narrow band of buying is indeed problematic. Firstly, while the same companies continuously receive equity finance from institutional investors, many other companies could not finance their investment opportunities (Economic Focus, 1990: 2). This hampered economic growth. Murray (1987) believes that only 10-15% of shares registered on the JSE were actually traded. The fact that JSE was thus extremely thinly-traded effectively discouraged entrepreneurial risk-taking and the development of new infrastructure in South Africa, (Murray, 1987). Secondly, given that buying activity was constantly directed to a few shares, the ability to efficiently trade the vast majority of remaining shares was decreased (Economic Focus, 1990). This resulted in dominant institutional investors preventing the JSE from fulfilling its primary role of being a source of market liquidity.

### 2.1.4 Thin Trading and Illiquidity

According to Bradfield (1987), approximately one third of JSE securities were not traded, on average, for at least one consecutive week in every four week period. Bradfield further argues that at least 20% of JSE securities can be categorized as very infrequently traded. Given the thin trade that characterized the JSE prior to 1994, it is not unreasonable to expect the JSE not to be able to fulfill its core and essential functions. South African investors encountered difficulty in achieving smooth and efficient trade in shares. Furthermore, many investment decisions made were skewed by the distortion of risk measurements such as covariance and resulting beta and correlation co-efficients. Bradfield (1987) concludes that the final outcome was that many value judgments based on capital market theory were often erroneous.

### 2.1.4 Single Capacity Trading

Prior to 1994, only member stockbrokers were permitted to act in a single capacity and to trade equities on the JSE, all other parties were prevented from market participation (Economic Focus, 1991). The exclusive trading rights of these 'member' brokers have been the cause of many problems and much animosity. Murray (1987) argued that these stockbrokers loathed dealing with prospective shareholders who had less than R2500 to invest. The reason provided was that the cost of instituting such transactions would exceed this amount. As a result, few of South Africans had the opportunity of participating and benefiting in the free enterprise system as owners (Murray, 1987).

In a sense, the exchange had failed to create a level playing field for all financial players,
"a situation which partly originates in the separate legal dispensation for different financial market" (Economic Focus, 1991). It was argued that the separate legal allowance permitted member brokers on the JSE to trade on other financial markets like South African Futures Exchange (SAFEX), but did not permit other financial institutions to trade on the JSE. This was unfair because the JSE members were given an advantage in other markets, whose instruments were based on underlying share prices. As brokers traded on the market floor, they were privy to information about shares, but non-members had to wait until that information became public (Economic Focus, 1991). This imbalance in the legislation governing the JSE, prevented the market from disseminating information efficiently, another criteria for a 'good' exchange.

### 2.2 How was the JSE restructured?

#### 2.2.1 Big Bang of 1995

Following the first South African democratic election in 1994 and the lifting of international sanctions on South Africa (JSE, 2005), the JSE board of directors thought that it was the right time for the JSE to be re-designed. "It became evident that the JSE would have to tackle changes sweeping through financial markets around the world and to focus on the needs of the new political and economic era of South Africa. Joining the global trend of deregulation, with the United States of America and London having deregulated their markets in 1976 and 1986 respectively, the JSE in 1995 went through its restructuring program" (Financial Mail Special Report, 1995). This program was commonly known as the 'Big Bang' of 1995. Deregulation moved the JSE from a membership limited to natural persons of South African citizenship, to having membership being open to all, including legal *persona* (Financial Mail Special Report, 1995). The aim of the 'Big Bang' was to align the JSE to international trends. It is argued that the JSE secured itself as place in an ever-expanding global competitive market, as investment leaned towards those markets offering economic efficiency –low transaction costs and operational efficiency –secure and speedy settlement (Financial Mail Special Report, 1995).

#### 2.2.2 Dismantling of Exchange Controls

Exchange controls in South Africa, as in many other developing countries, were intended to provide some protection to the domestic economy from the adverse effects of capital flights (JSE, 2005). "Between 1961 and 1993, exchange controls were extended from time to time in reaction to a worsening political situation in South Africa. Exchange controls however, created many distortions in the South African economy. Interest rates, the exchange rates, financial asset and property prices were all negatively affected by the exchange controls. These distortions led to a mal-distribution of scarce resources thus preventing the JSE from performing its function of channeling savings into investments. Exchange controls prevented the important price mechanism of the market economy from functioning properly, and cost efficiency considerations were of secondary importance (JSE, 2005).

Owing to the above-mentioned reasons, there was an urgent need for the JSE to dismantle the Exchange Controls Acts. The gradual phasing-out of exchange controls began in 1993 (JSE, 2005). This led to relaxing the barriers to entry, liquidity by allowing the free flow of funds outwards (Financial Mail Survey, 1992). This together with the restructuring of the JSE, helped minimize the problem of illiquidity that was stifling the JSE, and brought about increased competition, which reduced transaction costs and therefore improved economic efficiency. The reputation of the JSE as a 'good' securities exchange was enhanced.

#### 2.2.3 Dual Capacity Trading

As mentioned above, the JSE introduced a system of dual capacity trading. The main aim of this system was to eliminate the problems associated with single capacity trading reported in previous sections of this paper. The dual capacity trading system permitted stockbrokers to act as agent as well as principal, that is, essentially buy and sell shares on behalf of their clients whilst simultaneously holding packages of shares in which they themselves could deal (Financial Mail Special Report, 1995). "Because dual capacity requires that brokers hold a percentage of shares, their commissions had to be adjusted to accommodate this increased risk. For this reason, commissions had become negotiable and the fixed brokerage fee system abolished" (Economic Focus, 1991). With negotiable commissions, competition for clients between brokering firms was intensified, thus lowering transaction costs for investors and conforming to one of Reilly and Norton's (1999) requirements for a 'good' securities exchange, that is, economic efficiency.

### 2.2.4 Deregulation

The South African legislature began amending relevant legislation in an attempt to solve problems that prevented the JSE from being efficient and internationally competitive. This deregulation of the market was comprehensive and covered a wide range of areas ranging from membership to taxation issues. The purpose of deregulation was to align the Financial Markets Act with the Securities Market Control Act. As such, the merging of these two acts would facilitate the elimination of inequities in membership requirements, as well as create a level-playing field (Economic Focus, 1991).

It is reported that critics of the JSE argued that deregulation would improve the marketability of shares on the exchange, especially given that membership was extended to financial institutions. Extending membership to financial institutions meant that these institutions were given an opportunity to revive the role of private investors in the market, and to cater for their preferences for a vast array of shares. These financial institutions and brokerage houses were given another opportunity to pooling their expertise and capital (Economic Focus, 1991). The latter opportunity would ensure that a more attractive service to private investors would be provided at a reasonable cost.

More importantly, deregulation was an attempt to attract foreign investors to South Africa, especially those with hard currency. Allowing foreign investors on the JSE would naturally boost liquidity and volumes (Economic Focus, 1991), as the amount of players in the market would increase. An increased number of market participants would firstly increase the chances of successful trades being made, and secondly created a larger base of surplus economic units from which new capital could be raised. International investment benefited not only the JSE, but foreign investors were given an opportunity to diversify their portfolios internationally. There were massive diversification benefits for them especially because they not only had access to the JSE, but also to other local markets like the South African Futures Exchange (SAFEX).

Deregulation also involved the revision of local tax laws in order to align them with international trends. The marketable securities tax on share purchases was reduced from 1.5% to 1% in the March 1991 budget, and authorities had indicated that the tax will be phased out by 1993 (Economic Focus, 1991). This was done to increase their purchasing power on the exchange. Liquidity was improved as the demand for financial assets was increased. This indeed aided the JSE in achieving its goals of becoming a source of investment liquidity (its secondary function).

### 2.2.5 Automated Trading System of 1996

In 1996, the JSE replaced the open outcry system of trading with an automated trading system. This meant that traders could buy and sell using centralized automated trading system (ATS) of the JSE. Deals did not need to be concluded using the telephone. Electronic screens were used, and these promoted transparency unlike an open outcry system that was in place prior to 1996. It is argued that, by introducing a network of computers, the JSE allowed for a huge leap in the volume of transactions. As a result of this increase in trading volume, thin trading was minimized. According to Falkena *et al.* (1992), automated trading enables the fusion of other international electronic exchanges that trade continuously with automation, and dealing becomes more efficient, speedy and secure. It is believed that not only thin trading was minimized on the JSE but also insider trading, as the JSE surveillance team was able to continuously study the details of transactions.

An additional advantage of automated trading is that members need not be in South Africa in order to trade. They can trade remotely from anywhere in the world (Financial Mail Special Report, 1995). The automated trading guaranteed efficient price formation by immediate and automatic display of executed orders, not only on trading screens but also on public vendor screens. The ATS was a restructuring move by the JSE allowing it to conform to international standards and thus improve its functionality.

### 2.2.6 Johannesburg Equities Trading System of 1996

The Johannesburg Equities Trading (JET) system is an order-driven, centralized trading system. The JET system centered around a single main central order screen, commonly known as the 'book'. Orders registered in the book are ranked first in terms of the best price and then in terms of "first come first served" basis (JSE, 2005). It is argued that this trading system was aimed at providing optimum fairness to investors. A total of 24 568 trades were recorded in October 1997, indicating a great increase in the amount of trades carried out ever (JSE, 2005). Therefore, the JET system greatly increased the amount of trades that could be executed. The JSE was convinced that this trading system was up to international standard (JSE, 2005).

In an environment of increasingly sophisticated global interactions, the technological edge presented by the JET system was of critical significance in attracting trading activity to the JSE, rather that to competing foreign markets (JSE, 2005). The JET system resulted in significant improvements in transparency, price formation, security and the cost of trading on the JSE (JSE, 2005). Liquidity was also greatly improved due to the implementation of JET and the restructuring process. As argued in the paper, liquidity improved substantially after the 'Big Bang' in 1995 and the introduction of JET in 1996.

### 2.2.7. Share Transaction Totally Electronic of 1999

The JET system was launched at the same time that dematerialization took place (that is, automated trading system discussed above). Dematerialization is a technical term referring to the process whereby paper share certificates were replaced with electronic records of ownership (JSE, 2005).

Introduced in 1999, Share transactions totally electronic (STRATE) provides a growing number of products, data, and services, in line with market demands and trends (Strate, 2005). It is an electronic clearing and settlement system that is aligned to international best practices aiming at bringing efficiencies and improvements to South Africa's financial society (Strate, 2005). The JET system highlighted the deficiencies of the JSE's paper-based settlement system. For example, there were times when up to 40% of all trades failed to settle timeously (JSE, 2005). With the implementation of STRATE, all non-settlement problems were solved (JSE, 2005). Once shares were no longer traded on a trading floor, there was a huge leap in the number of daily trades (JSE, 2005). The JSE administration support services were unable to handle this increase in daily transactions efficiently in a paper-based environment (Strate, 2005). Therefore, it was inevitable for the JSE to restructure and implement STRATE. This transition to an efficient settlement system has increased market activity and improved the international sensitivity of the South African market by reducing settlement and operational risk in the market, increasing efficiency and decreasing costs (JSE, 2005). Through the increase of investor demands, STRATE has enabled South Africa to compete effectively with other international markets, and not just with those of emerging countries (JSE, 2005). STRATE thus assisted the JSE further in its quest to be a 'good' exchange.

### 2.2.8 Securities Exchange Trading Systems of 2002

During the late 1990s, the JSE experienced a bear market. As in any typical bear market situation, the JSE suffered through progressive delisting of major companies from the exchange. According to the JSE (2005), the rate of delisting reached its highest level in 2001. Eighty five companies delisted on the JSE in that year. It is argued that many companies delisted on the JSE in favour of other securities exchanges abroad, due to the high cost of capital and stringent listing requirements on the JSE (JSE, 2005). Reasons cited for delisting on the JSE included, amongst others, decreased confidence in South African financial and economic markets due to high crime rate and fluctuating exchange rates.

Additionally, during the 1990s, the environment within which securities exchanges operate changed spectacularly, and deregulation, liberalization, increased access to information , more sophisticated investors and the limitless possibilities offered by new technology, have placed new demands on the service offered by exchanges to their members, issuers and investors (JSE, 2005). It is argues that all these factors combined lead to the rapid globalization of the financial services industry. Therefore, it was imperative for the JSE to re-analyze itself. At the beginning of 2000, the JSE completed an in-depth strategic review with the aims of reviewing all its operations, investigating international trends, and plotting the future and increased competition in the financial services industry (JSE, 2005).

To promote international standards, the JSE signed agreements with the LSE and had to comply with some of its proposed requirements (JSE, 2005). "Monday, May 13 2002, was one of the milestones for the JSE when it scrapped out the six-year old Johannesburg Equities Trading (JET) system and replaced it with the Securities Exchange Trading System (SETS)" (JSE, 2005). SETS is a London-based securities exchange trading system. This increases potential investors, and thus reduces thin trading and improves liquidity. SETS is an electronic limit order book trading service used to trade 'blue-chip' shares as well as other securities (JSE, 2005). "The trading system provides a single method for entering both orders and quotes, and facilitates the immediate execution and reporting of trades. It consists of a central trading platform that supports multiple trading services. The order book is the key price formation and trading service for the securities and allows participants to submit orders displaying their willingness to buy or sell quantities of shares at specific prices, or to execute against displayed orders. Orders can be submitted either on behalf of clients or for participants own proprietary trading purposed. Participants add orders or execute them against existing orders by sending messages electronically to SETS. Executions occur automatically in accordance with strict price and time priority so that investors can be confident that they will be executed fairly" (JSE, 2005). SETS ensures information efficiency and the accuracy of information, thus helping the JSE to provide its function as a secure, speedy and 'good' securities exchange.

In addition to all benefits associated with JET, SETS enables the JSE's securities to be displayed on more than 100 000 trader screens worldwide, thus potentially attracting interest from fund managers and brokers around the globe, with the resultant increase in capital inflows (JSE, 2005). Through this alignment of the London Securities Exchange (LSE) and the JSE, South African companies can now issue shares on both exchanges, without changing residence, thus preventing capital flight out of the country (JSE, 2005). In addition, to SETS, the Securities Exchange News Service (Sens) was introduced to issue price-sensitive information to all market-watchers simultaneously, thus reducing the incidence of insider trading (JDE, 2005).

### 2.2.9 The Alternative Exchange of 2004

Another prominent change on the JSE was the closure of the Development Capital Market (DCM) and the Venture Capital Market (VCM) on July 30 2004 (JSE, 2005). It is argued that the reason for closing these two markets was that they failed due to low liquidity (JSE, 2005). Most companies under the DCM and VCM had delisted, and their percentage of market capitalization (out of the total JSE market capitalization) as at 31 December 2003, were 1% and 4% respectively. Sound companies from these sectors were encouraged to list on the alternative exchange (JSE, 2005).

The alternative exchange (Alt$^X$) is one of the latest official restructuring ventures of the JSE and is Africa's first alternative exchange (JSE, 2005). This exchange was launched to provide a high quality migratory platform to the JSE's Main Board by providing smaller companies, not yet able to list on the JSE, with a clear growth path and access to capital (JSE, 2005). "All Alt$^X$ trades are settled through STRATE. Alt$^X$ is focused on good–quality, small and medium sized growth companies. Alt$^X$ is designed for a broad range of companies in all sectors, including young and fast-growing businesses, family-owned businesses; black economic empowerment companies and junior mining companies (Alternative exchange, 2005). As such it offers investors an alternative opportunity to invest in a wide range of high-growth, quality companies. In other words, the $Alt^X$ is designed to appeal to the investor who is prepared to accept its potential risks and rewards. $Alt^X$ has implemented best practice principles in order to minimize the potential risks associated with small to medium–sized companies, including imposing good corporate governance and rigorous market surveillance measures (Alternative exchange, 2005).

The alternative exchange offers a number of benefits to companies, investors and the South African economy. These include, *inter alia*, access to long-term investment capital for development businesses; access to a central trading facility; ability to realize value through an effective price discovery mechanism,; an opportunity to use the issue of shares for acquisition; an opportunity to diversify share portfolios by investing in a wide range of high-growth small and medium-sized companies; increased confidence due to the knowledge that the $Alt^X$ is regulated by the JSE which provides substantial investor protection; an opportunity to grow the South African economy by providing growth opportunities to small and medium-sized companies.

The introduction of the $Alt^X$ shows that the JSE is committed to restructuring its operations in order to uphold the economic ethos of modern times, and thus promoting itself as a world class securities exchange.

#### 2.2.10 The Yield-X Exchange of 2005

"In most major markets in the world, exchange-traded interest rate derivative form a significant portion of healthy and vibrant rate products. This was not the case in South Africa where SAFEX interest rate products have enjoyed limited success. After careful investigation, the JSE decided to affect such a new system and the concept of the yield-X was 'born'. The yield-X is the JSE's fourth electronic clearing and settlement platform, alongside equities, financial futures and agricultural products. At the heart of the Yield-X exchange is an anonymous central order book, allowing for trading via a single platform with automated trade matching and guaranteed settlement. The yield-X provides ease of access, ease of use, and cost-effectiveness in an environment that encourages a high level of transparency and integrity. The yield-X brings a greater range of products to the market and allows for the participation of new entrants, which, in turn, will generate increased liquidity and market efficiency. Altogether, broader, cheaper capital markets will translate into benefits for all stakeholders and the South African economy at large" (Yield-X, 2005). The benefits of the yield-X contribute further towards the JSE being classified as a 'good' exchange as per Reilly and Norton's (1999) requirements.

## 2.3 Did the restructuring process lead to improved quantitative performance in terms of value traded, volume traded, number of deals, and liquidity?

Data contained in Table 1 shows an incremental improvement on the performance of the JSE from 1994-2004.

**Table 1: Quantitative Performance of the JSE**

| Year | Value Traded (R billion) | Volume traded (billion shares) | Number of deals (million) | Liquidity (%) |
|---|---|---|---|---|
| 1994 | 72 | 6 | 0.8 | 7.5 |
| 1995 | 63 | 5 | 0.8 | 7 |
| 1996 | 117 | 9 | 1.4 | 10.9 |
| 1997 | 206 | 18 | 2.3 | 16.9 |
| 1998 | 319 | 34 | 3.7 | 26.7 |
| 1999 | 440 | 42 | 3.7 | 34 |
| 2000 | 570 | 50 | 4.2 | 35 |
| 2001 | 600 | 60 | 4.1 | 38.4 |
| 2002 | 800 | 58 | 3.6 | 39 |
| 2003 | 760 | 42 | 3.1 | 35.4 |
| 2004 | 1050 | 44 | 3.8 | 36.9 |

**Source:** JSE, (2005), available at: http://www.jse.co.za date accessed: 23 September 2005

For example, the value traded increased from R71.8 billion in 1994 to R1 050 billion in 2004; the volume traded increased from 5.8 billion shares in 1994 to 44 billion shares in 2004; the number of deals increased from 0.8 million in 1994 to 3.8 million in 2004; and liquidity improved from as little as 7.5% in 1994 to 36.90% in 2004. This data provides very strong evidence showing that the JSE restructuring programmes such as the 'Big Bang' of 1995; ATS of 1996; JET of 1996, and STRATE of 1999 enhanced the performance of the JSE. This is attributable to the fact that there has been an increase in value traded, volume traded, and number of deals as Table 1 illustrates.

There is no evidence however that the additional restructuring programmes such as the introduction in SETS in 2002 improved the functionality of the JSE, as the performance of the JSE in terms of volume traded, number of deals and liquidity deteriorated as shown in table 1 above. For example, although value traded continued to improve, volume traded decreased from 60 billion shares in 2001 to only 44 billion shares in 2004; number of deals also decreased from 4.2 million in 2000 to 3.1 million and 3.8 million in 2003 and 2004 respectively. Liquidity also followed a downward trend from 39% in 2002 to 35.4% and 36.9% in 2003 and 2004, respectively. Programmes such as the alternative exchange of 2004, and the yield-X exchange of 2005 are relatively new programmes and it is hoped that their benefits will be felt in the future, as they are longer-term projects.

In order to examine how 'good' the JSE has become, it is imperative to benchmark it against other securities exchange. Since the JSE is a securities exchange in a developing market, the JSE has been compared to exchanges in other emerging markets, namely: Brazil, Mexico, Korea, Malaysia, Taiwan, China and Russia as at 31 December 2005 (JSE, 2005) in table 2 below:

Table 2: Emerging Markets' Exchange versus the JSE as at 31 December 2003

| Securities exchange of… | Volume Traded (million) | Number of Listed Companies (million) | Value Traded (US $ million) | Market Capitalisation (US $ million) |
|---|---|---|---|---|
| Brazil | 806 999 | 367 | 7 452 | 234 560 |
| Mexico | 1 280 | 159 | 1 846 | 122 532 |
| Korea | 18 160 | 1 563 | 58 106 | 329 616 |
| *South Africa* | *3 305** | *426* | *9326* | *267 745* |
| Malaysia | 12 033 | 897 | 5 422 | 168 376 |
| Taiwan | 60 774 | 669 | 42 045 | 379 023 |
| China | 112 133 | 1 296 | 75 482 | 681 204 |
| Russia | 15 095 | 214 | 6 801 | 230 786 |

*In table 1 (above), volume traded was recorded at 42 billion shares, but in table 2, it is recorded as +3.3 billion shares. Discrepancy is as a result of different data companies and data collection methods for comparability purposes.

**Source:** JSE, (2005), Annual Reports: 2003 available at http://jse.co.za [on-line] accessed 23 September 2005.

The JSE compares unfavourably with the exchanges of most of the emerging markets studied in this paper. China leads in terms of highest value traded and highest market capitalization. Brazil proved to be the most liquid emerging market with a volume traded of 806 999 million at as 31 December 2003. Korea had the largest number of listed companies. In order to improve on each of the above criteria, the JSE must benchmark itself against China, Brazil and Korea. Notwithstanding the above, the JSE outperformed Russia in terms of the number of listed companies, value traded and market capitalization. The JSE also performs better than Mexico in all the criteria mentioned above.

## 6. CONCLUSION

The purpose of this study was two-fold; to critically describe the restructuring process of the JSE Securities Exchange South Africa (the JSE) in terms of liquidity, informational efficiency, low transaction costs and external efficiency, and to evaluate the JSE in terms of liquidity, the value traded, the volume traded, and the number of deals. The paper looked at the development of the JSE and its role in the South African financial market before 1994. There is sufficient evidence showing that the JSE suffered from illiquidity, lack of accurate information, inefficiency of price information as well as high transaction costs before 1994. These problems were attributed to high levels of economic concentration, dominance of institutional investors, thin-trading, and single capacity trading. These 'sets' of conditions had to be changed in order to release the strength of the JSE.

This study has shown that the restructuring of the JSE started with the 'Big Bang' programme of 1995. This 'Big Bang" involved the relaxation of exchange controls, introduction of dual capacity trading, and de-regulation. The 'Big Bang' was followed by the change in the trading system from manual to fully automatic. The ATS was accompanied by the Johannesburg Equities Trading System (JET). Paper-based system was replaced by Share Transactions Totally Electronic in 1999. The JET of 1996 was replaced after six years by the current Securities Exchange Trading Systems. Due to thin trading and illiquidity in Development Capital Market, the JSE decided to close these sectors in 2004 and replaced them with the alternative exchange. The alternative exchange is envisaged to create several benefits for the companies listed on the JSE, for the investors and for the South African economy as a whole. The JSE also launched its fourth electronic clearing and settlement platform in 2005 called the yield-x exchange. While the yield-x exchange is positioned to allow a broader global participation in the JSE, it also brings a greater range of products to the market. Because of the recency of its development there is no evidence of its contribution to the performance of the JSE.

In addressing the question of whether the restructuring process led to improved quantitative performance, this paper has shown that indeed the JSE improved value traded, volume traded, number of deals and liquidity over the 1994 – 2004 period. This finding provides sufficient evidence that a big bang of 1995, the automated trading systems of 1996 together with the Johannesburg Equities Trading Systems of 1996 and Share Transactions Totally Electronic of 1999 did improve the operations of the JSE. However, the same cannot be said for the Securities Exchange Trading Systems of 2002. Due to the fact that the alternative exchange of 2004 and the yield-X Exchange of 2005 are relatively new, no reasonable judgment can be made. When comparing the JSE to other developing securities exchange, the JSE is comparing unfavourably to the Chinese securities exchange but the JSE can be regarded as a better securities exchange than Russia and Mexico. Most importantly, the JSE is the best securities exchange in Africa.

Overall, the JSE has shown its commitment to restructuring its operations to uphold the economic ethos of modern times and thus promoting itself as a world class securities exchange.

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