**Effects of Foreign Exchange Listing on the Returns of South African Companies.**

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I declare that this is my work and that proper references to other people's work are given where it is due.

Xolani Sibiya (Johannesburg) – November 2005

**ABSTRACT**

There are a number of companies that seek dual listing in foreign stock markets. The number of foreign companies that are listed in the United States alone are above 3000. Companies seek foreign exchange listing for a number of reasons including the access to foreign capital, visibility in the foreign markets and ability to effect foreign market acquisitions through use of stock listed in the foreign markets.

There are also costs associated with listing in the foreign markets, including the costs of compliance (these would include stock exchange costs, accounting and auditing compliance costs) and the costs of management time.

There are a lot of studies that have been conducted in this area of finance and they show varying results. The results vary from significantly positive returns in the period before and after the listing date, to significantly negative returns before and after the listing date. There are studies that found there to be no significantly positive or negative returns. There are some that found significantly positive returns in either the pre or post listing period with significantly opposite returns in the opposing period.

During the years between 1997 and 2000, a number of South African companies followed a trend of listing in their shares in the foreign markets, especially taking their primary listings to the London Stock Exchange. This study examines the effects of a foreign exchange listing in the returns of the South African companies that are listed in the foreign markets.

A sample of South African companies that are listed in the London stock exchange, Namibian stock exchange, Luxemburg stock exchange and the NASDAQ was obtained. The share price information was used to obtain the actual returns of the companies and the Capital Asset Pricing Model was used to determine the expected returns and the difference between the expected returns and the actual returns, the abnormal returns, were tested for statistical significance. The changes between abnormal returns on the run up to the listing and after the listing were also tested for significance.

The study found there to be positive returns on the listing of the shares in the foreign markets, however these are not statistically significant. The pattern of returns also differs on stock exchange of the listing. The tests for the change in abnormal returns between dates, though not statistically significant, show the pattern of returns quite clearly.

The interpretation of results was made difficult by the fact that all the expected returns were higher than actual returns, leading to negative abnormal returns for the period of the listing. This is because of the high prevailing risk free rates and risk premium in the South African markets.

## CHAPTER 1: Introduction

The impact of foreign exchange listings on the stock prices has been a subject of extensive research in finance. The most frequently cited reasons for the foreign listings are:

1) Improved marketability of the firm's stock due to the perception that overseas markets creates an additional demand for the shares as there is an increased shareholder base (Bhana, 2000).
2) Enhanced trading liquidity for investors through exposure to larger market base (Alexander, Eun and Janakiraman, 1988).
3) Increased visibility of the firm through published quotations and trading statistics (Biddle and Saudagaran, 1991).
4) Improved credibility and prestige of the firm by virtue of the high standards imposed for listing and maintaining the foreign listing. The market perception of the firm is also improved as the firm enhances its good reputation by having an ability to be listed in the foreign stock market (Biddle and Saudagaran, 1991).
5) Foreign listings provide local firms with broader access to the foreign capital (Biddle and Saudagaran, 1991).
6) Protection of minorities – Foreign exchanges such as the American markets may have stringent listing requirements and laws as compared with the other countries. There may be value in listing a share overseas so that the minority interests may be protected by the stringent foreign exchange laws (Biddle and Saudagaran, 1991).

The disadvantages that are frequently noted are:

1) The costs of compliance with the foreign listing requirements (Bhana, 2000).

2) The regulatory uncertainty, which may result from abuses such as insider trading (Bhana, 2000).

## 1.1 Problem Identified

The main problem identified is: What is the impact of foreign exchange listing on the returns of the South African Companies?

## 1.2 The Sub Problems

Following from the main problem that is identified, there are certain sub problems that needs to be researched in order to try and solve the main problem, these are as follows:

1. Are the changes in the abnormal returns after the foreign exchange listing of the company?
2. Are the changes in returns linked with the identified foreign stock exchange (e.g. London Stock Exchange vs. Nasdaq)
3. Are the changes in returns linked with the form of listing (e.g. primary vs. secondary listing)

## 1.3 The Importance of the Study

The study highlights the changes in the returns that are associated with the foreign exchange listing and isolate the sources of those returns that are associated with the foreign exchange listing. It highlights the benefits and costs of such a listing. This study is the follow up on the study by Bhana (2000) as it examines the impact of the foreign exchange listings on the returns of the South African companies that are listed in foreign markets. Bhana's study looked at the companies that have listings in the Johannesburg Stock Exchange and the London Stock Exchange. The study looks at the impact of the listings in various stock markets to the South African companies that do have those foreign listings. The study will also try to evaluate the segmentation and

integration of the South African capital markets with the foreign markets.

## 1.4 Hypothesis

This study tries to solve for the following hypothesis. These hypotheses have been identified through literature review from other studies that have looked at the impact of foreign exchange listings on the returns of the companies:

H1: There are significant changes in the abnormal returns of the company listing in a foreign stock exchange.

H2: The changes in returns are associated with the identified stock market (e.g. NASDAQ or LSE).

H3: The changes in the returns are associated with the form of listing (e.g. primary or secondary listing).

## 1.5 Research Methodology

The research is conducted as follows:

1. The test for the changes in returns is conducted using the changes in the share prices before and after the foreign listing date, the share prices around the listing date are used to determine the actual returns of the shares around the listing dates and the expected returns are determined using the capital asset pricing model. The differences between the expected and the actual returns are tested for significance using the t test. The abnormal returns as suggested by Brown and Warner (1985) are used to test for the significance of the changes in returns around the foreign listing date.
2. The announcement date is the better date to evaluate for the share price movements, as the movements in share prices are likely to be more significant around the announcement date than the listing date. The problem with using the announcement

date is getting data. A number of researchers have tried to isolate the movements near the announcement dates and they were not successful because of the lack of data. Service providers such as I-net Bridge, McGregor's BFA and Who Owns Whom do not isolate for the announcement dates, they just show the foreign listing date for the shares.

The study tries to isolate the announcement date but it is difficult to isolate the announcement date of the listing. The study is then conducted with the listing date as the reference date because of the ease to identify the listing dates as compared to the announcement date of the listing.

3. The association of the changes in returns to the stock market (NASDAQ or LSE) or the form of listing (primary vs. secondary) is tested through re-arranging the data used for the initial measurement of returns. The data is arranged to separate between companies listed in the United States, England etc. The data is also arranged according to the form of listing and then the tests described in Methodology 1 are repeated.

## 1.6 Sources of Data

Different sources were used in order to obtain data and information required in order to complete the study. These are the sources used for the study:

1. The Johannesburg Stock Exchange – They provided the list of the South African companies listed in the other stock markets and some of the listing dates.
2. BFA-Net – They provided the foreign exchange listing dates and the share prices around the listing dates.
3. Bloomberg's - They provided betas for the companies listed in the foreign stock markets and the South African risk free rates to

be used in the calculations of expected returns using the Capital Asset Pricing Model (CAPM).

4. Investec Asset Managers and Deloitte and Touche provided the bond yield curves that were used as the risk free rate.

## 1.7 Delimitations of the Study

There are certain areas that could have been researched but due to certain constraints these could not be incorporated in this study. These may also be sources for further research:

1. The impact of the foreign exchange listing to the risks of the company.
2. The effects of arbitrage in the foreign exchange listing.
3. The liquidity effects of foreign exchange listing.
4. The issue of the degree of capital markets integration is important for pricing of assets. Increased attention has been paid in recent years to theories and tests of asset pricing models in an international context such as the international capital pricing model and the international arbitrage pricing theory. These theories make assumptions about the flow of capital across national boundaries and the degree of independence of different markets. Because capital markets integration can influence pricing models, it has obvious implications for portfolio construction and international asset pricing models (Howe and Madura, 1990). However, the international pricing models are not included within the scope of this study. They are however, identified as the possibilities for future research.

## 1.8 Limitations of the Study

1) The main limitation of the study is that there is a small sample size of 20 companies. This is due to the difficulties that were obtained in obtaining all the data required, i.e. share prices before and after

the listing of the shares, beta co-efficient, risk free rates and market premium. Obtaining beta co-efficient and share prices for all the relevant dates were the most difficult.

2) Announcement dates of the foreign exchange listing could not be obtained and therefore the movements around the listing date were used to check for the significance of the movements in the stock returns.

## 1.9 The Organisation of the Study

This study is organised to follow literature review, including the South African perspective of foreign listed companies. Chapter 2 deals with the literature review, this is the analysis of the other studies that were reviewed in the conclusion of this study. The literature review includes both international and South African papers. Chapter 3 is the Methodology that was used in analysing the results, this section deals with the issues that were identified in using the capital asset pricing model. It specifically deals with the choice of risk free rate, market risk premium and beta co-efficient. Chapter 4 is the analysis of results that and conclusions on the hypothesis identified.

## CHAPTER 2: Literature Review

This chapter summarises the results of the various studies that have been performed by academics and practitioners throughout the world. The studies are extensive and they have been performed from listings in both the American stock markets and the other markets. The studies were also provided over varied periods of time.

### 2.1 Introduction

Studies that have been conducted on foreign exchange listings yield varied results. Howe and Kelm (1987) show that the foreign exchange listings result in significant shareholder wealth. In particular, they find that most wealth losses occur during the pre-listing period (application and approval phase of the listing) and that the post listing period is not consistently associated with negative abnormal returns. Alexander, Eun and Janakiraman (1988) found that there are significant shareholder gains in the period preceding the listing and they also found that there are significant losses in the period after the foreign exchange listing. Lee (1991) found that there are insignificantly negative pre and post listing abnormal returns.

Bhana (2000) found that for the South African companies that are listed in London Stock Exchange (LSE), there are significant gains in the period preceding the listing, significant gains on the listing date and non-significant gains on the period after the listing date. Alexander et al (1988) found that the expected returns on the non-Canadian companies listed in the US decreased while the expected returns on the Canadian companies did not change significantly. They explained this as the fact that the Canadian capital markets are integrated to

the US capital markets while the other stock markets may be segmented.

However, Foerster and Karolyi (1993) investigated a larger sample of Canadian companies that listed in the USA stock markets. They found much more dramatic reaction on the order of 21% run up in the 100 day pre-listing period and 22% post-listing decline. They interpreted this as the evidence of segmentation between the American and the Canadian stock markets. Their findings were consistent with those of Booth and Johnston (1984), Jorion and Schwartz (1986) and Mitto (1992).

The studies above yield conflicting results on the American and the Canadian markets. Conflicting results are observed for the other markets and thus conflicting results on segmentation and integration of stock markets.



## 2.2 Impact of Market Segmentation and Integration on the Foreign Exchange Listing

Many studies have linked the theory of integration and segmentation to the returns of foreign listed companies. These studies argue that the fact that there is no significant difference between the pre-foreign listing and the post foreign listing returns of the shares represents integration between the stock markets and the change in returns in the foreign listing period represents the segmentation of stock markets. The theory of capital market segmentation and integration relates around the issue of accessible and inaccessible markets. It purports that the inaccessible subset of securities command a "super" risk premium as

compared to the accessible shares. The inaccessible subset in the segmented markets and the accessible subset are in the integrated markets. One way of removing the super risk premium is to make the stock accessible to the other market's investors by listing the company shares in the other market. The super risk premium that exists in the company shares that are in the segmented capital markets should be removed by making the shares available to the other market and thus they should lead to significantly positive abnormal returns

Errunza and Losq (1985) provide the explanation of segmented and integrated capital markets as follows. In completely segmented capital markets, investors in one country are unable to invest in the securities of the other country and vice versa. In completely integrated capital markets, investors in different countries face the same opportunity set that consist of all the domestic and foreign securities. Partial segmentation covers the entire grey area between complete segmentation and integration.



It is argued that the dual listing can remove the negative effects of capital markets and as long as the capital markets are not completely integrated, it is reasonable to expect that stock prices would react to the international listing (Alexander et al, 1988). This is because such listing will result in structural changes in the equilibrium asset pricing relationship, for the insight on the nature of these changes see Errunza and Losq (1985); Stapleton and Subrahmanyam (1977) and Alexander, Eun and Jinakiramanan (1988).

Errunza and Losq (1985) argue that if investors in all the countries could purchase a country's securities then their securities would be priced as if their markets were not segmented. However, if the countries securities

are subject to restrictions in ownership then their securities will be priced to command a "super" risk premium. This is the difference between integrated and segmented capital markets. If a company listed in the country with restrictions would dually list its shares internationally then the "super" risk premium would dissipate. Accordingly the equilibrium expected returns would be lower (Errunza and Losq, 1985). This would lead to an increase in the returns of the companies around the listing date.

Errunza and Losq (1985) derive risk and return bounds for foreign stocks that are part of the ineligible set of investors, and they demonstrate that such shares should command a positive "super" risk premium. They argue that this premium is the increasing function of the risk aversion of unrestricted investors and the market value of the restricted assets. It is expected to be lower when the investors can form portfolios with eligible securities that mimic the ineligible security returns. This is possible where investors that previously did not have access to the ineligible shares now have access to them. The access to these ineligible shares can be possible through international listings.



International listings can be viewed in this context as the means of eliminating this risk premium, and should be associated with the increase in the share prices. An interesting observation in the study by Errunza and Losq (1985) is that the "super" risk premium was found to be different between the developing countries and the developed countries, with developing countries showing more "super" risk premium than the developed countries. Thus the companies that were previously listed in a developing capital market would be expected to have significantly better returns when they list in a developed market,

as the listing is likely to remove the super risk premium that exists between the developing and developed markets.

## 2.3 Reasons for Capital Markets Segmentation

The are a number of reasons that may lead to the markets being segmented but they can be summarised to the variety of barriers to international capital flow that exists and can cause capital markets to be completely or partially segmented along the national boundaries (Alexander et al, 1988). The barriers that lead to segmentation are identified as follows:

1. Imperfection in form of taxes between countries (Foerster and Karolyi, 1999; Chaplinsky and Ramchand, 2001) – These are taxes like the capital gains taxes on the sale of shares that exists in some countries, including taxes like secondary tax on companies and income taxes like the tax on foreign dividends. These taxes changes the expected returns between countries as they are not payable in some countries and they are payable in others. The investors in other countries needs to factor in the effects of taxes on their investments' returns and this may lead to market segmentation.
2. Restrictions of foreign investments (Chaplinsky and Ramchand, 2001) – These are the controls on the outflows of capital like the foreign exchange controls on South African companies. It would be interesting to note the effect of the relaxation of these foreign exchange controls on the integration of the Johannesburg Stock Exchange (JSE) with other stock markets.
3. Information Costs (Investor Awareness) – The information problems arise due to differences in the financial reporting standards, lack of familiarity with different markets and language barriers (Saudagaran, 1988). According to Merton (1987) the

market value of the firm is positively related with the numbers of investors who "know about" the company. This is because investors tend to purchase the securities that they know. Global issues reduce information costs by promoting greater familiarity with the firm, its products and management. According to Parsons and Raviv (1985), "Road Shows" and marketing efforts can increase the offer price for an issue. The study by Kadlec and McConnell (1994) supported the information costs as one of the explanations of market segmentation. The measurement of the information costs is explained later in this study (See Measurement of Investor Awareness)

4. Transaction Costs – These are the differentials that are observed in the costs of share transactions between countries. The transaction costs may differ because of the structure of costs and the costs that are attached to the service offered by the service providers

The above-mentioned imperfections can inhibit the integration of domestic and international capital markets. This may lead to the demand curve of the shares not being perfectly elastic and therefore the prices of the shares that are dually listed may not be the same (i.e. there may be abnormal gains or losses due to the foreign exchange listing).

According to Chaplinsky and Ramchand (2001), the existence of the above mentioned imperfections suggests that capital markets are characterised by a downward sloping demand curve and that foreign equity issues, generally, result in the increase in the supply of shares and the decrease in share prices. Hence, for the global issues to result in a higher offer price than the domestic issues require that the increase in

the supply be accompanied by an expansion in the demand of the shares.

Chaplinsky and Ramchand (2001) found that the negative price reaction that accompanies equity issues is reduced by 0.8% on average for the global issues compared to domestic offers of similar size issued during the same time period (1986-1995). They also found that the more favourable price reaction for the global issues is offset by the higher underwriting spreads and expenses or by the adverse price movements during the equity-offering interval. Consequently, they found that there is a net benefit to global issuance that is consistent with expanded demand for shares. This is in line with Merton's (1987) model that the equity issues lead to more shareholder base and the reduction in information costs that subsequently lead to increase in the share price of the shares as investors become aware of the company.

The segmentation factors identified above lead to an existence of a super risk premium. The super risk premium that is present when capital markets are segmented produces an incentive for firms to adopt policies that can effectively reduce the associated negative effects of segmentation. According to Stapleton and Subrahmanyam (1977), the following policies can undo the barriers faced by the investors:

1) holding a foreign portfolio or direct investment of firms,
2) mergers and acquisitions of foreign firms,
3) dual listing of the firm's shares in foreign capital markets.

The same policies as described above were also identified by Howe and Madura (1990) as policies that can address the barriers faced by investors in segmented markets.

In completely integrated capital markets, dual listing of the firm's stock in the foreign capital market would not be expected to have a significant effect on its price. However, if capital markets are either completely or mildly segmented, then the strategies identified above would be expected to have a significant effect on the firm's stock price (Alexander, Eun and Janakiramanan, 1988).

The study on the effects of listing South African companies in the foreign stock markets may include:

1) what are the implications of the empirical results for the issue of capital market integration or segmentation?
2) does this segmentation or integration vary according to the stock market of listing (Nasdaq vs. London stock exchange)?
3) does the segmentation or integration effects vary according to the type of the listing (primary vs. secondary vs. over other counter listings)



## 2.4 The Benefits of International Listing

The foreign exchange listing is associated with a lot of benefits and these are the benefits that motivate the South African companies to seek listings in the foreign stock exchange markets. The benefits that are possible through foreign listing are identified as follows.

1. Financial benefits
    - The companies need access to a larger capital base and they seek listing in foreign exchange to increase their shareholder base and the liquidity of their shares.

- The foreign listing may place a firm in a better position to handle foreign mergers and acquisitions. These mergers and acquisitions may be done through issue of shares listed in the country of acquisition.
- Markets may be segmented and directors of the company may increase the stock returns and reduce the risk of the company through foreign exchange listing.

2. Marketing and public relations – Listing in the foreign stock exchange can help with the foreign business growth (Bhana, 2000). This is made possible through increased corporate visibility and marketing efforts that accompany foreign listing. This can help the company with its product identification and other operations. The firm will also be under scrutiny of the government and stock exchange regulations committees and through negotiations, publication of prospectuses and press advertisements, the company will get exposure to the foreign financial community.
3. Political benefits – The political benefits are mostly linked with the financial benefits. The foreign listing may lead to improved relationship between a company and the foreign government and the financial community. This may reduce political and other sovereign risks (Howe and Kelm, 1987). The foreign listing can be cited as the strategic move to gain operating power in the country of listing. The listing can be used as the means for removing the protectionist attitude of foreign government and consumers (Bhana, 2000). Some governments require foreign companies operating in their country to have a joint operation with a local partner and the foreign listed shares can help with the satisfaction of these joint venture requirements (Saudagaran, 1988).

4. Employee relations – The companies may improve their image with the foreign employees through Employee Share Ownership Plans (ESOPs). Through ESOPs, the company may be able to hire and retain good employees.

5. Reduced cost of capital – The foreign markets may provide the issuer with the less expensive source of funds, this may be due to differences in the capital structures of the foreign and local markets. The listing of stock may also provide the firm with the greater access to foreign debt capital markets. This may make it easier for a company to sell its debt instruments to foreign investors and may then realise benefits from the lower interest rates and tax savings in other markets.

6. Increased confidence in management – the act of applying and being accepted by a foreign stock market may act as a signal from management about their confidence in the future prospects of the company. This may increase the confidence of investors in management.

7. The increased liquidity – The JSE is subject to low levels of liquidity as compared with the NASDAQ (Casavolone 1996); this may be one of the reasons some of the South African companies are seeking listing in the United States. Dual listing a stock on foreign capital market creates multiple market places in which the stock can be traded. This may lead to market orders for stocks to be able to be executed with greater immediacy at a lower bid-ask spread (Alexander, Eun and Janakiramanan, 1988). The liquidity of shares pre and post listing has been studied in order to isolate the effect of the market liquidity on the market segmentation. The study by Sanger and McConnell (1986) found that the liquidity increases with the foreign issue of shares. The study by

Kadlec and McConnell (1994) found that liquidity is the source of value for exchange listings and that firms are expected to have a reduced bid-ask spread when they list in a foreign exchange. Donowitz, Glen and Madhavan (1998) argue that cross listing can increase the liquidity of shares, that with the increased shareholder base there should be a reduction in the bid-ask spread. They also link liquidity with the information hypothesis. They argue that the increased precision of public information will increase the liquidity in both the domestic and foreign markets, however this will only apply if inter-market linkages are good.

## 2.5 Sources of Benefits in Foreign Equity Offerings

The benefits that have been identified above originate from the sources that have been identified below. These are the factors that lead to the realisation of the benefits associated with the foreign exchange listing. These are identified as follows:

1) Pool of investors – The global offerings lead to a large number of potential shareholders and normally the shareholding increases as there is an increase in the awareness about the company (Kadlec and McConnell, 1994). This increased pool may lead to reduced cost of capital as there are a large number of people who know about the company and therefore there is reduced risk.

2) Recognition by investors - Global issues attempt to increase the name recognition of the company in the international markets. This may reduce the information costs of investors (Merton, 1987). The theory of investor recognition suggests that as companies list internationally, they become well known and international analysts follow them. This increases

the recognition of these firms to the international investors. The model by Merton (1987) relaxes the assumption of equal information for investors on the Sharpe-Litner Capital Asset Pricing Model. Merton shows that the expected returns decrease with the size of the firm's investor base, which is characterised as the "degree of investor recognition". Foerester and Karolyi (1999) tested this hypothesis and they found that the abnormal returns before and around the international listing are significantly related to the "investor recognition theory" and the liquidity theory introduced by Amihud and Mendelson (1986).

3) Cross border listing and price discovery -The benefits of Listing in a foreign market may increase the price discovery of the shares that are listed. The increase in the price discovery may enhance the value of the shares. In their study, Eun and Sabherwal (2003), examine the contribution of the US stock exchange to the price discovery of non-US stocks cross listed in the United States. Using a sample of the Canadian companies listed in the NASDAQ, AMEX or Nasdaq, they found that the price adjustment due to cross market information flows takes place not only in the US stock exchanges but also on the Toronto Stock Exchange, thus they concluded that the listing in the US contributes to price discovery for the Canadian companies. They found that for majority of stocks, the US prices adjust more to the TSE prices than vice-versa.

4) USA cross listings and private benefits of control - In many countries around the world, minority investors are poorly protected by the local government environment and the controlling shareholders can extract value from the firm to the detriment of minority shareholders (Doidge, 2004). This is the

voting premium. Doidge (2004) tested for whether shares that are cross listed in the US have significantly lower voting premium. The study was conducted by determining the performance of the shares of the firms that have publicly traded shares with different voting rights. When firms have two classes of shares that are differentiated only by their voting rights, the percentage difference between the prices of high voting shares and low voting shares is the voting premium, which can be used as a proxy for private benefit of control (Doidge, 2004).

Doidge (2004) found that on average, firms that cross list in the US exchanges via Level 2 or level 3 ADRs have significantly lower voting premium than firms that do not. For firms that do not cross list, the average voting premium is about 21%, while the average voting premium for firms with a Level 2 of 3 ADR listing is about 12% (Doidge, 2004).

Doidge found that the difference in voting premium between firms that are cross listed and those that are not cross listed remain statistically significant after controlling for the firms and country level determinants of the voting premium. He also found that the size of the voting premium is negatively related to the measure of minority investor protection.

On average, during the 11 days around the announcement date, the high voting shares gain 0.57%, while the low voting shares gain 1.69%. These are related to the important corporate governance and legal implications of listing in the United States.

Reese, Michael and Weisbach (2002) found that the relationship between the cross listing and investor protection is unclear. They however find that firms from weak legal protection are likely not to list in the US as compared with the firms that operate from the strong legal systems.

## 2.6 Why are Foreign Firms Listed in the US worth more?

Most firms that list in the foreign markets seek listing in the American Stock Markets. These include American Stock Exchange, New York Stock Exchange and the NASDAQ. Doidge, Karolyi and Stulz (2004) show that firms from around the world that cross listed their shares in the US have higher valuations that those that are not cross listed. Their explanation of the result is that the controlling shareholders of firms that cross list have more incentives to control their consumption of private benefits from control. These incentives arise when firms have valuable growth opportunities that cannot be exploited without raising external finance. They argue that, if controlling shareholders do not have such incentives, they are unlikely to let the firm list in the US. They find that growth opportunities are valued more highly for firms listed in the US and that this valuation premium is negatively related to the investor protection in the firm's home country.



## 2.7 The Long-Run Performance of Global Equity Offerings

Long run performance of the globally listed shares is the better predictor of value than the short run results. Foerster and Karolyi (2000) investigated the long run performance of non US firms that raise equity capital in the US. Their sample of 333 global equity offerings using ADR from 35 countries in Asia, Latin America and Europe under-perform local market benchmarks of comparable firms by 8-15% over three

years following the listing. Their conclusions are two fold, first, they show that the difference in long run returns are related to the scope and magnitude of investment barriers that induce market segmentation of capital markets around the world. They find that while private placement ADR issues typically under-perform their benchmarks on average, investors tend to penalise those that come to the US from countries with lower accounting standards. Secondly, they find that post issuance returns are significantly and positively related to the ability of the firm to capture a proportionate large share of the US trading volume.

These are consistent with the liquidity effects identified by Foerster and Karolyi (1998).



## 2.8 The Costs of Foreign Exchange Listing

The firms that are likely to list in the foreign markets need to look at the cost-benefit analysis of listing their shares in the foreign stock market; the benefits of listing on foreign markets are identified above. The major costs of the foreign listing are the costs of compliance with foreign regulating bodies such as stock exchange committees and accounting regulators. Biddle and Saudagaran (1991) identify the costs of listing in a foreign stock market as follows:

1) Adjustments of accounting procedure to meet foreign exchange requirements. There are differences between accounting standards in different countries and the company that seeks listing in a foreign stock exchange will have to comply with the foreign accounting standards. These accounting regulations may differ on whether the company is seeking a primary listing or a secondary listing. For example, in the United States companies seeking secondary listing are

required to provide a reconciliation of their financial statements with the US Generally Accepted Accounting Practices (GAAP). However, a company should restate the financial statements to the US GAAP if it is seeking a primary listing.

These requirements are likely to change on the acceptance of the International Accounting Standards as the worldwide GAAP. The European Union countries will be required to adopt the International Accounting Standards as from 2005 and this will have implications in the listing requirements of the European countries.

In a survey of senior executives of all Canadian companies listed in the Nasdaq and the American Stock Exchange, Switzer (1986) found that the incremental legal and accounting costs required for US registration requirements were in excess of $ 400 000 per annum. These costs are expected to have quadrupled in 1999 (Doukas and Switzer, 1999). Biddle (1995) provided evidence that showed that disclosure costs affects the choice of the foreign stock exchange that a company will list its securities and that companies are reluctant to move to a higher disclosure environment because of the costs that are involved in providing the disclosure.

2) Adjustments to auditing standards. The company would be required to have foreign auditors as auditing standards and auditing requirements differ between countries. Foreign auditors are more familiar with the foreign accounting

standards and the foreign auditing standards than the domestic auditors. This leads to increased costs and management time in building and maintaining relationships with the foreign auditors.

3) Change in frequency of financial reports. These are interim reports that are required by most stock markets. The management of countries like Japan oppose the interim reporting as it may lead to decisions to be based on short term (reporting) periods rather than longer-term decisions. The costs of providing the interim reports will thus be higher for those managers as they are not used to providing the interim reports. South African companies are required to submit interim reports and therefore the interim reporting cost will not be too high for them.

4) Initial listing costs. These are costs such as investment banker's costs, legal costs, initial listing costs and the annual registration costs. Time and effort by management should also be incorporated as part of the costs that are incurred by the company during a foreign listing period. Though the value of the management costs may not be easily measured, the company seeking listing overseas should not ignore these costs.

With all these costs and benefits, Blass and Yafeh (2001) try to explain the reason why the companies list in foreign stock markets. They argue that as the foreign listing involves additional costs, the foreign exchange listing is worthwhile for the high quality firms. They argue that listing in the stock market with rigorous listing regulations and disclosure requirements might serve as a signal of the firm's quality. This listing may

serve as the means to credibly convey information to investors about the firm's future prospects. Blass and Yafeh's study implies that the benefits of the signal to a high quality firm might be sufficiently high to offset the costs resulting from disclosure of important information.

## 2.9 The American Depository Receipts as the form of exchange listing.

American Depository Receipts (ADR) are used by a number of issuers that seeks listing in the United States and thus they serve as an alternative form of global listing. The ADR market is explained in this study because of the importance of this market for foreign exchange issuers. Most foreign exchange issues in the United States are through an ADR market.

The ADR market is the Over the Counter (OTC) market where companies that are not listed in the foreign market can sell their shares through a foreign bank that hold these shares. The ADR market is useful for giving the local firms an exposure to foreign markets while it gives the foreign investors an opportunity to invest in the foreign firm. This study also deals with the OTC international listing and the ADR market is the biggest OTC market in the world.

JP Morgan developed the ADR market in 1927 as the vehicle for investors to register and earn dividends on non-US stock without direct access to the overseas market itself (Foerster and Karolyi, 1999). The US depositary banks hold the overseas security in custody in the country of origin and convert all dividends and other payments to the US dollars to the receipt holders in the United States. The investors therefore bear all the currency risks and indirectly pay fees to the depositary bank (Foerster and Karolyi, 1999).

Each depositary receipt denotes shares that represent a specific number of underlying shares in the home market. The bank can create new receipts for the investors when the requisite numbers of shares are deposited in their custodial account in the home market (Foerster and Karolyi, 1999). The main reasons for the issue of the ADR are:

1) Increased investor base
2) Enhanced local market for shares
3) Opportunities to raise new capital
4) Access to liquid capital markets in the US

The requirements that have to be met by the firm seeking ADR listing are less strict to the requirements that should be met before a company can list its shares in the foreign stock exchange. These are the requirements of the ADR listing:

1) The company have to arrange with the transfer agent and register for the exact replica of settlement facilities as the domestic securities.
2) The firm seeking access to the US market must sponsor ADR.
3) The company should adhere to the Securities Exchange Commission (SEC) requirements on ADR.

## 2.10 The SEC requirements on ADR

The SEC requirements on the ADR shares differ according to the type of ADR listing. The ADR can be non capital raising, i.e. the ADR is there only for the facilitation of buying and selling of shares in the foreign market, or the ADR can be capital raising i.e. the shares are offered to the foreign investors in order to raise capital.

There are different levels in the non capital-raising category. Level I ADR trade over the counter as Pink Sheet issues with limited liquidity and they require only minimal SEC disclosure and no US GAAP compliance is required. These firms are exempt from SEC filing Form 20-F. The company is allowed to use home country accounting statements with adequate English translation if necessary (Foerster and Karolyi, 1999). Level II ADR are exchange listed securities, but without the capital raising element. Level III ADR is the most costly and prestigious type of ADR listing. They require full disclosure with Form 20-F and the compliance with the US exchanges own requirements. This requirement is there to protect the investors in the foreign country, as this type of ADR is capital raising. The last form of ADR is the Rule 144A ADR; this is the capital raising ADR in which the securities are privately placed with the Qualifying Institutional Buyers (QUIBs) (Foerster and Karolyi, 1999). They do not require any compliance with US GAAP or SEC disclosure rules. These securities trade over the counter among QUIBs. See table 1for the differences between the ADRs.

**Table 1**

## 2.11 American Depository Receipts Programs by Type

| Item | Level I | Level II | Level III | Rule 144A (RADR) | Global Offering |
|---|---|---|---|---|---|
| **Issue Type** | Non Capital Raising | Non Capital Raising | Capital Raising with New Issue | Capital Raising with New Issue | Capital Raising with New Issue |
| **Description** | Unlisted | Listed on major US exchanges | Offered and listed in major US exchanges | Private US placement to Qualified Institutional Buyers (QUIBs) | Offer in two or more markets, but not in the home market of issuer. |
| **Trading location** | OTC pink sheet trading | NASDAQ, AMEX or NASDAQ | NASDAQ, AMEX or NASDAQ | US private placement market using PORTAL | US and non-US exchanges |
| **SEC registration** | Registration statement using form F-6 | Registration statement using form F-6 | Registration using form F-1 and F-6 for initial public offering | None | Private placement as Rule 144A or new issue as Level III |
| **US reporting required** | Exempt | Form 20-F filed annually | Form 20-F filed annually, short forms F-2 and F-3 used only for subsequent offerings | Exempt | Private placement as Rule 144A or new issue as Level III |
| **GAAP requirements** | No GAAP reconciliation required | Only partial reconciliation for financial statements | Full GAAP reconciliation for financial statements | No GAAP reconciliation required | Private placement as Rule 144A or new issue as Level III |

## 2.12 Liquidity Effects and Investor Recognition in the Returns of Companies Listed in Foreign Stock Markets.

The improved liquidity of shares post-foreign exchange listing has been cited as one of the reasons for foreign exchange listing. This section examines the effect of listing on the foreign exchange to the liquidity of the shares and it also looks at the difference in these liquidity effects between the stock exchange listings and the OTC market as represented by the ADR market. We need to look at the liquidity effects of the firms listed in the ADR market as some of the shares that are traded in NASDAQ are traded in the ADR market and we may need to isolate the liquidity effects of the different markets in our analysis.

Sanger and McConnell (1986) argue that listing on the major stock exchanges should result in more superior returns than the OTC market. This is because the major stock exchanges are likely to be more liquid than the OTC market. They argue that the differences in liquidity between the major stock exchanges and the OTC market could result from the dissimilar structure and the means of transactions in the market. To the extent that the organised exchanges provide superior liquidity services relative to the OTC market, the increase in stock prices experienced by those firms that obtain listing in the organised market is the consequence of the increased demand for the more liquid shares.

Because the investor recognition and liquidity are likely to be related and because the foreign exchange listing is presumed to affect both, an appropriate test of investor recognition using the foreign exchange listing requires that we control for the effect of changes in liquidity as well. A theoretical framework for the control in liquidity is provided by

Amihud and Mendelson (1986), in their analysis of asset pricing and the bid-ask spread. Their model of capital market equilibrium predicts that the gross expected returns are an increasing and concave function of liquidity as measured by the relative bid and ask spread. According to their model, if bid-ask spreads are lower following the listing, the lower expected returns required by the investors should give rise to an increase in the market value of the firm's shares. The control for the effects of liquidity, based on Amihud and Mendelson (1986), is the change in the bid-ask spread from pre to post listing period.

## 2.13 Liquidity provision and specialist trading in NASDAQ listed non US stocks

Domowitz and Madhavan (1998) show that the market quality of cross listed stocks depends on the degree to which markets are linked internationally. For markets that are sufficiently segmented, trading costs are higher for cross listed stocks due to greater adverse selection associated with arbitrageurs who exploit pricing differences across the segmented markets at the expense of less-informed liquidity providers (Bacidore and Sofianos, 2002). Furthermore if capital is not permitted to flow freely across markets, liquidity providers incur greater inventory carrying costs as their access to foreign order flow is restricted (Bacidore and Sofianos, 2002).

Chowdry and Nanda (1991) show that when markets are not perfectly linked, informed traders can increase their profits by trading in multiple markets. Consequently, the more tightly linked the markets are, the easier it is to detect informed trading, which in turn should lead to an increased liquidity.

According to Bacidore and Sofianos (2002), trading in non US stocks could be more or less liquid than trading in US stocks and should depend on the degree to which the markets are linked.

## 2.14 Merton's Model

Related to the liquidity theory is the investor recognition theory. Merton developed the investor recognition hypothesis in 1987. He argues that as the investor awareness increases, the shareholder base will increase and the market value of the company will increase. Merton (1987) argues that investors invest only in those securities of which they are "aware". He refers to this assumption as incomplete information, however the more general implication of the incomplete information hypothesis is that the capital markets are segmented. Merton (1987) tried to show that the changes in expected returns depend on factors other than the market risk (Beta).

The proxy for Merton's investor recognition factor consists of the change in the number of shareholder from pre to post listing period. It also consists of the relative market value and the market model residual variance.

The measurement of the investor awareness is important because it is submitted that information costs are reduced as the investor public acquires knowledge about the company. This knowledge can be acquired through foreign listing. Merton (1987) argued that investors invest only in those shares that they have information about. Cross listing, therefore reduces the information costs, as investors in different countries are likely to "know about" the company. The reduced information costs can lead to a decrease in expected returns as measured by the Capital Asset Pricing Model.

The other view to the information theory is provided by Jayaraman, Shastri and Tandon (1993). They argue that there are linkages between information arrival, trading volumes and variance and that information arrival increases trading volumes and variances. This increased risk is different from the reduction in risk proposed by Merton (1987) and Alexander, Eun and Janakiramanan (1988). Merton (1987) argues that reduced systematic risks, specific risks, expected returns and increased shareholder wealth are associated with the increased shareholder base that accompanies foreign exchange listing. This increased shareholder base is linked with information hypothesis.



## 2.15 Listing Returns and Bid-ask spreads

There are a number of studies that predict a relationship between Merton's asset pricing factors and the size of the bid-ask spread. For instance, Deserts (1968) finds that in cross section of securities a larger number of shareholders is associated with a smaller bid-ask spread. Stoll and Whaley (1983) report that the bid-ask spread is negatively related to the firm size. The firm size assumption is important as Merton's model argues that as the firm's market capitalisation increases, so does the investor awareness. Even though the results by Kadlec and McConnell (1994) support the investor awareness hypothesis, the increase in the market value of the company after the listing may be a mere representation of the increased liquidity as measured by the reduced bid-ask spread. Thus there is a need to adjust for liquidity in the increased market value of the company.

The results from Kadlec and McConnell (1994) provided support for the investor recognition as a source of value from exchange listing, and

therefore supported Merton's (1987) model. Controlling for the changes in liquidity, firms that showed a greater increase in the number of shareholders following listing, exhibit the greater increase in stock prices (Kadlec and McConnell, 1994). Thus, Kadlec and McConnell's results also provided support for superior liquidity as a source of value for foreign exchange listing, and, therefore support the Amihud and Mendelson's model.

## 2.16 The Effects of Foreign Exchange Listings on Risk

The returns on an investment can be best analysed when they are risk adjusted, thus it is important to test the effects of foreign exchange listings on the risks of the firm as the returns should be linked to the risks of the company. The results of the test on risks of shares that are listed in foreign stock markets are as varied as the results that are observed for the changes in the returns of the shares that are listed overseas. Baclay et al (1990) reports that cross listing of sixteen NASDAQ listed companies on the Tokyo Stock Exchange has no impact on the variance of returns of NASDAQ returns measured on the close to close returns on the stock. Howe and Madura (1990) studied the impact of international listings on the risks of the common stocks of the American companies. Their evidence suggests that cross listings have negligible impact on the risks of the firm.

Mackija and Nachtmann (1989 and 1990) reported a significant increase in variance of the NASDAQ listed companies following their cross listing on the London Stock Exchange and Tokyo Stock Exchange. These results deal with the results of the evidence of cross listing between the first world capital markets. The cross listing between the JSE and the American Stock Exchanges i.e. NASDAQ, Amex, NASDAQ and the ADR will show the impact of cross listing between developed and developing markets on the risks and returns of the cross listed companies.

According to Kyle (1985), the explanation of the variance of returns on the exchange listings can be linked with information arrival and trading volumes. Kyle (1985) models a market that consists of three traders:

1) Informed investors – they trade to maximise their profits from private information;

2) Random liquid traders – their trading orders arrive at random; and

3) Specialist – they learn about the private information from the price and volume changes.

Kyle's model suggests that the variance of returns over the trading period reflects the arrival of new information and increased trading volume is associated with large variance. Admati and Pfleidere (1988) modify Kyle's model to include the fourth class of traders called discretionary liquidity traders. This class of traders, in contrast to random liquidity traders has discretion about the timing of their trading, but like other liquidity traders have no private information. The main implication of this model is that both informed and discretionary liquidity traders would prefer to trade when the market is thick, thus resulting in the variance of returns being higher when trading is most active.

Freedman (1989) extends Kyle's model by allowing informed traders to optimally allocating their trading of a dually listed stock between separate markets in which the security is cross listed. In this model one market is assumed to open some time before the other. The model requires the informed trader to decide how best to divide their trading between the two markets in which the security is cross listed. One of the implications of this model is that cross listing causes the variance of returns to increase regardless of the number of informed traders or the amount of liquidity trading. This follows from the fact that cross listing provides informed traders with additional opportunity to trade on and profit from their long lived information. Thus, cross listing results in more

information being revealed, which, in turn causes the variance of returns in the domestic market to increase.

The above model suggests that the listing of stocks in the foreign stock exchange should result in an increase in the variance of returns of a security. A similar implication can be drawn based on the theory of "noise trading" suggested by Black (1986) and French and Roll (1986). In these models the variance of returns is caused by the reaction of traders to each other's trades. As a result cross listings should result in an increase in variance since it causes an increase in the trading time, and, therefore is likely to generate more trading (Jayaraman, Shastri and Tandon; 1993). As argued by French and Roll (1986), this hypothesis also implies that the auto-correlation of the stock returns should become more negative after the cross listing.



## 2.17 The Two-Factor Model

The other possibility that can lead to a change in variance of the underlying stock is related to the possibility that after the dual listing, returns on the stock may be generated by a two factor model (the domestic and the foreign factors), while only one factor (the domestic factor) affects the returns before the dual listing. This hypothesis suggests that changes in variance accompanying the dual listing are related to the return generating process.

Jayaraman et al (1993) found that the variance of returns based on close-to-close prices for the underlying stocks are higher after the listing of the ADRs on the exchanges in the United States. The change in the variance was found to be statistically significant. Jayaraman et al

(1993) did not find any changes in the auto-correlation structure of daily returns or the return generating process of the underlying shares. These results are consistent with Freedman (1989) who suggested that cross listing should be associated with an increase in the variance of returns on the dually listed securities, since the informed traders are likely to trade in both markets.

## 2.18 Effect of Foreign Exchange Listing on Volatility

It would be interesting to note the volatility of shares that are listed in the foreign stock exchange as the volatility of shares leads to the variation in the returns and thus increases the expected returns and the risk of the shares. The noise effect has been identified as one of the factors that may influence the trading volumes and the volatility of shares (Black, 1986). This increased volatility leads to increased variances of returns. Jayaraman et al (1993) tested the effect of noise on the volatility of shares and they found that the noise effect is not that relevant. They used data from the ADRs for companies that are listed in stock exchanges outside of the United States. Because these results are found in well-developed markets it would be interesting to note the effect of noise trading on the South African companies listed in other stock markets, as the JSE is viewed as an emerging market. The study was conducted by observing the movements in auto-correlation of returns around the listing date. French and Roll (1986) argue that, if the noise hypothesis is correct, then overreaction in stock prices would be corrected in subsequent trades, thus inducing a negative auto-correlation. The other explanation for changes in volatility of shares is that the may be increased trading time and this allows for more revelation of information (Freedman, 1989). The study conducted by Jayaraman et al (1993) was consistent with Freedman's observations.

The third explanation for the changes in volatility is the introduction of the two-factor model as discussed above. This model assumes that shares are subject to a domestic market factor before the listing date and they are subject to both the domestic and the foreign factor model after the listing date. The two factor model is tested by estimating a two factor CAPM before and after the foreign listing and the comparison is done with the estimated coefficients of the domestic and the foreign markets in the pre- and post- listing periods (Jayaraman, Shastri and Tandon, 1993). The two factors CAPM is given as follows:

$$E(R) = \alpha + \beta dom + \beta foreign + \varepsilon$$

Where $\alpha$ is the intercept term, $\beta dom$ is the beta of the domestic market, $\beta foreign$ is the beta of the foreign market and $\varepsilon$ is the error term.

The tests by Jayaraman et al (1993) found that the two-factor model cannot explain the volatility of shares following the cross listing. The effect of the two-factor model is interesting and it would be interesting to see the results concerning South African firms listed in the well-developed markets. This may explain whether the influence of the two-factor model is more relevant when a firm is listed in a well-developed market (e.g. LSE) and a developing market (e.g. JSE).

## 2.19 Foreign Stock Exchange Listing – A South African Perspective

There are very few studies that are available on the listing of South African firms in the foreign markets. The main study was conducted by Bhana (2000) on the impact of listing the South African firms in the London Stock Exchange.

The study by Bhana was conducted in 1999 and published in 2000. The study was concluded through taking a sample selection consisting of JSE listed companies that were subsequently listed in the LSE during the period 1986-1997. The sample data and listing dates were drawn from the "London Stock Exchange Quarterly Bulletin" and for the final sample selection, the following criteria were imposed:

1) The companies had ordinary shares listed on the JSE during the testing period.
2) Closing prices on the underlying shares are available for a 301-day period around the listing date on the LSE, i.e. starting 150 days before and ending 150 days after the listing date.
3) Closing prices for the JSE market index are available for the above-mentioned 301 day period.
4) The companies did not make any announcements of major importance within 40 days of actual listing on the LSE.

The total of 35 companies met the criteria and were chosen for the final selection for the investigation.

## 2.20 Benefits of Foreign Exchange Listings to South African Companies

These are identified as the benefits of listing South African companies in the foreign markets:

1) The reduced cost of capital – The South Africans have a lower savings pool as compared with the developed economies (Bhana, 2000), therefore listing overseas provide South African companies with access to a larger capital base.

   The South African companies need investments from foreign investors but South Africa is classified as an emerging market and therefore South African investments command a risk premium. This risk premium can be eliminated by listing the shares in a developed market (e.g. London).

2) Improvement in other capital raising capabilities – as cited by Howe and Kelm (1987), the benefit of overseas listing have a positive impact on other capital raising capabilities such as debt issues. The South African companies that are listed in overseas markets can raise other foreign capital easier through their listing in the foreign markets.

3) Benefits to South Africa – The argument by Klein (1998) suggest that the South African companies that list overseas get the capital and then they invest the capital in the South African economy. This improves the investments in the South African economy and may lead to positive goodwill on the company from the South African market and the government.



## 2.21 The Impact of London Listings on Shareholder Returns

According to Bhana (2000), the impact of the London listings on the shareholder wealth is such that the pre-listing returns are more than the post-listing returns. The average residual returns for the three days immediately preceding the listing, the day of the listing and the day after the listing are all statistically significant. These results are in direct contrast with the foreign studies such as that undertaken by Howe and

Kelm (1987), they report that foreign listings by US companies result in significant wealth losses especially over the pre-listing period. The results of this study are also in contrast with those reported by Alexander, Eun and Janakiraman (1988) who while finding significant shareholder gains in the pre-listing period also reported significant losses in the post-listing period. Lee (1991) found that there are negative abnormal returns on the pre listing period, the listing date and the post listing period but all these negative abnormal returns are not significant.

Bhana's results reveal significant positive abnormal returns associated with South African companies listing on the LSE. Bhana (2000) argues that this suggests that there is value associated with foreign exchange listing of the underlying shares. Bhana (2000) interprets the value stemming from the fact that a foreign listing provides access to another capital market. This allows the companies the choice of a cheaper source of capital should the company need it. This option has a positive value that is reflected in the price of the underlying share during the listing period.

Bhana (2000) argues that the negative market reaction for foreign listings documented by Howe and Kelm (1987) is partly attributed to their sample, which consists only of large US firms that are already listed in the major stock exchanges. These American firms do not necessarily get increased liquidity and lower cost of capital that is received by the South African companies listing in the foreign markets.

## 2.22 The Impact of London Listings on Shareholder Risk

According to Bhana (2000), the listing on the LSE is associated with an increase in variance of returns of the underlying securities, with the magnitude of this increase averaging 48.5%. Bhana (2000) found that this change in variance is significant at 1% level. Bhana (2000) argues that the increased variance may be due to the increased trading time. Freedman (1989) argued that the increased trading time associated with the cross listing allows for more revelation of information.

The other possible reason identified by Bhana (2000) is the noise trading as discussed by Black (1986). Bhana (2000) argues that if the noise trading were the cause of the increased variance, then one would expect to observe changes in the autocorrelation structure of daily returns around the listing date. Specifically, if the noise-trading hypothesis were correct, then the overreaction in the share price would be corrected in the subsequent trades thus inducing a negative autocorrelation. This suggests that if increased noise trading is causing the observed increase in volatility, we would observe a more negative autocorrelation structure after the listing in the foreign stock exchange. Bhana (2000) tested the impact of noise trading on the variance of the shares and found that there is very little change in the autocorrelation structure associated with the LSE listing. This suggests that the observed increase in volatility is not consistent with the noise-trading hypothesis.

The other possible argument identified by Bhana (2000) for the increase in the volatility before the LSE listing is that the returns on the underlying shares were generated by the domestic factor only, while a second factor (the UK market factor) also affect the returns after the LSE listing. Thus, the increased volatility could result from return generating

process. Bhana (2000) tested the two-factor model by comparing the changes in the domestic and UK betas of the LSE listed companies. He found that there is no significant effect on both the domestic and UK betas of the underlying shares. In addition, he found that the listing have no effect on the explanatory power of the two index model (as measured by $R^2$). This suggests that the observed increase in volatility cannot be attributable to a change in return-generating process for the underlying share.

## CHAPTER 3: Methodology

### 3.1 Introduction

This chapter explains the methodology that was used in analysing the data that was collected in completion of this study. An explanation of Hypothesis is undertaken as well as the explanation of some of the inputs in that are used in the capital asset pricing model as this is applied in the study. These inputs include risk free rates, market risk premium and beta co-efficient.

### 3.2 Expected Returns

One of the hypotheses tested in this study is that international listing of common stock in foreign stock exchange will result in the reduction in expected returns. The magnitude of the return will also depend on the country (US vs. UK) of listing and the type of listing (Primary vs. Secondary).

If the international listing causes the change in the abnormal returns on the stock from R1 to R2 after the listing. The hypothesis is that the abnormal returns should significantly change after the international listing.

**H1**

H0 : $R1 - R2 = 0$

H1 : $R1 - R2 \neq 0$

Where, R1 is abnormal returns before the foreign exchange listing and R2 is the abnormal return after the foreign exchange listing.

This hypothesis can be tested by estimating R1 and R2 for individual securities, immediately before and after the international listing. Care

should be taken, as there may be complications due to possible existence of liquidity and signalling effects as well as the selection bias.

**H2**

H0: The changes in abnormal returns are associated with the identified stock market (e.g. NASDAQ or LSE).

H1: The changes in abnormal returns are not associated with the identified stock market.

This hypothesis is tested by comparing the changes in abnormal returns from different stock markets with each other and concluding whether the increase of decrease is associated with a specific stock market.

**H3**

H0: The changes in the abnormal returns are associated with the form of listing (e.g. primary or secondary listing).

H1: The changes in abnormal returns are not associated with the form of listing.

There are few companies identified in the study with primary listings in a foreign exchange except for London, therefore, primary listings in the LSE are identified as the proxy for performance of primarily foreign listed companies. Therefore, when an analysis is done for primary foreign listings, an analysis of LSE primary listings is performed.

### 3.3 Liquidity Effects

Dual listing on a foreign capital market creates multiple market places in which the company can be traded. As a consequence, market orders for the stock may be executed with greater immediacy at lower bid and ask spread, resulting in improved liquidity from international listing. The effects of these liquidity efficiencies can filter through to the returns of the shares and care should be taken in the interpretation of results in order to isolate the positive returns due to liquidity and other positive effects.

### 3.4 Signalling Effects

International listing may be interpreted as reflection of management's confidence in its future ability to meet the minimum listing requirements of the foreign stock market. It follows that if the signalling effects exist, then they will cause the stock price to increase by an abnormal amount around the announcement date of the international listing.

Since the effects of liquidity and signalling effects are noticeable on the announcement date of the international listing, it is important to pin point the announcement date. This study does not directly test for the signalling effects and the liquidity effects as the data is obtained for the dates around the listing dates and not the announcement dates of the proposed international listing.

## 3.5 Selection Bias

Selection bias may exist in the estimation period shortly before the international listing date used to estimate R1. This is because the returns preceding the international listing date may be expected to behave in a manner similar to that observed in the domestic exchange listing (Alexander, Eun and Janakiramanan, 1988). According to Alexander et al (1988), studies have shown that prices of US firms experience a large run up in their stock prices prior to the announcement date of the international listing, possibly reflecting selection bias and due to the information leakage, liquidity and the signalling effects. Thus choosing a period immediately prior to the international listing date would be expected to result in an upwardly biased estimate of R1, thus increasing the chances of Type I error, the error of rejecting the null hypothesis when it is actually true.

## 3.6 Mean Adjusted Returns Technique

The methodology that can be applied to get the returns would be the mean adjusted returns technique of Ball and Brown (1980). According to this technique, the return generating process for the security of firm $i$ the period $t$ can be specified as follows:

$$R1it = R2it + \varepsilon it$$

Where $i$ = 1, 2,3 ...n,$R1it$ is the actual return as measured by the changes in the share price of the shares with an adjustment for dividends declared by the company during the period. $R2it$ is the expected or required returns as estimated by the CAPM and $\varepsilon it$ is the residual or error term.

For each and every firm in the sample, daily residual returns are estimated over an observation period from 12 months before the date of the listing to 12 months after the date of the listing. These residuals are averaged across firms in common event time. Thus, an average residual (AR) is obtained.

$$AR = 1/N \sum \varepsilon it \qquad t = -t,.....,T$$

Where N is the number of firms in the sample, and t indexes months relative to the event date, where the event date is t = 0. The average residual is then summed over particular time intervals to obtain cumulative average residuals (CARs).

$$CAR = \sum AR$$

CARs over any time interval from can be tested using a t-test to see if they are statistically significantly different from zero.



### 3.7 Use of Capital Asset Pricing Model in the Study

Expected returns will be determined using the capital asset pricing model (CAPM) as the CAPM is given by:

$$R2it = Rf + \beta\ (Rm - Rf)$$

Where $R2it$ = Expected Returns

$Rf$ = return from the risk free asset

$\beta$ = Beta, volatility of an asset or portfolio to the market.

$Rm$ = return from the market

Sceptics to this model hold the view that the estimates of the input variables are unreliable. In practice the application of the CAPM is hampered by the difficulty in determining every one of its variables (Correia and Uliana, 2004). A lot of judgement calls should be made because there are problems with some of the underlying assumption of the CAPM e.g. the efficiency of markets.

This part of the paper deals with the estimation of the input variables of the CAPM. The theories behind the estimation of these variables are reviewed through a review of the literature and some empirical studies.



### 3.8 Estimation of Beta

The central input estimate is the measure of the systematic risk, i.e. beta co-efficient. Beta can be determined by comparing the variance of the share with the covariance of the share to the market. This means that the beta of a share depends on the correlation of the share returns with the market returns. This is the same as regressing the share's return on the return of the equity market as a whole (Firer, 1993). This calculation of beta seems to very easy but there are some practical complications such as:

1) the problems of thin trading,
2) the problem with the choice of market proxy for market returns to be used in beta calculations.

### 3.9 The Problems of Thin Trading

In well traded markets, such as the Nasdaq (NASDAQ), efficient beta estimates have been developed which can accommodate any small price adjustments friction which remain in the trading process (Bradfield, 1993). However, in the Johannesburg Stock Exchange (JSE) and other smaller markets there is a high level of thin trading. This means that price adjustments can be measured in weeks or even months (Bradfield, 1993). Because beta is calculated using the variance of the share and the co-variance of the share and the market, there can be problems with calculating the covariance if the share is subject to lags in trading periods.

Thin trading, thus, leads to a bias in the estimate of systematic risk statistic when the traditional methods of estimation are used. The traditional method of determining the beta of a share is the use of the Ordinary Least Squares Regression (OLS). For discussion of the ordinary least squares regression, see Van den Honert (1997).

The biases through thin trading have been widely researched and some correctional techniques have been developed to correct for the problems of thin trading (Dimson, 1979; Dimson and Marsh, 1983 and Cohen et al, 1983). The two most widely accepted techniques are:

1) Trade to trade technique- this technique was suggested by Dimson and Marsh in 1983.
2) Cohen-type estimators- they are based on aggregated co-efficient method.

Research on the JSE by Bradfield (1990) provides evidence of the extent of thin trading bias on the beta estimation. Bradfield and Barr

(1989) demonstrates that the correctional procedure by Cohen et. al yields, on average, less bias than the traditional OLS estimation procedure. However, this correction for the bias of thin trading is achieved at the expense of efficiency in the estimation of beta (Bowie and Bradfield, 1993)

Bowie and Bradfield (1993) argue that the trade to trade approach advocated by Dimson and Marsh (1983) is superior to the Cohen et al model as the correctional technique for thin trading in JSE. The use of trade to trade approach removes, materially, the bias of thin trading in the estimation of beta while it is, still, efficient and consistent in the estimation of beta (Bowie and Bradfield, 1993). The betas used in this study are obtained from Bloomsberg Financial Information Services and they adjust for thin trading in their estimate of beta.



### 3.10 The Choice of Market Proxy in Calculation of Beta

Beta is determined by comparing the variance of the share with the co-variance of the share with the market. The problem is determining the representation of the market. The market can be represented on tier levels (Bradfield, 1993). These tiers can be differentiated between the first tier level, the tier that represent the overall stock market in which the beta is calculated e.g. the JSE actuaries all share index. The second tier indeces represents the sector that the share is traded in e.g. the financial and industrial index. The returns in various tiers can be different and therefore the co-variance of the market can also be different between tiers. Because beta is depended on the correlation of the share and the market, it is very important to determine the correct "representation" of the market.

The difference in the market proxies will also depend on whether the market within the same stock exchange is integrated or segmented. If the market is integrated then the investors regard the different sectors and indices in the market as representing a similar risk and therefore there is a single market (Bradfield, 1993). This means that there is no need to differentiate between the tiers in the market, as different tiers should provide same risk profile. In the segmented stock market, the different indices represent different types of risk and hence form a different "market" (Bradfield, 1993). International studies such as studies by Errunza and Losq (1985) have attempted to ascertain the extent of world markets integration. These studies suggest that there is mild segmentation implied by the existence of investment barriers. These investment barriers are also applicable in the JSE through legislation restricting investing abroad, differences in tax laws and others.

The JSE is subject to market segmentation (Bradfield, 1993). This means that the estimation of beta co-efficient should take into account the segmentation by using different market proxies for securities in different sectors. The use of an inappropiate market proxy would lead to reduction in correlation between the security returns and the market returns. Therefore, it is important to use the correct market proxy when calculating beta.

To test whether there is a difference in beta when using different indices, Bradfield (1993) compared the use of separate indices by assessing their prediction power of the portfolio returns in the single index CAPM. His results showed that the error in prediction is dramatically reduced when the second tier indices are used in the calculation of beta. These results showed that the CAPM has less predictive power when the JSE- Actuaries All Share Index is used rather

than the appropriate Mining or Financial and Industrial Index is used. Therefore, second tier indices should be used in determination of systematic risk of the share traded in JSE. The beta co-efficient for the companies used in this study are obtained from Bloomsberg . The betas selected used the first tier of the market, i.e. the JSE all share index.

### 3.11 Determination of the Risk Free Rate

The risk free rate is an important component of the capital asset pricing model as it is the intercept term in the CAPM straight line model and, in conjunction with the market return, it is used in the determining the market premium. The risk free rate is the minimum return that the investor expects from an investment. This rate can be determined by taking the return on the riskless asset. Black (1974) suggested that the risk free asset is an asset with a beta of zero. An asset with no risk is an asset with zero variance and zero co-variance with any other asset (Firer, 1993). The risk free asset should provide investors with a small but positive real return to compensate them for the temporary illiquidity while they are holding the asset (Firer, 1993). The CAPM assumes that investors can borrow and lend at the risk free rate .



There is debate about which risk free rate to use. Pringle and Harris (1984) note that typically, risk free rate should be estimated using the government treasury obligations (T-bills or T bonds) since these instruments are effectively risk free. The CAPM, however, does not indicate whether short or long-term security yields should be used (Firer, 1993). Correia and Uliana (2004) suggested that practitioners favour the long-term rate for two reasons

1) It is consistent with the long-term goal of estimating the long run cost of capital. Butters, Fruhan, Mullins, and Pipers (1987) support this view.

2) The short term rate is seen as being too volatile (Pringle and Harris) (1984) suggests that the appropriate risk free asset chosen should be one with the same maturity period as the time period considered for investment under consideration.

### 3.12 Problems with Treasury Securities as a Risk Free Rate

Many studies suggest that the T-bill is the appropriate risk free rate (Ross, 1990; Brealy and Myers, 1990 and Harrington, 1983). However, there are some problems with these bills. These are identified as follows:

1. In a dynamic market zero variance can only exist for a single period. This is due to the fact that over multiple periods, the value of these bills may change from period to period (Firer, 1993). This implies that there is an uncertainty in returns of re-investment. This, in turn, implies that there is a variance or risk.
2. The problem noted by Harrington (1983) is that Ibbotson and Sinquefield (1979) reported a significant negative co-variance between share returns and T-bills over the period 1926 to 1979. This means that the beta for T-bills is not zero.
3. The other problem identified by Harrington (1983) is that the T-bills are highly liquid and therefore the investors may be willing to pay a premium for such liquidity. This means that the returns on T-bills are higher than the actual "risk free rate".
4. The fourth problem is that T bill rates are influenced by the central banks intervention in the economy. These rates may, therefore, not reflect the investors required compensation for illiquidity and their expectations concerning inflation (Harrington, 1983).
5. Finally, there is empirical evidence that the intercept of the security market line (Risk free rate) is consistently higher than the treasury security rates (Firer, 1993)

The problems identified above for the treasury security rates lead many practitioners to use the long-term government bond rate or high quality industrial bond rate (Firer, 1993). The problem with these long-term rates, i.e. the long term government bond rates or high quality industrial bonds is that their use is not based on sound theory (Firer, 1993).

Brigham (1985) comments that long term T bonds are subject to capital losses if interest rates rise, while short term T bills are not risk free to an investor with long term horizons because their rate varies over time. Brigham favours using the yield on long term bonds rather than on T bills as the risk free rate. He argues that it seems more reasonable that stocks should embody long term inflation expectation in bonds rather than the short-term inflation expectation in bills.



### 3.13 Literature on Risk Free Rate in South Africa

Gilbertson (1979) suggested the use of the short-term government bonds as a surrogate of risk free rate in order to reflect the assumed shorter horizon of stock market investors. This argument was supported by Boshoff(1986), he suggested that the risk free rate is more usefully estimated via the prevailing trading rates of shortterm gilt's that could be considered a capital market instrument. He argued that these offered the best return which investors could receive without bearing any risk.

A review by Firer (1993) of the South African literature suggests that different South African studies used different returns as the surrogate for risk free rate. The rates used vary from 360 day T-bill, 90 day T-bill and 12 month fixed deposit. The study on CAPM by Van Aswegen (2000)

suggests that a large number of companies use R 150 bond rate as the risk free rate. This is followed by R153 yields.

The South African and the International literature do not show consensus on the risk free rate to be used in CAPM. Harrington (1983) suggests that the determination of the risk free rate is depended on the user but it should be guessed with some level of intelligence. Firer (1993) observed that the lack of clarity in this key component of CAPM detracts from the rigour of CAPM's practical application. In this study, the yields of the R 150 government bond will be used as the surrogate for risk free assets, as the R 150 was issued in 1989 for the period before 1989 the R 153 government bond will be used and the Eskom stock E 168 yield will also be used for the periods before the R 153 and the R150 were issued.



### 3.14 Determination of the Market Risk Premium

The market risk premium reflects the rewards that are expected from the equity market. It reflects the compensation that the investors are expecting for taking on the risk of the market (Bradfield and Raubenheimer, 2000). The market risk premium is, basically, the difference between the market return and the risk free rate. The risk free rate was discussed in the previous section and this section will be devoted on the determination of the market returns.

### 3.15 Determination of the Market Returns

The market return is the expected market return by investors. This return is somewhat more complex to determine than the risk free rate (Firer, 1993). There are a large number of arguments on how to determine the market returns.

Butters et al (1982) observed that the real expected return on the market could be assumed to be about the same historic long-term rate. Harrington (1983) challenges this argument. She argues that the CAPM is the expectation model, therefore the expected market returns and not the historic return is the appropriate number to establish the market return. Bradfield and Raubenheimer (2000) support this argument. They argue that the market risk premium, actually refers to the premium expected from the market and this is distinct from the market premium we observe by looking back at the market. Bradfield and Raubenheimer (2000), however acknowledge the fact that the observed (historic) market premium is used to estimate the expected market premium as it is easier to determine than the forward looking premium.

Charleton and Lakonishok (1985) noted that, financial analysts have come to rely heavily on summary statistics drawn from historic returns of ordinary shares. These returns are used in combination with the historical returns on lower risk assets, such as government bonds in order to produce the estimate of the stock market's average risk premium.



### 3.16 The Use of Arithmetic vs Geometric Mean

The market return is calculated by taking the average market returns. There are some arguments on which average to use, whether the arithmetic or geometric mean should be used to calculate the average market return. The arithmetic mean assumes that the returns are independent and therefore the average of each period's return reflects the best estimate of the expected return (Correia and Uliana, 2004). The geometric mean assumes the return is best reflected by the

growth between the starting and ending dates (Correia and Uliana, 2004).

Bradfield and Raubenheimer (2000) argue that the most appealing of these averages is the long-term arithmetic mean. Firer (1993) argues that since the CAPM in its original form is a single period model, it could be argued that the arithmetic method is the more appropriate.

There are significant differences on whether the geometric and arithmetic means are used. Ibbotson and Sinquefield (1989) found a 12% arithmetic mean as compared to 9.9% geometric mean for the period between 1926 and 1987. The arguments seem to be in favour of using the arithmetic mean but the geometric mean is also acceptable (Carleson and Lakonishok, 1985).

The other problem with the determination of market returns is which period to use. There can be some cyclical changes in the returns and the problems with high and low inflation rates in certain periods. The period should reflect the best judgement as to which history is likely to resemble the anticipated market over the investor's horizon (Firer, 1993).



### 3.17 The Use of Market Proxy

The last problem is the market proxy. The market portfolio should reflect all the risky assets in the economy in proportion to their market value (Firer, 1993). As no such portfolio exist, the common practice is to use the comprehensive stock market index (Firer, 1993). Within this, the investor would need to determine whether to use the weighted average returns on market or the equally weighted returns. Carleson and Lakonishok (1985) show that the returns can be dramatically

different. They argue that the market capitalisation weighted average return presents a better measure of the market as a whole. Sharpe (1964) argued that CAPM requires a market capitalisation weighted average.

### 3.18 The South African Literature on Market Risk Premium

The research on the market risk premium in South Africa shows that the premium has been going down (Bradfield and Raubenheimer, 2000). Correia and Uliana (2004) support this view. The various researchers have tried to determine the risk premium on the JSE (Gilbertson, 1979; Favish and Affleck-Graves, 1987 and Firer, 1993). These premiums have been fluctuating around 9% and 12% between 1981 and 1993. However, recent research argues that the risk premium is around 5% (Bradfield and Rubenheimer, 2000; Correia and Uliana, 2004).

Bradfield and Raubenheimer (2000) argue that the risk premium is going down because the influence of the gold sector is not that great in the JSE. The research by Van Aswegen (2000) shows that the market risk premium is spread, largely between 5% and 7%.

## Chapter 4: Analysis of Results

### 4.1 Introduction

The analysis of 20 companies that met the criteria of being listed in the foreign stock markets between 1985 and 2001 were analysed. The criteria for the companies to be listed in the study are that they should be listed in a foreign stock market between 1985 and 2001 and that all the data requirements should be obtainable. Data requirements being the share prices a year before and after the listing date, risk free rate, market premium around the listing dates and Beta co-efficient. The data was collected as follows:

- The risk free rates were obtained from the bond markets. These were the E168 (the Eskom) stock between 1985 and 1989, as the government stock R150 was listed in 1989 and R153 was listed in 1991. After 1987, we used the R150 as the stock was listed in that year.
- The share prices for these companies were obtained from McGregor BFA Raid Station. These were used to determine the actual returns for the companies. Actual returns are the difference between the current share price ***less*** the initial share price ***divided*** by the initial share price ***plus*** the dividend yield for the company. Some companies declare a dividend in a given year and others did not, coupled with the fact that it is very difficult to obtain data for the companies that did declare dividends, this makes it difficult to incorporate the dividend yield in the determination of actual returns and the calculation was determined at the ratio of share prices. Actual returns are denoted as R1

- The betas for the company were obtained from Bloomsburg – Bloomsburg determines their betas incorporating the adjustments for thin trading and illiquidity in the markets.
- The market risk premium was estimated after from the studies by Correia and Uliana (2004) and the studies of the migration of the market premium conducted by the Rand Merchant Bank treasury. These studies show that the market premium rates in South Africa has come down from the highs of 9% in the mid 80's to the current rates of about 4%. On the determination of expected rates, market premiums were multiplied by the beta for the company and then the product was added to the risk free rate. The market premium for the companies varied between 9% and 4% depending on the time of the listing of the company. The market risk premium migrated down from 1985 to 2000 from about 9% to 5%.

The capital asset pricing model was used to determine the expected returns for the companies and the share prices were used to determine the actual returns. The main problem that was encountered by the analysis is that the expected returns were generated by the CAPM quite high.



## 4.2 Characteristics of the listed company

Out of the 20 companies listed in the foreign stock markets – 6 of them were listed in the London Stock Exchange, 2 were listed in the Luxemburg stock exchange, 2 were listed in the NASDAQ stock exchange, 10 were listed in the Namibian stock exchange. The companies that were listed in the other stock exchanges, including Nasdaq did not meet the eligibility criteria to be included in the study

and most of the problems that were encountered were related to the availability or obtain ability of data.

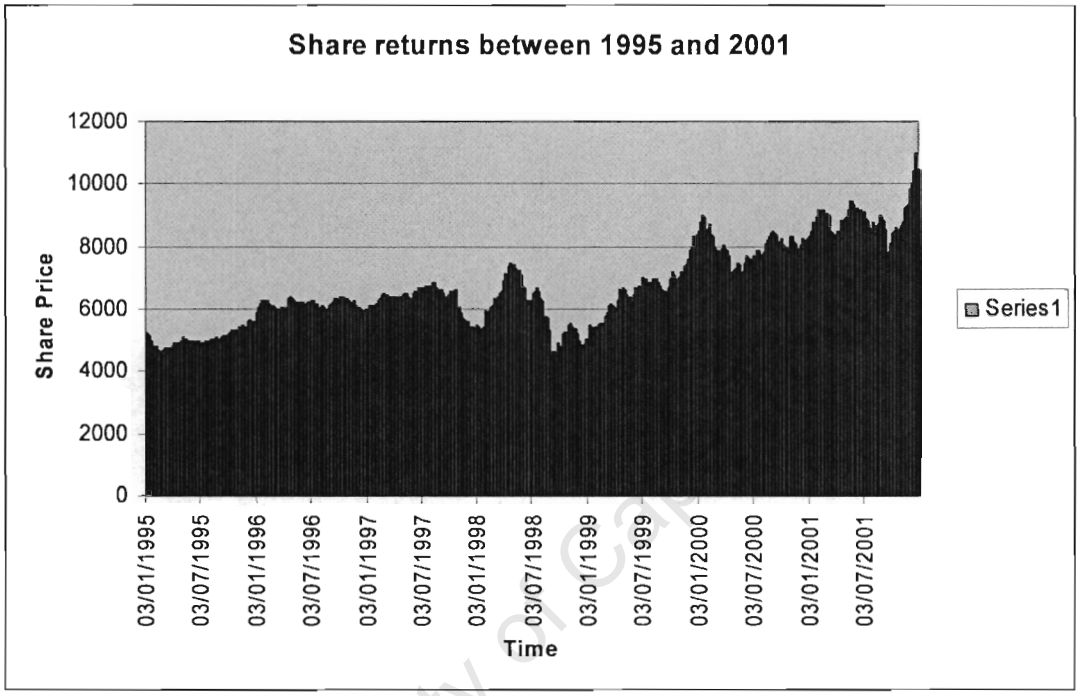
Most of the companies that are included in this study were listed in the foreign markets between 1994 and 2001. Of the 6 companies that were included from the London stock exchange – only one company was listed before 1994. All the companies that were listed in the Namibian stock exchange were listed after 1994. The 2 companies that were included in the study from the NASDAQ were listed in 1997 and the 2 that were included from the Luxemburg stock exchange, one of them was listed in October 1994 and the other one in 1996.



### 4.3 Analysis of All Companies

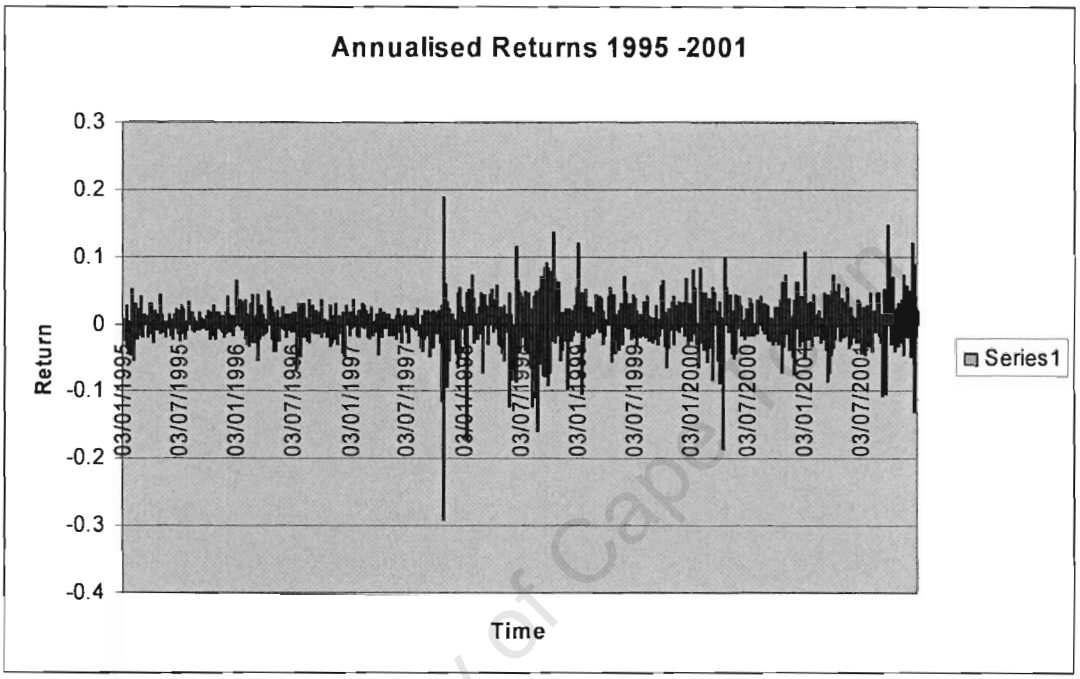
The period between 1994 and 2001 was mainly characterised by the falling stock markets, with the Asian Crisis in 1998 and the tech stock bubble in 2000 being the most prominent downturns in these periods. The risk free rates were quite stable and the market premium was also decreasing at a stable rate over the years. These dynamics led to low actual returns (as measured by the share price movements) and high expected returns as measured by the CAPM model. This led to a difference between the actual returns and expected returns to be negative over the years.

**Figure 1: JSE market returns between 1995 and 2001**




The chart above shows the whole JSE share returns between 1995 and 2001 –The share prices were increasing with declines in investments observed in 1998 and in 2000. Between 1995 and 1998, the indices were flat with declines observed in 1998. The period between 1995 and 1998 is the period when a large number of South African companies listed in the foreign stock markets were included in the study.

**Figure 2: Annualised Equity Returns between 1995 - 2001**

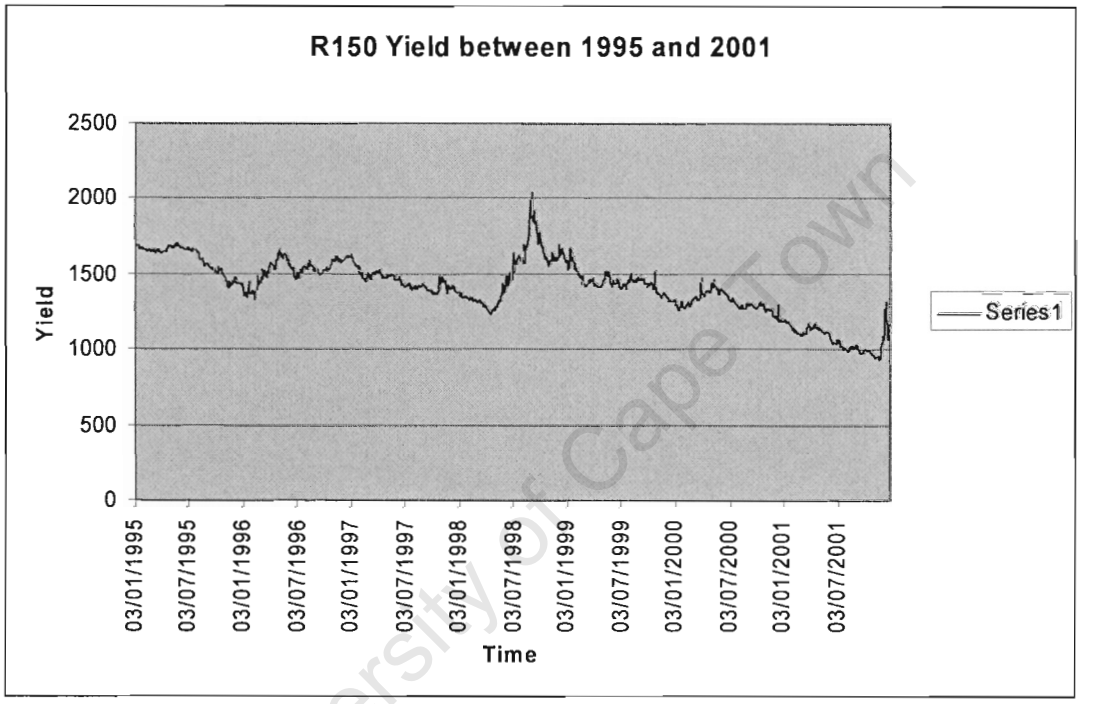



The annualised returns show that the period was characterised by low returns on equities. This explains the negative abnormal returns that are observed in data analysis. The yield on the government bonds was above 10%, this level went to as high as above 20% while the equity returns were very low. The CAPM model is depended on the risk free rate and the risk premium and thus when the risk free rate is high, coupled with a high risk premium with low equity returns, the abnormal returns tend to be negative. Thus the noted negative abnormal returns in the observed portfolio of returns.

## 4.4 Risk Free Rate

The risk free rate that has been used is the R150 as it was the most liquid government stock during 1995 to 2001 (the period of the study). The following graph shows the high yields that were generated by the risk free government bond during the period between 1995 and 2001.

**Figure 3: Risk Free yield between 1995 and 2001**






The yield on the R150 was high above 15% in 1995 and increasing to about 20% in 1998. This, at the period when a large number of South African companies were listing in the foreign stock markets. The decrease in the share prices and the increase in the risk free rates had an effect of reducing the actual returns and increasing the expected returns as determined by the CAPM. This is because of the inclusion of the risk free rates in the CAPM model. When the risk free rates are high, the CAPM will return a high expected return and when the share prices are falling, the actual returns will be low. The difference between the expected return and the actual return will thus be negative.

## 4.5 Analysis of Results for Hypotheses 1

H1: There are significant changes in the returns of the company listing in a foreign stock exchange.

The results were analysed by determining the abnormal returns for each share that met the eligibility criteria. The average abnormal returns were determined for the 25 days before the listing and the 25 days after the listing. The results for the total number of companies are as follows:

**Table 1: Average returns for all foreign listed companies**

| Day | Average Returns% | Std Deviation% | T- Statistic |
|---|---|---|---|
| -25 | -15.0435469 | 11.68930151 | -5.897545915 |
| -24 | -15.04023414 | 11.64946774 | -5.916408627 |
| -23 | -15.02355106 | 11.63242446 | -5.918504797 |
| -22 | -14.99443708 | 11.60288208 | -5.922075437 |
| -21 | -14.99441465 | 11.62739895 | -5.909579644 |
| -20 | -14.99720119 | 11.6720341 | -5.888074782 |
| -19 | -15.01494051 | 11.6570084 | -5.90263806 |
| -18 | -15.00703414 | 11.65544671 | -5.900320392 |
| -17 | -15.04355401 | 11.65135367 | -5.916756709 |
| -16 | -14.93761857 | 11.61765176 | -5.89213459 |
| -15 | -14.94526625 | 11.59377195 | -5.907293516 |

| | | | |
|---|---|---|---|
| -14 | -14.90645298 | 11.55279247 | -5.912851744 |
| -13 | -14.9262647 | 11.59040786 | -5.901495327 |
| -12 | -14.87620231 | 11.55936198 | -5.897498778 |
| -11 | -14.88224343 | 11.54751533 | -5.905946435 |
| -10 | -14.96964683 | 11.57530202 | -5.926371476 |
| -9 | -14.93417047 | 11.57059956 | -5.914729506 |
| -8 | -14.9673561 | 11.60656876 | -5.909502087 |
| -7 | -14.97599794 | 11.61060571 | -5.910858216 |
| -6 | -15.19994949 | 11.69715614 | -5.954859309 |
| -5 | -15.14215278 | 11.69004308 | -5.93582597 |
| -4 | -15.11033988 | 11.67608788 | -5.930434663 |
| -3 | -15.1085567 | 11.65977537 | -5.938030757 |
| -2 | -15.14289075 | 11.69528754 | -5.933453355 |
| -1 | -15.1734998 | 11.72712903 | -5.929303856 |
| 0 | -14.61456299 | 11.14620103 | -6.008535189 |
| 1 | -13.99548507 | 10.63625502 | -6.02988266 |
| 2 | -13.97186148 | 10.59036807 | -6.045787302 |
| 3 | -14.01546634 | 10.61980164 | -6.047846992 |
| 4 | -14.00026404 | 10.60942155 | -6.047197712 |
| 5 | -13.98381126 | 10.58886909 | -6.051814698 |
| 6 | -13.98837867 | 10.57235224 | -6.063248998 |
| 7 | -13.95412321 | 10.567178 | -6.051362609 |
| 8 | -14.01410057 | 10.58844594 | -6.065165465 |
| 9 | -13.97712274 | 10.59378221 | -6.046114759 |
| 10 | -13.99715949 | 10.57937662 | -6.063026696 |
| 11 | -13.99620185 | 10.55591813 | -6.076084868 |
| 12 | -13.94578672 | 10.5437959 | -6.061158985 |

| | | | |
|---|---|---|---|
| 13 | -14.02016069 | 10.57539631 | -6.075275642 |
| 14 | -14.0003102 | 10.55054697 | -6.080962574 |
| 15 | -13.97694467 | 10.57246612 | -6.058227684 |
| 16 | -14.05854204 | 10.575502 | -6.091846333 |
| 17 | -14.04452921 | 10.58925019 | -6.077873035 |
| 18 | -14.07848341 | 10.57068775 | -6.103265693 |
| 19 | -14.09359585 | 10.60031139 | -6.092742699 |
| 20 | -13.99129377 | 10.59627052 | -6.050823506 |
| 21 | -14.01914733 | 10.58825376 | -6.067459776 |
| 22 | -14.04612265 | 10.60178071 | -6.071378199 |
| 23 | -14.07383048 | 10.63621981 | -6.063657451 |
| 24 | -14.05098548 | 10.60929521 | -6.069178324 |
| 25 | -14.05690472 | 10.6148569 | -6.068553778 |



The abnormal returns are all negative and they are all significant at the 5% significance level. This result would suggest that there is no value in listing in the overseas markets, however it is submitted that these results would be misleading as the equity markets were showing low returns while the risk free rates were high at the time of the study. The main point is the change in the returns around the date of the listing.

## 4.6 Changes in Returns between Dates

As the abnormal returns for the listed companies are negative, one of the methods to explain whether there are gains in listing companies in foreign markets is through analysing changes between dates, i.e. comparing the abnormal returns between the previous date and the current date in order to determine whether there are positive or

negative changes and then testing whether these changes are positive or negative.

The hypothesis test would be AR1-AR2 = 0

Where AR1 is the abnormal returns for day t-1 and AR2 is the abnormal return for day t0. The variance for the statistical test would be a combination of the two variances for the 2 days as given by:

VAR = {($S^2$1/n) + ($S^2$2/n)},

where $S^2$1 is the variance for day t-1, $S^2$2 is the variance for day t0 and n is the sample size. The standard deviation would be the squared root of the variance

.

**Table 2: The table for the changes in returns of all foreign listed companies:**

| Day | S | AR1-AR2 | Cumulative AR | t-statistic |
|---|---|---|---|---|
| -24 | 3.69019 | 0.00331 | | 0.00090 |
| -23 | 3.68119 | 0.01668 | 0.02000 | 0.00453 |
| -22 | 3.67383 | 0.02911 | 0.04911 | 0.00792 |
| -21 | 3.67303 | 0.00002 | 0.04913 | 0.00001 |
| -20 | 3.68397 | -0.00279 | 0.04635 | -0.00076 |
| -19 | 3.68865 | -0.01774 | 0.02861 | -0.00481 |
| -18 | 3.68602 | 0.00791 | 0.03651 | 0.00214 |
| -17 | 3.68513 | -0.03652 | -0.00001 | -0.00991 |
| -16 | 3.67916 | 0.10594 | 0.10593 | 0.02879 |
| -15 | 3.67005 | -0.00765 | 0.09828 | -0.00208 |
| -14 | 3.65980 | 0.03881 | 0.13709 | 0.01061 |
| -13 | 3.65927 | -0.01981 | 0.11728 | -0.00541 |
| -12 | 3.66030 | 0.05006 | 0.16734 | 0.01368 |
| -11 | 3.65352 | -0.00604 | 0.16130 | -0.00165 |
| -10 | 3.65604 | -0.08740 | 0.07390 | -0.02391 |
| -9 | 3.65969 | 0.03548 | 0.10938 | 0.00969 |
| -8 | 3.66464 | -0.03319 | 0.07619 | -0.00906 |
| -7 | 3.67096 | -0.00864 | 0.06755 | -0.00235 |
| -6 | 3.68531 | -0.22395 | -0.15640 | -0.06077 |
| -5 | 3.69784 | 0.05780 | -0.09861 | 0.01563 |
| -4 | 3.69451 | 0.03181 | -0.06679 | 0.00861 |
| -3 | 3.68972 | 0.00178 | -0.06501 | 0.00048 |

| | | | | |
|---|---|---|---|---|
| -2 | 3.69276 | -0.03433 | -0.09934 | -0.00930 |
| -1 | 3.70341 | -0.03061 | -0.12995 | -0.00827 |
| 0 | 3.61776 | 0.55894 | 0.42898 | 0.15450 |
| 1 | 3.44505 | 0.61908 | 1.04806 | 0.17970 |
| 2 | 3.35623 | 0.02362 | 1.07169 | 0.00704 |
| 3 | 3.35363 | -0.04360 | 1.02808 | -0.01300 |
| 4 | 3.35664 | 0.01520 | 1.04328 | 0.00453 |
| 5 | 3.35175 | 0.01645 | 1.05974 | 0.00491 |
| 6 | 3.34588 | -0.00457 | 1.05517 | -0.00137 |
| 7 | 3.34245 | 0.03426 | 1.08942 | 0.01025 |
| 8 | 3.34500 | -0.05998 | 1.02945 | -0.01793 |
| 9 | 3.34920 | 0.03698 | 1.06642 | 0.01104 |
| 10 | 3.34777 | -0.02004 | 1.04639 | -0.00599 |
| 11 | 3.34179 | 0.00096 | 1.04735 | 0.00029 |
| 12 | 3.33616 | 0.05042 | 1.09776 | 0.01511 |
| 13 | 3.33924 | -0.07437 | 1.02339 | -0.02227 |
| 14 | 3.34031 | 0.01985 | 1.04324 | 0.00594 |
| 15 | 3.33984 | 0.02337 | 1.06660 | 0.00700 |
| 16 | 3.34379 | -0.08160 | 0.98500 | -0.02440 |
| 17 | 3.34644 | 0.01401 | 0.99902 | 0.00419 |
| 18 | 3.34568 | -0.03395 | 0.96506 | -0.01015 |
| 19 | 3.34743 | -0.01511 | 0.94995 | -0.00451 |
| 20 | 3.35147 | 0.10230 | 1.05225 | 0.03052 |
| 21 | 3.34957 | -0.02785 | 1.02440 | -0.00832 |
| 22 | 3.35044 | -0.02698 | 0.99742 | -0.00805 |
| 23 | 3.35803 | -0.02771 | 0.96972 | -0.00825 |
| 24 | 3.35921 | 0.02285 | 0.99256 | 0.00680 |
| 25 | 3.35583 | -0.00592 | 0.98664 | -0.00176 |



The table above illustrates the changes in the abnormal returns between 2 dates. The cumulative AR is the accumulation of changes in returns between day t-1 and day t0. What can be observed from the table is that the cumulative change in the abnormal returns is negative from 6 days before the listing until 1 day before the listing. The cumulative changes in abnormal returns are positive from the day of the listing onwards.

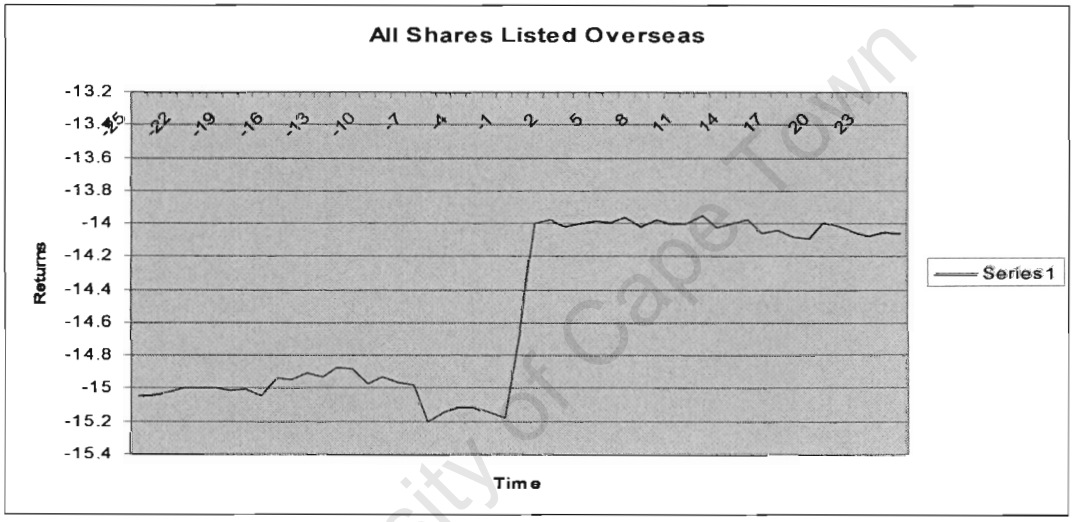
The changes between the prelisting period and the post listing period are positive, however they are not statistically significant.

### 4.7 Changes in Equity Returns around the date of the Listings.

Accepting that the abnormal returns are negative during the period of the listing, changes in the equity returns were determined by reading

the graphical abnormal returns for the observed shares in order to see whether there are any changes in the profile of returns at around the listing date. Average Abnormal Returns for all the shares were determined for the 25 days before and 25 days after the listing and they were plotted on a chart and the chart is as follows:

**Figure 4: Average abnormal returns for all foreign listed companies**






The abnormal returns were negative around the date of the listing, however we need to take into account the fact that these are due to the high risk free rates and risk premiums. There is a positive change in the returns around the date of the listing, even though the returns are still negative.

## 4.8 Conclusion on H1

H1: There are significant changes in the returns of the company listing in a foreign stock exchange.

**The study found that there are positive returns on the listing of the shares in the overseas markets, however the positive return is not statistically significant.**

## 4.9 Analysis of Results for Hypothesis 2

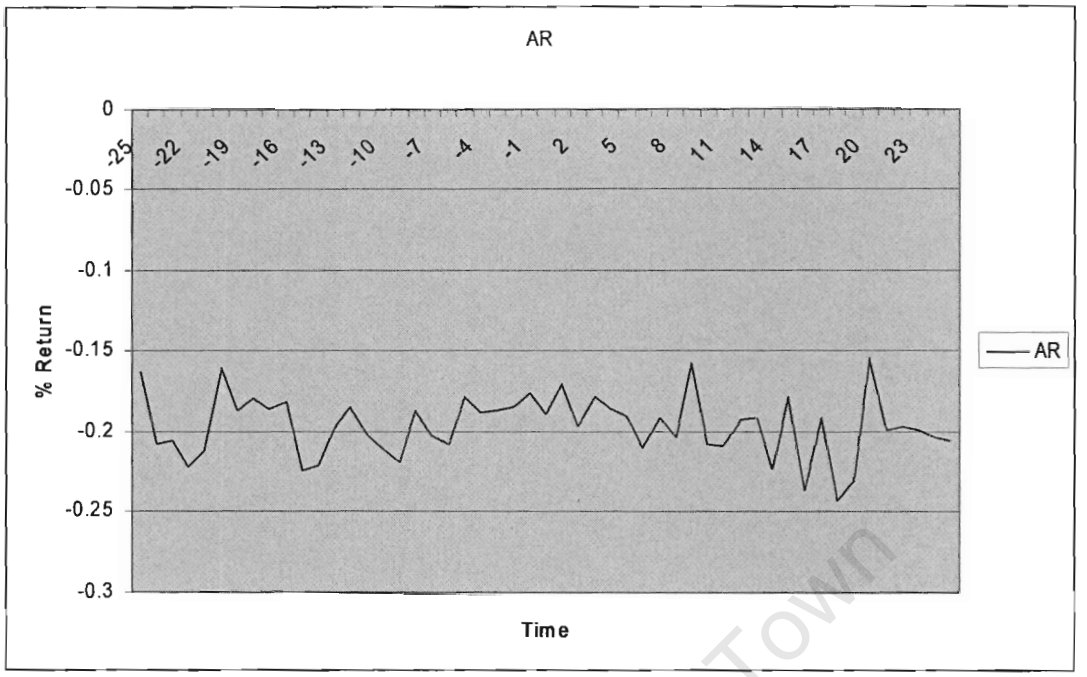
H2: The changes in returns are associated with the identified stock market (e.g. NASDAQ or LSE).

An analysis is done for the listing of shares in accordance with the different stock markets in order to analyse the effects of listing of different shares in different stock markets.

The chart has been broken down into the shares listed in various the stock markets as follows:

## 4.10 London Abnormal Returns

**Figure 5: Average abnormal returns for companies listed in London**




Included in the sample are 7 companies that are listed in the London stock exchange. The chart above shows that there were almost flat abnormal returns when the shares were listed in London. There is a bit of an increase towards the listing date, however the increase is not pronounced and it followed by a graph evidencing a random walk.

**Table 3: Average returns for London listed companies:**

| Day | Abnormal Returns | Standard Deviation | T- Statistic |
|---|---|---|---|
| -10 | -0.21128 | 0.07744 | -7.21818 |
| -9 | -0.21874 | 0.08084 | -7.15903 |
| -8 | -0.18632 | 0.05737 | -8.59238 |
| -7 | -0.20252 | 0.05694 | -9.40980 |
| -6 | -0.20815 | 0.08194 | -6.72089 |
| -5 | -0.17805 | 0.10382 | -4.53731 |
| -4 | -0.18818 | 0.07437 | -6.69448 |
| -3 | -0.18736 | 0.04816 | -10.29332 |
| -2 | -0.18453 | 0.06866 | -7.11107 |
| -1 | -0.17584 | 0.07803 | -5.96234 |
| 0 | -0.18870 | 0.06137 | -8.13465 |

| | | | |
|---|---|---|---|
| **1** | -0.17026 | 0.06592 | -6.83318 |
| **2** | -0.19711 | 0.05926 | -8.80030 |
| **3** | -0.17835 | 0.09867 | -4.78218 |
| **4** | -0.18550 | 0.03704 | -13.24934 |
| **5** | -0.19041 | 0.06251 | -8.05900 |
| **6** | -0.21002 | 0.04774 | -11.63825 |
| **7** | -0.19097 | 0.05263 | -9.60028 |
| 8 | -0.20282 | 0.07679 | -6.98816 |
| 9 | -0.15685 | 0.04883 | -8.49785 |
| 10 | -0.20741 | 0.06535 | -8.39686 |

The table shows that the London abnormal returns were negative, however they showed some positive changes around the listing date.

## 4.11 Changes in Abnormal Returns for London Listed Companies

**Table 4: Changes in Abnormal returns for London listed companies**

| Day | S | AR1-AR2 | Cumulative AR | t-statistic |
|---|---|---|---|---|
| -24 | 0.04738 | -0.04446 | | -0.93838 |
| -23 | 0.03619 | 0.00193 | -0.04253 | 0.05328 |
| -22 | 0.04013 | -0.01622 | -0.05875 | -0.40418 |
| -21 | 0.04220 | 0.01005 | -0.04870 | 0.23819 |
| -20 | 0.03987 | 0.05121 | 0.00252 | 1.28444 |
| -19 | 0.03774 | -0.02650 | -0.02399 | -0.70224 |
| -18 | 0.04333 | 0.00834 | -0.01565 | 0.19246 |
| -17 | 0.04109 | -0.00728 | -0.02293 | -0.17720 |
| -16 | 0.04700 | 0.00484 | -0.01809 | 0.10296 |
| -15 | 0.05015 | -0.04309 | -0.06118 | -0.85912 |
| -14 | 0.04598 | 0.00321 | -0.05796 | 0.06989 |
| -13 | 0.04740 | 0.02324 | -0.03473 | 0.49021 |
| -12 | 0.03683 | 0.01346 | -0.02127 | 0.36535 |
| -11 | 0.02920 | -0.01741 | -0.03869 | -0.59641 |
| -10 | 0.03612 | -0.00953 | -0.04821 | -0.26373 |
| -9 | 0.04231 | -0.00746 | -0.05567 | -0.17627 |
| -8 | 0.03747 | 0.03242 | -0.02325 | 0.86540 |
| **-7** | 0.03055 | -0.01620 | -0.03945 | -0.53034 |
| **-6** | 0.03771 | -0.00562 | -0.04508 | -0.14915 |
| **-5** | 0.04999 | 0.03009 | -0.01498 | 0.60196 |
| **-4** | 0.04827 | -0.01013 | -0.02511 | -0.20977 |
| **-3** | 0.03349 | 0.00082 | -0.02429 | 0.02446 |
| **-2** | 0.03170 | 0.00283 | -0.02146 | 0.08932 |
| **-1** | 0.03928 | 0.00869 | -0.01277 | 0.22128 |
| **0** | 0.03752 | -0.01286 | -0.02563 | -0.34278 |
| **1** | 0.03404 | 0.01844 | -0.00719 | 0.54160 |
| **2** | 0.03350 | -0.02685 | -0.03404 | -0.80127 |

| | | | | |
|---|---|---|---|---|
| **3** | 0.04350 | 0.01876 | -0.01528 | 0.43115 |
| **4** | 0.03984 | -0.00715 | -0.02243 | -0.17961 |
| **5** | 0.02746 | -0.00491 | -0.02734 | -0.17867 |
| **6** | 0.02973 | -0.01961 | -0.04695 | -0.65960 |
| **7** | 0.02686 | 0.01905 | -0.02790 | 0.70919 |
| 8 | 0.03519 | -0.01184 | -0.03975 | -0.33661 |
| 9 | 0.03439 | 0.04597 | 0.00622 | 1.33646 |
| 10 | 0.03084 | -0.05056 | -0.04434 | -1.63974 |
| 11 | 0.03307 | -0.00118 | -0.04552 | -0.03557 |
| 12 | 0.03268 | 0.01670 | -0.02882 | 0.51088 |
| 13 | 0.03929 | 0.00026 | -0.02856 | 0.00656 |
| 14 | 0.03421 | -0.03094 | -0.05951 | -0.90448 |
| 15 | 0.03280 | 0.04508 | -0.01443 | 1.37434 |
| 16 | 0.05029 | -0.05848 | -0.07291 | -1.16267 |
| 17 | 0.04978 | 0.04435 | -0.02856 | 0.89081 |
| 18 | 0.03734 | -0.05100 | -0.07956 | -1.36599 |
| 19 | 0.06745 | 0.01134 | -0.06821 | 0.16818 |
| 20 | 0.08228 | 0.07734 | 0.00912 | 0.93995 |
| 21 | 0.05796 | -0.04522 | -0.03609 | -0.78008 |
| 22 | 0.03093 | 0.00212 | -0.03397 | 0.06848 |
| 23 | 0.02242 | -0.00228 | -0.03625 | -0.10153 |
| 24 | 0.02121 | -0.00422 | -0.04047 | -0.19914 |
| 25 | 0.03165 | -0.00219 | -0.04267 | -0.06933 |

The cumulative difference in abnormal returns for both the pre-listing and the post listing periods in London are negative. The changes are not statistically significant.

As compared to Bhana's study the following were the observed table for the abnormal returns on the London Listed companies:



**Table 5: Abnormal returns and cumulative abnormal returns of underlying shares for 51 trading days around listing dates on the LSE.**

| Day | AR (%) | CAR (%) | t - statistic |
|---|---|---|---|
| -25 | 0,08 | 0,08 | 0,33 |
| -20 | 0,13 | 0,37 | 0,61 |
| -15 | -0,09 | 0,24 | 0,47 |
| -10 | 0,17 | 0,46 | 0,78 |
| -5 | -0,10 | 0,31 | 0,52 |

| | | | |
|---|---|---|---|
| -4 | -0,05 | 0,26 | 0,23 |
| -3 | 0,43 | 0,69 | 1,76* |
| -2 | 0,52 | 1,21 | 1,92** |
| -1 | 0,61 | 1,82 | 2,17** |
| 0 | 0,45 | 2,27 | 1,81* |
| 1 | 0,33 | 2,60 | 1,67* |
| 2 | 0,16 | 2,76 | 0,73 |
| 3 | 0,11 | 2,87 | 0,54 |
| 4 | -0,18 | 2,69 | 0,87 |
| 5 | -0,25 | 2,44 | 1,53 |
| 10 | 0,13 | 2,51 | 0,66 |
| 15 | 0,07 | 2,68 | 0,24 |
| 20 | -0,12 | 2,35 | 0,56 |
| 25 | -0,18 | 2,14 | 0,93 |

* Daily abnormal return is significant at the 10% level.

** Daily abnormal return is significant at the 5% level.



Bhana's results reveal significant positive abnormal returns associated with South African companies listing on the LSE. This suggests that there is value associated with foreign listing of the underlying shares. He interprets this value as stemming from the fact that a foreign listing provides South African companies with access to another capital market allowing them to choose a cheaper source of capital in situations where they need to raise capital. This option has positive value that is reflected in the price of the underlying share during the listing period.

The difference between this study and the study by Bhana can be partly explained by the fact that his study had more companies in the sample as compared to this one. There may be other reasons that may have influenced the difference between this study and the one conducted by Bhana, including the time of the study, some of the input variables in the data models, the

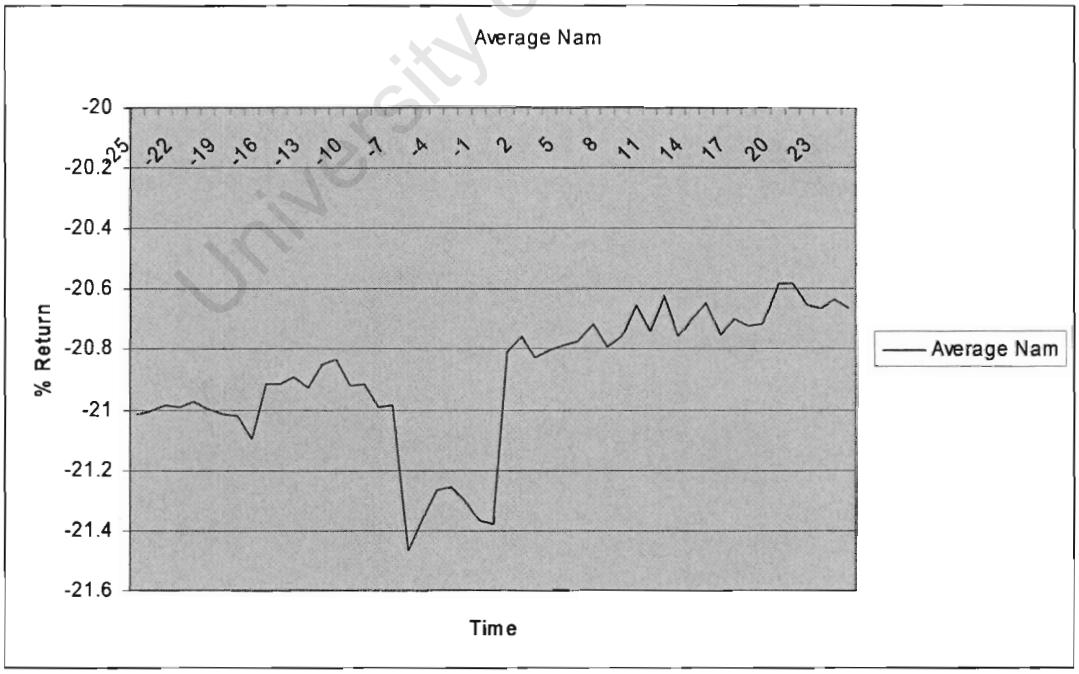
economic activity during the listing periods identified, political activity, market activity. These may be areas for further research.

However, the results of this study, i.e. finding no significant positive or negative returns are not consistent to previous studies such as that undertaken by Howe and Kelm (1987), who report that foreign listings by U.S. companies result in significant wealth losses especially over the pre --listing period. The results of this study are also inconsistent with those reported by Alexander, Eun and Janakiraman (1988) who while finding significant shareholder gains in the pre - listing period also reported significant losses in the post - listing period. They are also not consistent with studies by Bhana that found significantly positive abnormal returns around the listing period.



## 4.12 Namibian Abnormal Returns

**Figure 6: Namibian listed companies average abnormal returns**



The Namibian abnormal returns show an increase towards the listing date, however they are preceded by almost equal decrease in the 7 days before the listing. After the listing date the abnormal returns increased and stabilised at a level above the pre-listing activities. This suggests some value in listing the shares in the Namibian stock markets. This may be partly due to the pricing of information between the Namibian stock exchange and the JSE, as the Namibian stock exchange may be inefficient.

There are 10 companies that are listed in the Namibian stock exchange. When looked at in terms of the significance of abnormal returns in the listing period, the following table shows the abnormal returns from Namibia:

## Table 6: Average abnormal returns for Namibian listed companies

| Days | Average Returns% | Standard Deviation% | T-Test |
|---|---|---|---|
| -10 | -20.91749005 | 4.787324197 | -13.81709464 |
| -9 | -20.91305155 | 4.785583442 | -13.81918767 |
| -8 | -20.98788629 | 4.796994975 | -13.83564592 |
| -7 | -20.98427211 | 4.835183601 | -13.72400727 |
| -6 | -21.46468866 | 4.648305858 | -14.60259017 |
| -5 | -21.36262593 | 4.634497115 | -14.57645847 |
| -4 | -21.26596122 | 4.681133198 | -14.36593902 |
| -3 | -21.25581745 | 4.642421955 | -14.47882104 |
| -2 | -21.29967827 | 4.659847161 | -14.45444334 |
| -1 | -21.36341172 | 4.683323197 | -14.42502189 |
| 0 | -21.37576691 | 4.710007388 | -14.35159323 |
| 1 | -20.80858395 | 5.138616272 | -12.80549406 |
| 2 | -20.75322659 | 5.086689949 | -12.90180166 |
| 3 | -20.82653522 | 5.035392795 | -13.07927499 |
| 4 | -20.80095843 | 5.045530099 | -13.03696636 |
| 5 | -20.78615628 | 5.023610714 | -13.08453249 |
| 6 | -20.77080896 | 4.958767653 | -13.24584448 |
| 7 | -20.71264416 | 5.011227679 | -13.07047616 |
| 8 | -20.78914664 | 4.977761609 | -13.20695106 |
| 9 | -20.75403331 | 4.962802269 | -13.22438662 |
| 10 | -20.65003893 | 5.002712003 | -13.05315132 |

The table above shows that the average abnormal returns are in the negatives but as they were reflected in the graph, the decrease in Day -6 and then increase in day -3 and post- listing date.

## 4.13 Changes in Abnormal Returns for Namibia

**Table 7: Average abnormal returns for Namibian listed companies**

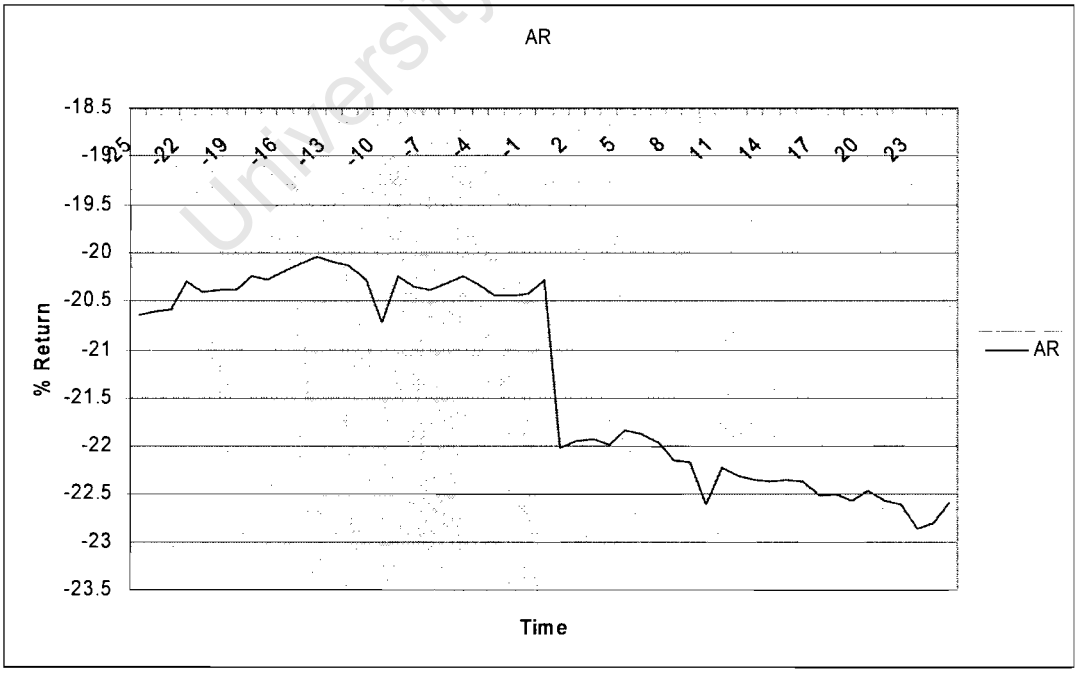
| Day | S | AR1-AR2 | Cumulative AR | t-statistic |
|---|---|---|---|---|
| -23 | 2.12211 | 0.01724 | 0.02677 | 0.00813 |
| -22 | 2.11410 | -0.00212 | 0.02465 | -0.00100 |
| -21 | 2.12705 | 0.01579 | 0.04043 | 0.00742 |
| -20 | 2.14555 | -0.02353 | 0.01690 | -0.01097 |
| -19 | 2.14034 | -0.01722 | -0.00032 | -0.00805 |
| -18 | 2.12478 | -0.00884 | -0.00916 | -0.00416 |
| -17 | 2.09972 | -0.07147 | -0.08063 | -0.03404 |
| -16 | 2.11391 | 0.18186 | 0.10123 | 0.08603 |
| -15 | 2.14394 | -0.00347 | 0.09776 | -0.00162 |
| -14 | 2.13942 | 0.02482 | 0.12258 | 0.01160 |
| -13 | 2.14423 | -0.03226 | 0.09032 | -0.01505 |
| -12 | 2.15354 | 0.07465 | 0.16498 | 0.03467 |
| -11 | 2.15705 | 0.01365 | 0.17863 | 0.00633 |
| -10 | 2.15025 | -0.08265 | 0.09598 | -0.03844 |
| -9 | 2.14057 | 0.00444 | 0.10041 | 0.00207 |
| -8 | 2.14273 | -0.07483 | 0.02558 | -0.03492 |
| **-7** | 2.15384 | 0.00361 | 0.02919 | 0.00168 |
| **-6** | 2.12098 | -0.48042 | -0.45122 | -0.22651 |
| **-5** | 2.07570 | 0.10206 | -0.34916 | 0.04917 |
| **-4** | 2.08306 | 0.09666 | -0.25250 | 0.04641 |
| **-3** | 2.08483 | 0.01014 | -0.24235 | 0.00487 |
| **-2** | 2.08005 | -0.04386 | -0.28621 | -0.02109 |
| **-1** | 2.08920 | -0.06373 | -0.34995 | -0.03051 |
| **0** | 2.10042 | -0.01236 | -0.36230 | -0.00588 |
| **1** | 2.20430 | 0.56718 | 0.20488 | 0.25731 |
| **2** | 2.28648 | 0.05536 | 0.26024 | 0.02421 |
| **3** | 2.26340 | -0.07331 | 0.18693 | -0.03239 |
| **4** | 2.25416 | 0.02558 | 0.21251 | 0.01135 |
| **5** | 2.25153 | 0.01480 | 0.22731 | 0.00657 |
| **6** | 2.23217 | 0.01535 | 0.24266 | 0.00688 |
| **7** | 2.22939 | 0.05816 | 0.30082 | 0.02609 |
| 8 | 2.23362 | -0.07650 | 0.22432 | -0.03425 |
| 9 | 2.22278 | 0.03511 | 0.25943 | 0.01580 |
| 10 | 2.22837 | 0.10399 | 0.36343 | 0.04667 |
| 11 | 2.21721 | -0.08691 | 0.27652 | -0.03920 |
| 12 | 2.20208 | 0.11534 | 0.39186 | 0.05238 |

| | | | | |
|---|---|---|---|---|
| 13 | 2.18947 | -0.13255 | 0.25932 | -0.06054 |
| 14 | 2.18272 | 0.05467 | 0.31399 | 0.02505 |
| 15 | 2.19951 | 0.05526 | 0.36925 | 0.02512 |
| 16 | 2.19282 | -0.10501 | 0.26424 | -0.04789 |
| 17 | 2.17641 | 0.04949 | 0.31373 | 0.02274 |
| 18 | 2.16432 | -0.01879 | 0.29495 | -0.00868 |
| 19 | 2.16551 | 0.00298 | 0.29793 | 0.00138 |
| 20 | 2.18891 | 0.13617 | 0.43410 | 0.06221 |
| 21 | 2.20590 | 0.00160 | 0.43570 | 0.00072 |
| 22 | 2.20538 | -0.07536 | 0.36033 | -0.03417 |
| 23 | 2.21959 | -0.00994 | 0.35040 | -0.00448 |
| 24 | 2.22813 | 0.03265 | 0.38304 | 0.01465 |
| 25 | 2.22197 | -0.03423 | 0.34882 | -0.01540 |

The Namibian listing is characterised by negative cumulative returns in the pre-listing period and the positive cumulative post listing abnormal returns. The changes in the abnormal returns are not statistically significant.

## 4.14 Luxemburg Abnormal Returns

**Figure 8: Luxemburg average abnormal returns**



This graph shows that the 2 companies that were listed in Luxemburg showed abnormal negative returns. These negative returns were greater around the listing date, stabilising 3 days after the listing. These are two companies and little reliance should be placed on them, however they show a different pattern of returns from what is observed in Namibia and Nasdaq and to a less extent London stock exchange. All the other stock markets reflect a positive change in the abnormal returns around the listing date.

**Table 8: Abnormal returns for Luxemburg listed companies:**

| Day | Abnormal Returns | Standard Deviation | T- Statistic |
|---|---|---|---|
| -10 | -20.73 | 2.47 | -11.88 |
| -9 | -20.25 | 3.20 | -8.95 |
| -8 | -20.35 | 2.98 | -9.64 |
| -7 | -20.38 | 3.07 | -9.38 |
| -6 | -20.32 | 3.10 | -9.28 |
| -5 | -20.24 | 3.13 | -9.14 |
| -4 | -20.32 | 3.13 | -9.19 |
| -3 | -20.45 | 3.13 | -9.25 |
| -2 | -20.44 | 2.97 | -9.72 |
| -1 | -20.43 | 3.02 | -9.57 |
| 0 | -20.28 | 2.98 | -9.62 |
| 1 | -22.02 | 3.81 | -8.17 |
| 2 | -21.95 | 3.83 | -8.10 |
| 3 | -21.92 | 3.79 | -8.18 |
| 4 | -21.99 | 3.88 | -8.01 |
| 5 | -21.84 | 3.89 | -7.94 |

| | | | |
|---|---|---|---|
| **6** | -21.86 | 4.28 | -7.23 |
| **7** | -21.96 | 3.88 | -8.01 |
| 8 | -22.15 | 3.52 | -8.89 |
| 9 | -22.16 | 3.63 | -8.64 |
| 10 | -22.60 | 3.09 | -10.34 |

All the returns are significantly negative due to the high risk free rates and risk premium as opposed to the low equity returns.

### 4.15 Changes in Abnormal Returns for Luxemburg Listed Companies

In the sample there are only 2 companies listed in the Luxemburg stock exchange.

**Table 9: Changes in abnormal returns for the companies listed in Luxemburg**

| Day | S | AR1-AR2 | Cumulative AR | t-statistic |
|---|---|---|---|---|
| -23 | 2.41831 | 0.02500 | 0.05500 | 0.01034 |
| -22 | 2.87256 | 0.28880 | 0.34380 | 0.10054 |
| -21 | 3.26683 | -0.10880 | 0.23500 | -0.03330 |
| -20 | 3.19612 | 0.02000 | 0.25500 | 0.00626 |
| -19 | 3.09340 | -0.01150 | 0.24350 | -0.00372 |
| -18 | 3.00691 | 0.14530 | 0.38880 | 0.04832 |
| -17 | 2.84257 | -0.03380 | 0.35500 | -0.01189 |
| -16 | 3.02642 | 0.10000 | 0.45500 | 0.03304 |
| -15 | 3.04107 | 0.07678 | 0.53178 | 0.02525 |
| -14 | 2.93208 | 0.06993 | 0.60171 | 0.02385 |
| -13 | 2.97282 | -0.06674 | 0.53497 | -0.02245 |
| -12 | 2.94891 | -0.03516 | 0.49981 | -0.01192 |
| -11 | 3.02812 | -0.14601 | 0.35380 | -0.04822 |
| -10 | 2.46780 | -0.44380 | -0.09000 | -0.17983 |
| -9 | 3.19900 | 0.47703 | 0.38703 | 0.14912 |
| -8 | 2.98490 | -0.10139 | 0.28565 | -0.03397 |
| **-7** | 3.07464 | -0.03541 | 0.25023 | -0.01152 |
| **-6** | 3.09638 | 0.06665 | 0.31688 | 0.02152 |
| **-5** | 3.13343 | 0.07378 | 0.39067 | 0.02355 |
| **-4** | 3.12707 | -0.07813 | 0.31254 | -0.02499 |
| **-3** | 3.12541 | -0.12754 | 0.18500 | -0.04081 |
| **-2** | 2.97325 | 0.00759 | 0.19259 | 0.00255 |
| **-1** | 3.01935 | 0.01741 | 0.21000 | 0.00577 |
| **0** | 2.98120 | 0.14322 | 0.35322 | 0.04804 |

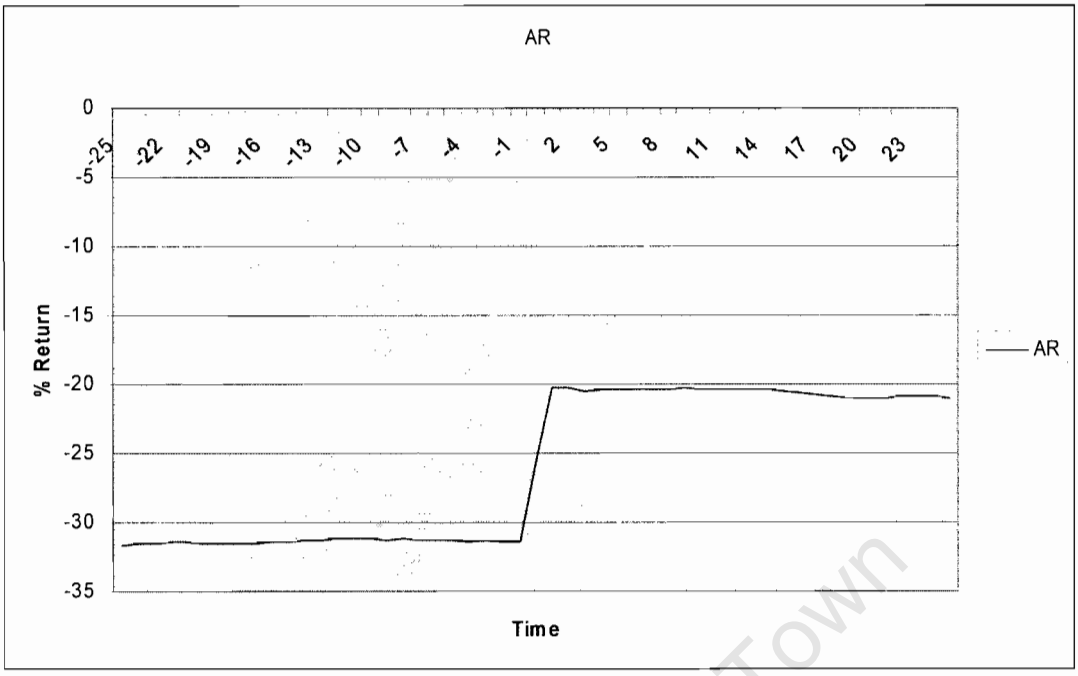
| | | | | |
|---|---|---|---|---|
| **1** | 3.81034 | -1.74253 | -1.38931 | -0.45732 |
| **2** | 3.83252 | 0.07431 | -1.31500 | 0.01939 |
| **3** | 3.79009 | 0.03000 | -1.28500 | 0.00792 |
| **4** | 3.88202 | -0.06500 | -1.35000 | -0.01674 |
| **5** | 3.88909 | 0.14500 | -1.20500 | 0.03728 |
| **6** | 4.27635 | -0.02383 | -1.22883 | -0.00557 |
| **7** | 3.87643 | -0.09722 | -1.32605 | -0.02508 |
| 8 | 3.52257 | -0.18978 | -1.51583 | -0.05388 |
| 9 | 3.62611 | -0.00625 | -1.52208 | -0.00172 |
| 10 | 3.09006 | -0.43792 | -1.96000 | -0.14172 |
| 11 | 3.29558 | 0.38467 | -1.57533 | 0.11672 |
| 12 | 3.53553 | -0.09967 | -1.67500 | -0.02819 |
| 13 | 3.42810 | -0.03404 | -1.70904 | -0.00993 |
| 14 | 3.33754 | -0.01596 | -1.72500 | -0.00478 |
| 15 | 3.47775 | 0.01728 | -1.70772 | 0.00497 |
| 16 | 3.46482 | -0.02728 | -1.73500 | -0.00787 |
| 17 | 3.09647 | -0.14130 | -1.87630 | -0.04563 |
| 18 | 3.18198 | 0.01130 | -1.86500 | 0.00355 |
| 19 | 3.28098 | -0.07000 | -1.93500 | -0.02134 |
| 20 | 3.26683 | 0.11000 | -1.82500 | 0.03367 |
| 21 | 3.23148 | -0.11500 | -1.94000 | -0.03559 |
| 22 | 3.08310 | -0.02508 | -1.96508 | -0.00814 |
| 23 | 2.79029 | -0.26689 | -2.23197 | -0.09565 |
| 24 | 2.85097 | 0.06291 | -2.16906 | 0.02207 |
| 25 | 3.17311 | 0.22779 | -1.94127 | 0.07179 |

The cumulative changes in abnormal returns for the companies listed in Luxemburg are positive before the listing dates and negative after the listing dates.



## 4.16 Nasdaq Abnormal Returns

**Figure 9: Average abnormal returns for Nasdaq listed companies**




Two companies are included in the Nasdaq sample, they are both mining companies. They were showing a similar return just before the listing and around the listing date there was a positive change in returns. These positive returns were retained post the listing date, where the abnormal returns were stable, though negative

**Table 10: Abnormal returns for companies listed in Nasdaq:**

| Day | Abnormal Returns | Standard Deviation | T-Statistic |
|---|---|---|---|
| -10 | -31.13 | 0.64 | -69.08 |
| -9 | -31.23 | 0.57 | -76.87 |
| -8 | -31.22 | 0.64 | -69.25 |
| -7 | -31.23 | 0.60 | -73.15 |
| -6 | -31.23 | 0.59 | -74.25 |
| -5 | -31.31 | 0.74 | -59.73 |
| -4 | -31.35 | 0.59 | -75.57 |

| | | | |
|---|---|---|---|
| **-3** | -31.26 | 0.63 | -70.24 |
| **-2** | -31.41 | 0.57 | -78.31 |
| **-1** | -31.46 | 0.60 | -73.91 |
| **0** | -25.63 | 7.44 | -4.87 |
| **1** | -20.29 | 0.33 | -85.75 |
| **2** | -20.30 | 0.33 | -87.70 |
| **3** | -20.49 | 0.36 | -80.18 |
| **4** | -20.36 | 0.27 | -105.12 |
| **5** | -20.39 | 0.30 | -95.83 |
| **6** | -20.43 | 0.26 | -112.96 |
| **7** | -20.33 | 0.30 | -95.68 |
| 8 | -20.34 | 0.31 | -93.15 |
| 9 | -20.28 | 0.33 | -88.10 |
| 10 | -20.40 | 0.35 | -81.91 |



## 4.17 Changes in abnormal returns for companies listed in Nasdaq

## Table 11: Changes in abnormal returns for companies listed in Nasdaq

| Day | S | AR1-AR2 | Cumulative AR | t-statistic |
|---|---|---|---|---|
| -23 | 0.63421 | 0.05721 | 0.16997 | 0.09021 |
| -22 | 0.65711 | 0.08428 | 0.25425 | 0.12825 |
| -21 | 0.64132 | -0.00508 | 0.24917 | -0.00792 |
| -20 | 0.62170 | -0.11084 | 0.13833 | -0.17829 |
| -19 | 0.64250 | 0.00410 | 0.14243 | 0.00639 |
| -18 | 0.64580 | -0.04728 | 0.09515 | -0.07321 |
| -17 | 0.61744 | 0.03318 | 0.12833 | 0.05373 |
| -16 | 0.58155 | 0.08609 | 0.21442 | 0.14804 |
| -15 | 0.58168 | 0.01106 | 0.22548 | 0.01902 |
| -14 | 0.62565 | 0.20225 | 0.42774 | 0.32327 |
| -13 | 0.62109 | -0.06130 | 0.36644 | -0.09870 |
| -12 | 0.60137 | 0.14045 | 0.50689 | 0.23355 |
| -11 | 0.63464 | 0.07526 | 0.58215 | 0.11859 |
| -10 | 0.65358 | -0.02733 | 0.55482 | -0.04181 |

| | | | | |
|---|---|---|---|---|
| -9 | 0.60675 | -0.10062 | 0.45420 | -0.16583 |
| -8 | 0.60687 | 0.01363 | 0.46783 | 0.02246 |
| **-7** | 0.62091 | -0.01669 | 0.45114 | -0.02688 |
| **-6** | 0.59934 | 0.00363 | 0.45477 | 0.00606 |
| **-5** | 0.67208 | -0.08256 | 0.37222 | -0.12284 |
| **-4** | 0.66849 | -0.03572 | 0.33650 | -0.05343 |
| **-3** | 0.60837 | 0.09267 | 0.42917 | 0.15233 |
| **-2** | 0.59912 | -0.15870 | 0.27047 | -0.26490 |
| **-1** | 0.58495 | -0.05056 | 0.21991 | -0.08643 |
| **0** | 5.27620 | 5.83241 | 6.05232 | 1.10542 |
| **1** | 5.26432 | 5.34241 | 11.39472 | 1.01483 |
| **2** | 0.33099 | -0.00909 | 11.38563 | -0.02748 |
| **3** | 0.34475 | -0.18696 | 11.19867 | -0.54229 |
| **4** | 0.32064 | 0.12178 | 11.32046 | 0.37982 |
| **5** | 0.28777 | -0.02908 | 11.29137 | -0.10106 |
| **6** | 0.27925 | -0.03223 | 11.25915 | -0.11540 |
| **7** | 0.27896 | 0.09941 | 11.35856 | 0.35637 |
| 8 | 0.30465 | -0.01602 | 11.34254 | -0.05257 |
| 9 | 0.31732 | 0.05806 | 11.40060 | 0.18297 |
| 10 | 0.33916 | -0.11547 | 11.28513 | -0.34046 |
| 11 | 0.33563 | 0.06404 | 11.34917 | 0.19081 |
| 12 | 0.32256 | -0.00613 | 11.34304 | -0.01901 |
| 13 | 0.29244 | -0.08506 | 11.25798 | -0.29087 |
| 14 | 0.33320 | 0.05933 | 11.31731 | 0.17805 |
| 15 | 0.35247 | -0.20599 | 11.11131 | -0.58444 |
| 16 | 0.28753 | -0.09980 | 11.01152 | -0.34708 |
| 17 | 0.30576 | -0.11424 | 10.89727 | -0.37364 |
| 18 | 0.32033 | -0.09537 | 10.80190 | -0.29773 |
| 19 | 0.31487 | -0.14329 | 10.65861 | -0.45507 |
| 20 | 0.30008 | 0.01262 | 10.67123 | 0.04206 |
| 21 | 0.29541 | -0.02720 | 10.64404 | -0.09207 |
| 22 | 0.29393 | 0.11125 | 10.75528 | 0.37848 |
| 23 | 0.35125 | 0.03360 | 10.78889 | 0.09567 |
| 24 | 0.37978 | 0.02851 | 10.81740 | 0.07507 |
| 25 | 0.31994 | -0.11113 | 10.70626 | -0.34736 |



The cumulative changes in abnormal returns are positive for both the pre-listing and the post listing period. The cumulative abnormal returns increase to an amount of 10.7 however, the daily changes in abnormal returns are not significant when they are tested individually.

## 4.18 Conclusion on H2

H2: The changes in returns are associated with the identified stock market (e.g. NASDAQ or LSE). This is because there may be differences in the level of integration or segmentation of the JSE with the other stock markets.

**The changes are different depending on the stock market that is identified, the Luxemburg stock exchanges showed a noticeable negative return and the Nasdaq showed a noticeable positive return. The sample on both these stock exchanges consisted of 2 companies each.**

**The London stock exchange was flat and did not show any noticeable positive or negative returns. The Namibian stock exchange showed noticeable positive returns around the date of the listing.**

**None of the stock market's abnormal returns were statistically significant. The differences in abnormal returns were also tested and they were not found to be significant.**

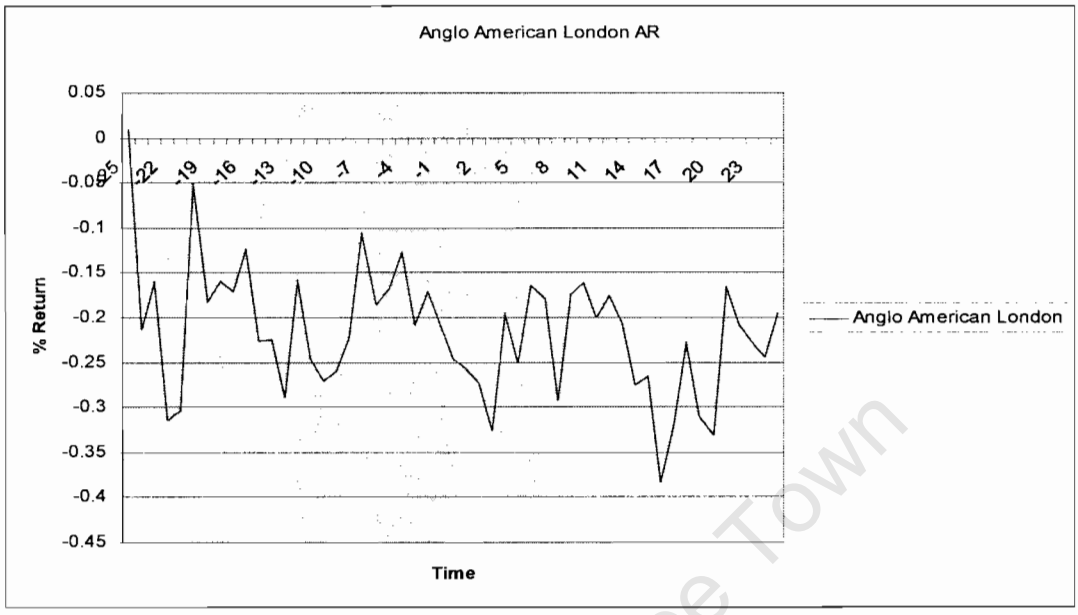


## 4.19 Individual Companies Analysis

The companies that are listed in the foreign markets are analysed in order to determine whether there can be an impact that can be traced to the individual performance of the companies.

## 4.20 London Listed Companies

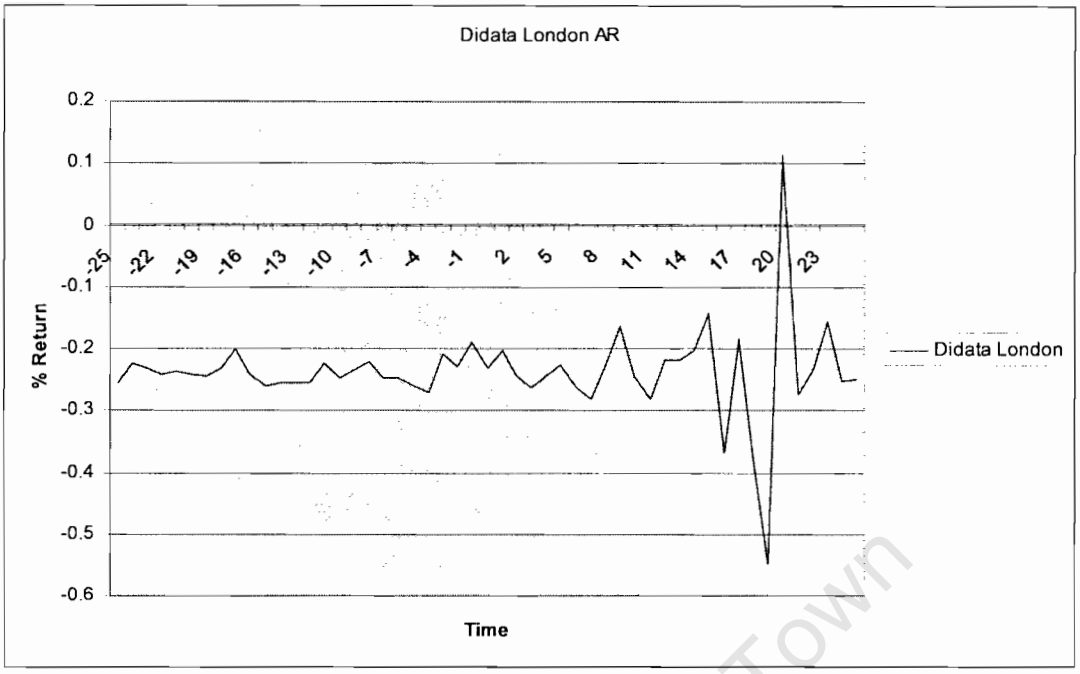
**Figure 10: Average Returns for Anglo American Listing in London**




Anglo American was listed in London in May 1998. The abnormal returns for the company were in the negative territory as the risk free rate in the economy was high as compared the stock market performance.

The abnormal returns had a slight positive movement prior to the listing and the movement was slightly negative after the listing date, followed by a period of relative stability. This would suggest that there was no value created or destroyed through Anglo American's primary listing in London. One reason for this is that the company, being the largest company in the Johannesburg Stock Exchange, had a large following by the international fund managers even prior to its primary listing being moved to the London Stock exchange.

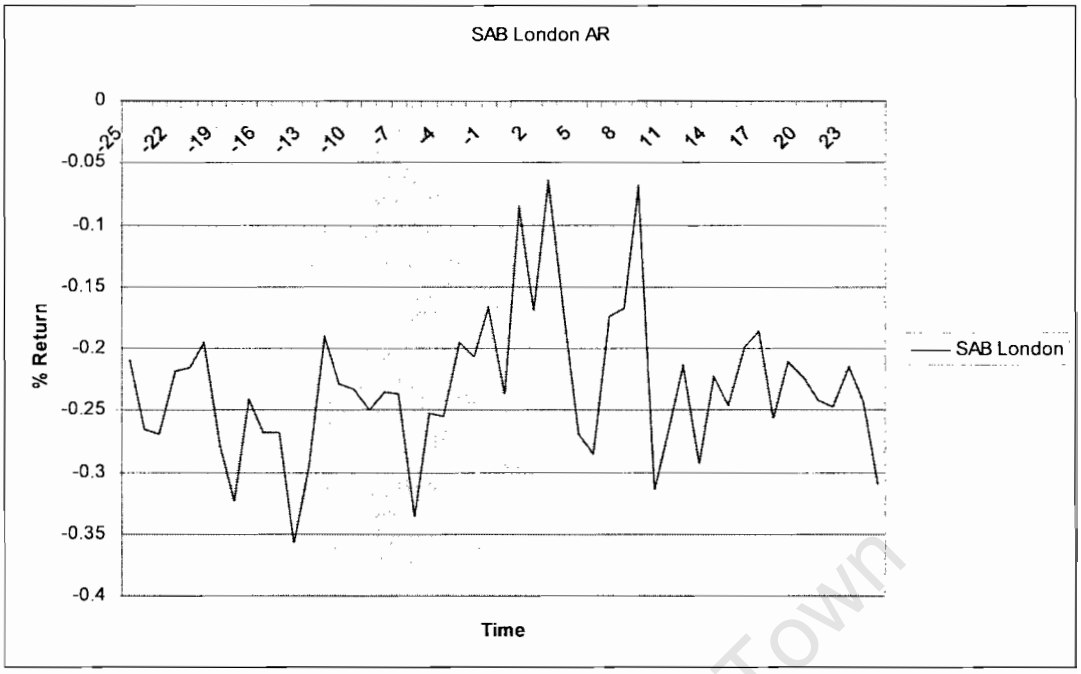
**Figure 11: Average Returns for Dimension Data Listing in London**




The Abnormal returns performance for Dimension Data was flat throughout the listing period. There were no major movements observed until about 17 days after the listing of the company. There appears to be no evidence of value being created or destroyed by Dimension Data's listing in the London Stock exchange.



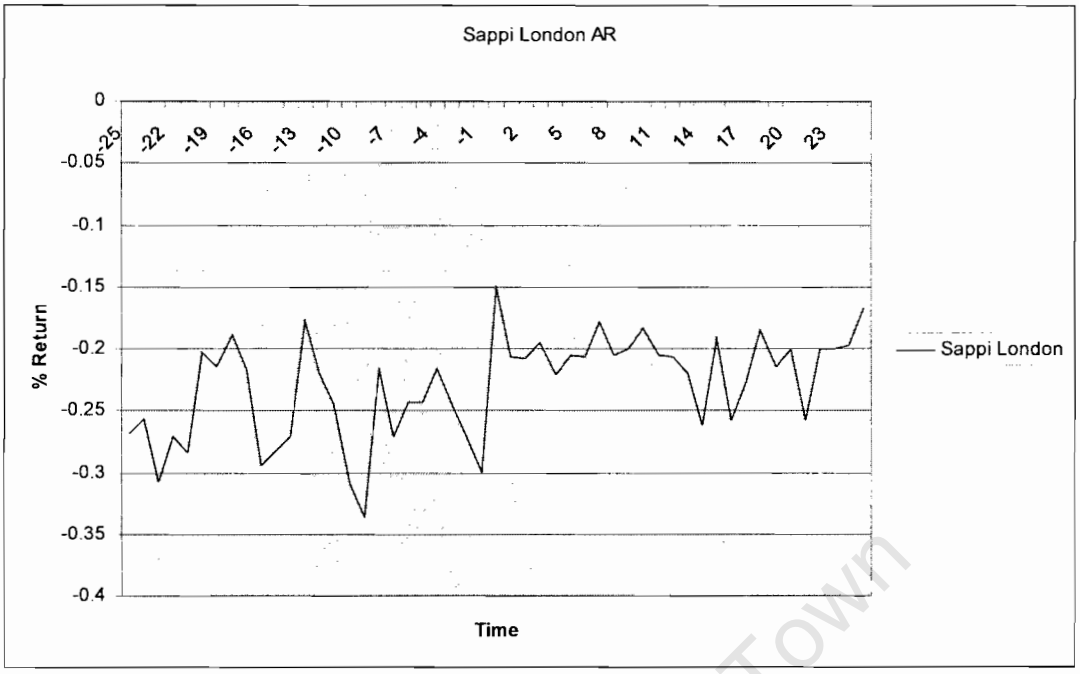
**Figure 12: Average Returns for South African Breweries Listing in London**




The performance of the South African Breweries abnormal returns is interesting, in a sense that the performance was relatively flat before the listing and then increased about 4 days from the listing date. The increase was sustained to about 5 days after the listing date. The abnormal returns decreased to the pre-listing levels about 14 days after the listing date.

The graph suggests that there was a short term value creation by the SAB listing in the London Stock exchange and this was reversed about 2 weeks after the listing.

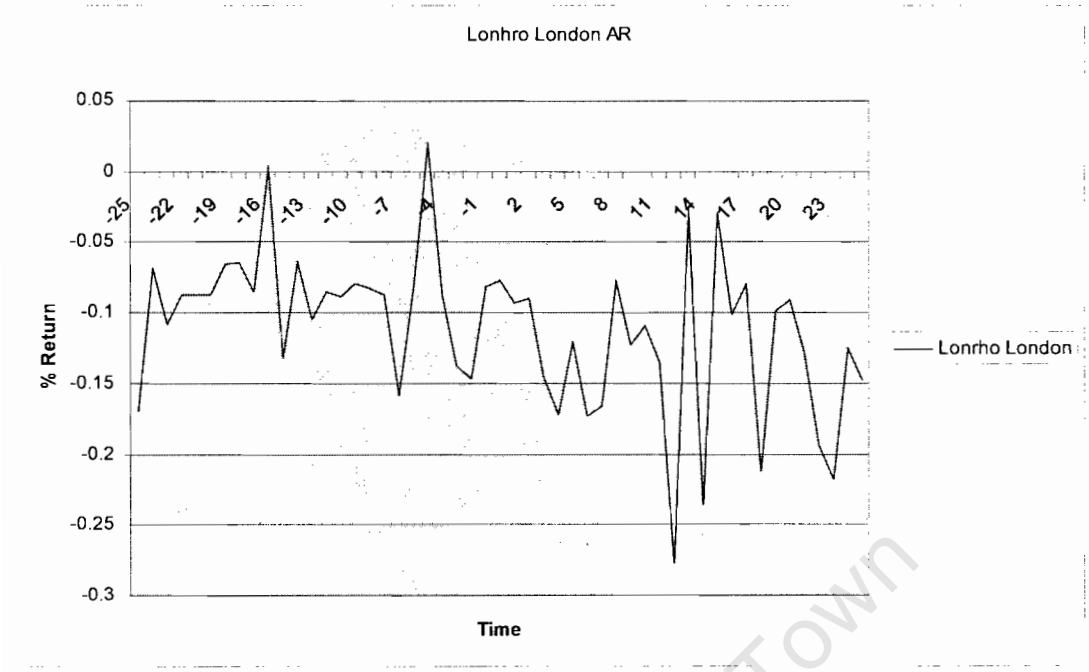
**Figure 13: Average Returns for Sappi Listing in London**




The abnormal returns for Sappi were relatively stable before the listing date, the abnormal returns increased around the listing date and stayed at the relatively high levels throughout the post listing period. The returns were also less volatile.

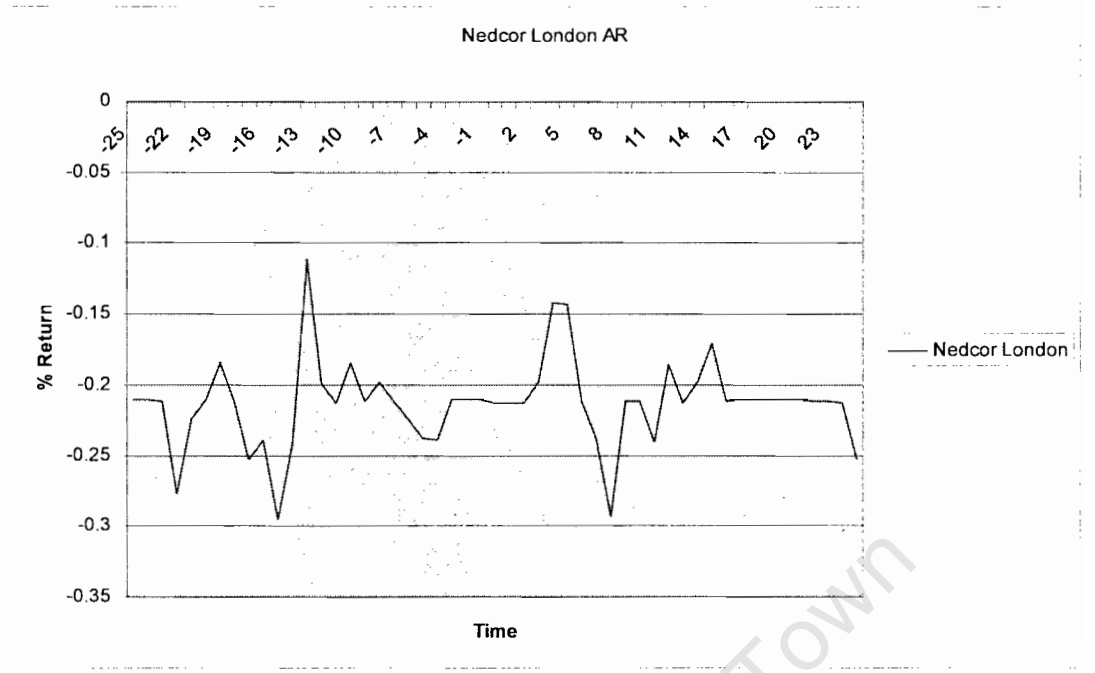
This would suggest that there was relatively little value created through the listing of Sappi in the London Stock Exchange.

**Figure 14: Average Returns for Lonhro Listing in London**



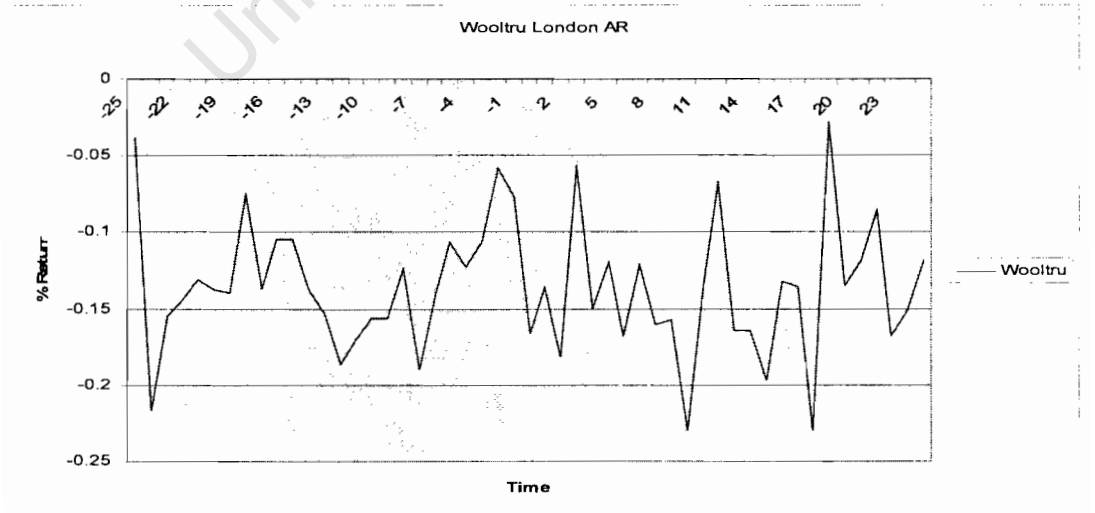

Lohnro listing was characterised by wildly fluctuating abnormal returns. The share was also enjoying a good performance in the stock market as the abnormal returns are slightly negative, even becoming positive, this despite the expected returns in the market during the time of the listing.

The performance of the abnormal returns suggests that the company did not create or destroy any value through the listing. The performance after the listing was relatively the same as after the listing of the company.




The abnormal returns performance of Nedcor was relatively flat throughout the listing period. The company experienced an increase about 13 days before listing of the company and experienced a decrease in abnormal returns 5 days after the listing.

**Figure 15: Average Returns for Wooltru Listing in London**



The abnormal returns performance for Wooltru was wildly fluctuating around the listing period. The abnormal returns started to increase around 7 days before the date of the listing and decreased at the date of the listing and then increased again around day 3 after the listing date. The graph seems to suggest that there was some value created after the listing date for the company.

### 4.21 London Conclusion

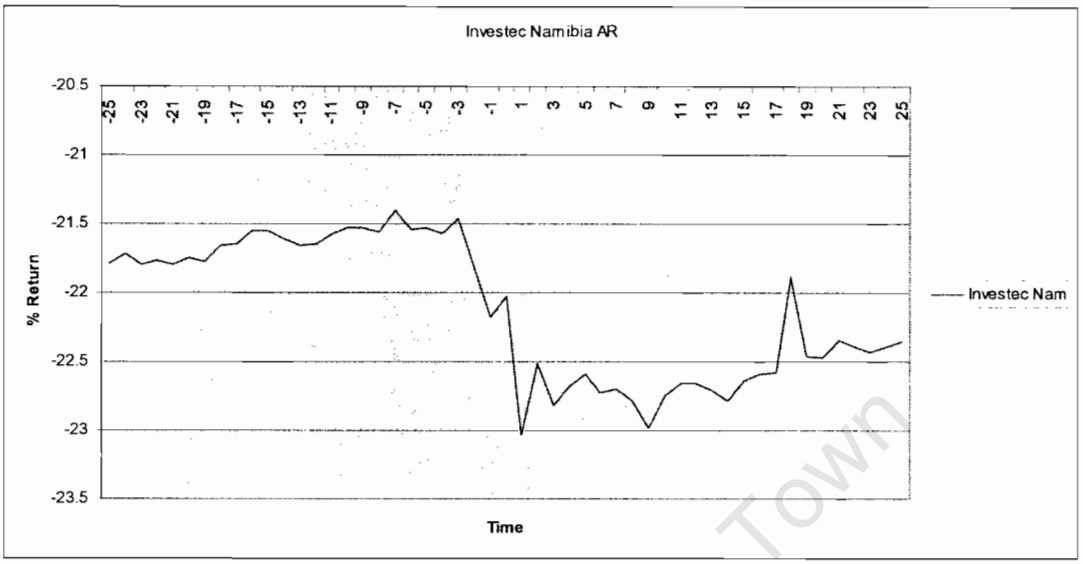
There is a bit of an increase towards the listing date, however the increase is not pronounced and it followed by a performance evidencing a random walk. The individual companies confirm the observation of the population of companies as all of them did not have a pronounced increase or decrease in the abnormal returns after the listing date.

One reason for this is that the companies that listed in London were relatively large companies and thus the international fund managers were following them even before the listing of the company and thus they had a lot of information about the companies and the information available did not change from the companies.

Some of these companies were also available to the international fund managers for investments.

## 4.22 Namibian Listings

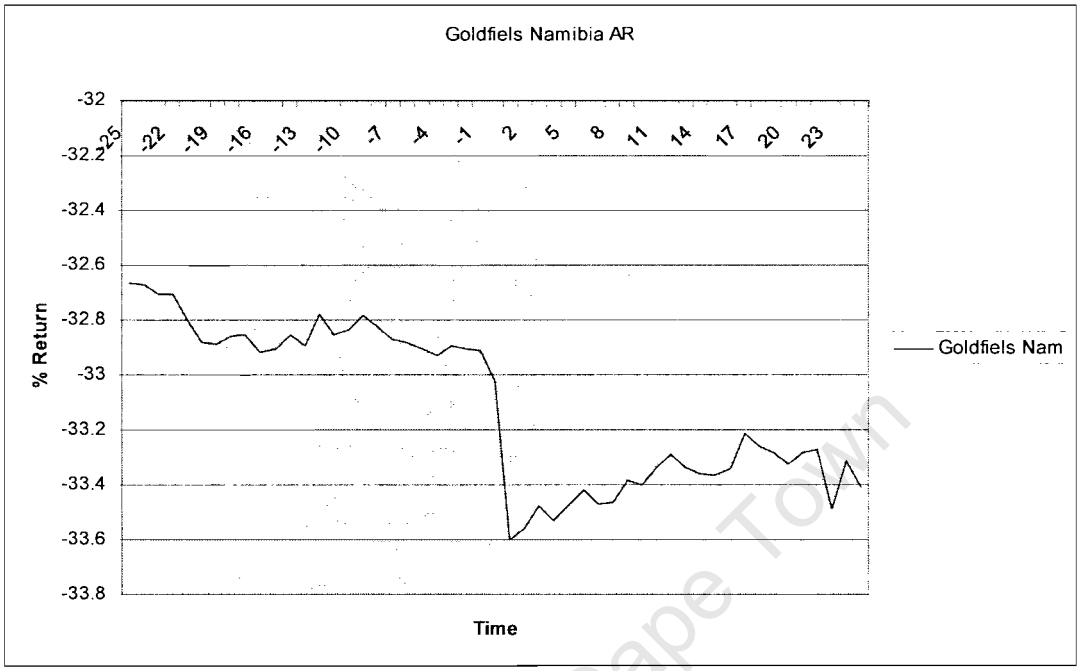
**Figure 16: Average Returns for Investec Listing in Namibia**




The abnormal returns for the company were stable before the listing of the company. There was a decline in the performance around the listing of the company. The abnormal returns started declining at about 3 days before the listing. The abnormal returns stabilised 3 days after the listing date at a lower level that before the listing period.

This suggests that there was some value destroyed after the listing of the company in the Namibian stock exchange.

**Figure 17: Average Returns for Goldfieds Listing in Namibia**




The performance of Gold Fields is almost the same as the performance of Investec. The abnormal returns for the company were stable before the listing of the company. There was a decline in the performance around the listing of the company. The abnormal returns started declining at about a day before the listing. The abnormal returns stabilised 3 days after the listing date at a lower level that before the listing period.

This suggests that there was some value destroyed after the listing of the company in the Namibian stock exchange.

A similar performance to Investec and Gold Fields was also observed for Wooltru's listing in Namibia. The abnormal returns were stable prior to the listing and then declined about 4 days prior to the listing. The

abnormal returns stabilised around the listing date, at a lower level than before the listing

These 3 companies would suggest that value was destroyed the listing of their shares in the Namibian stock exchange.

**Figure 18: Average Returns for Wooltru Listing in Namibia**

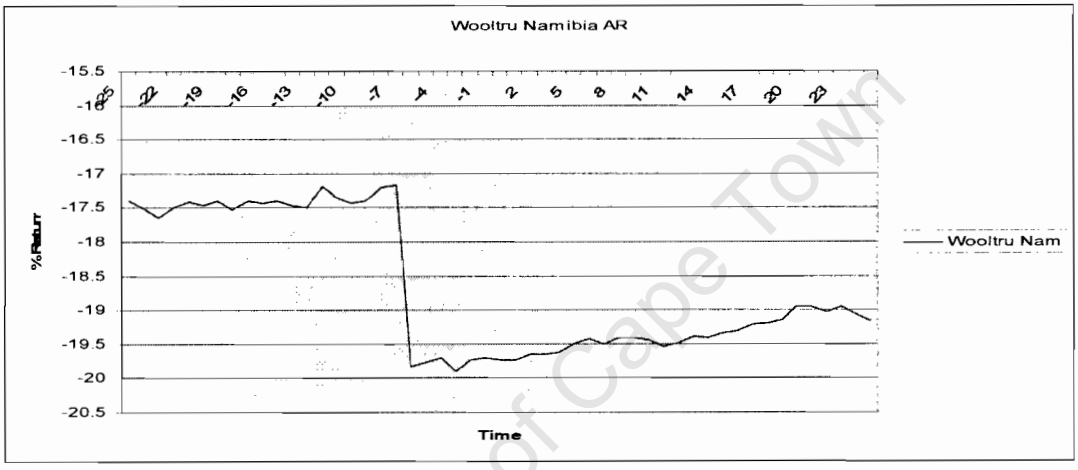
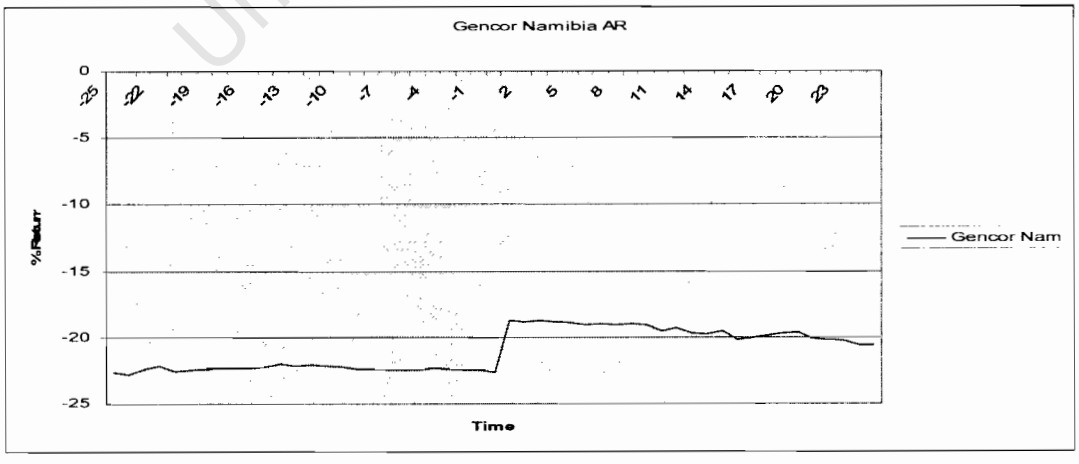



**Figure 19: Average Returns for Genco Listing in Namibia**



The performance of the Genco shares and the Alexander Forbes shares are opposite to the Investec, Gold Fields and Wooltru shares. For Genco and Alexander Forbes, the abnormal returns were stable before the listing and the increased around the listing date and then stabilised at the higher level after the listing date.

For both GenCorp and Alexander Forbes, the increase was around the listing date and then stabilised after 2 days after the listing date. This would suggest that there was value created by the listing of these 2 companies in the Namibian stock exchange.

**Figure 20: Average Returns for Alexander Forbes Listing in Namibia**

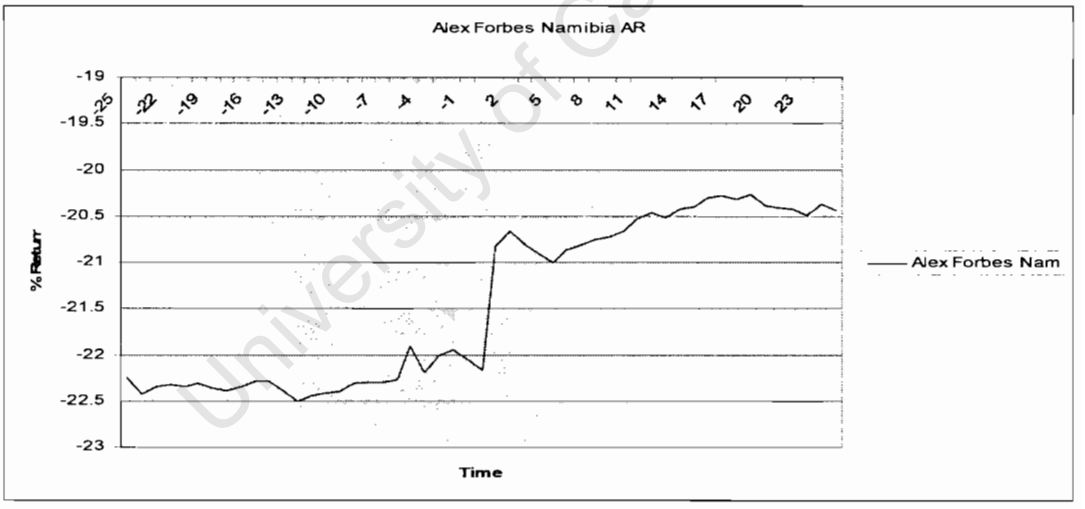
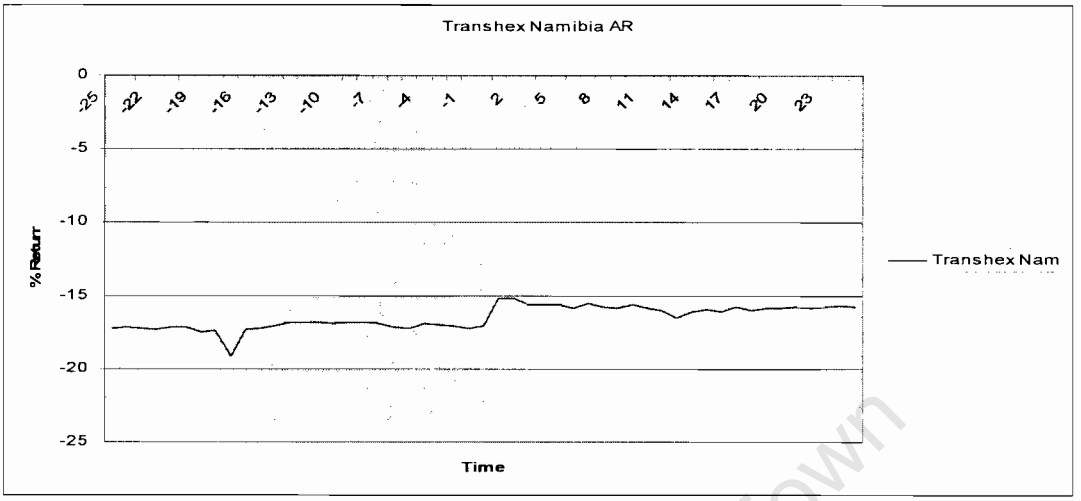
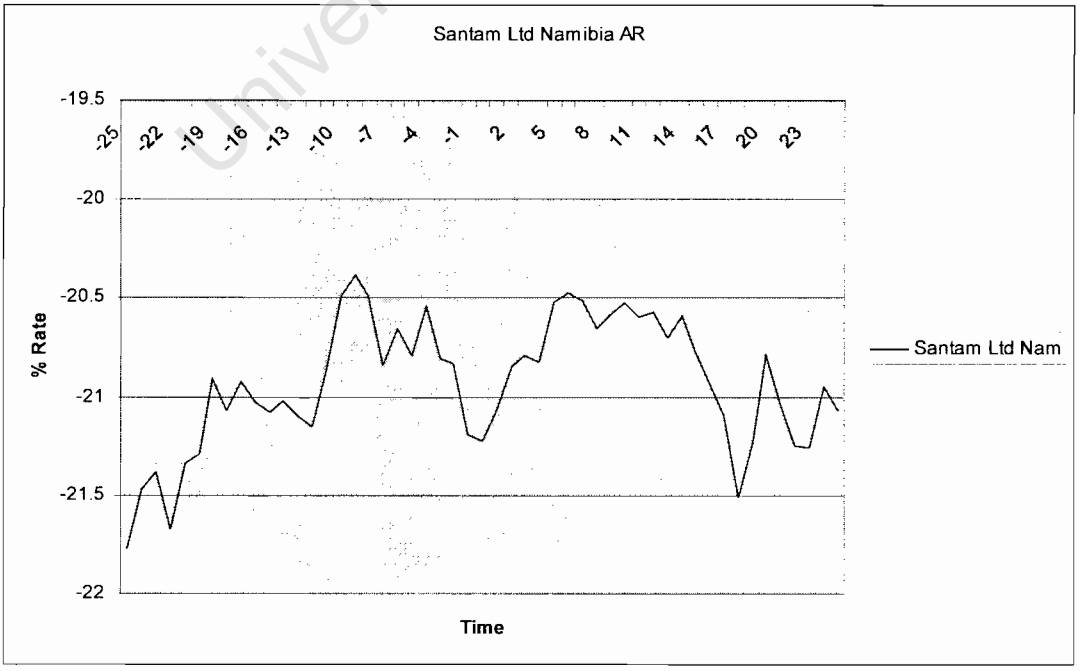


**Figure 21: Average Returns for Transhex Listing in Namibia**



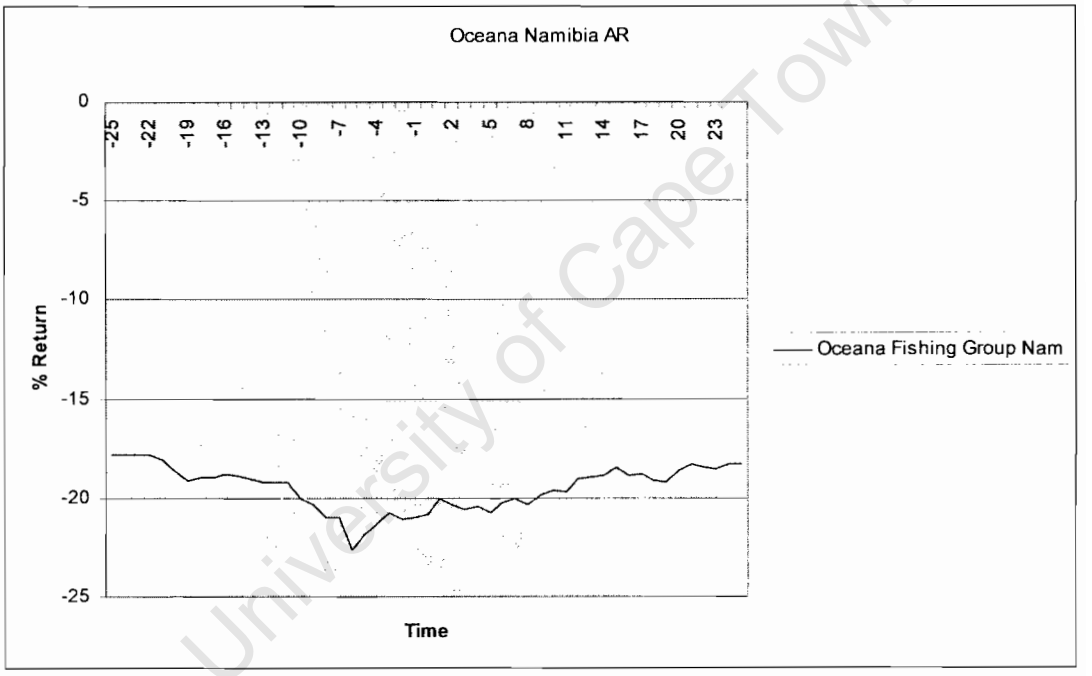

Except for a very small increase in the abnormal returns at the listing date, the abnormal returns for Transhex were very flat throughout the time of the listing.

**Figure 22: Average Returns for Santam Listing in Namibia**



The abnormal returns for the Santam shares were always increasing before the listing of the share in Namibia. There was a slight decline on the listing date, however this was reversed a day after the listing. The abnormal returns stabilised between days 5 and 17. The graph suggests that there was some value created through the listing of the company in the Namibian stock exchange.

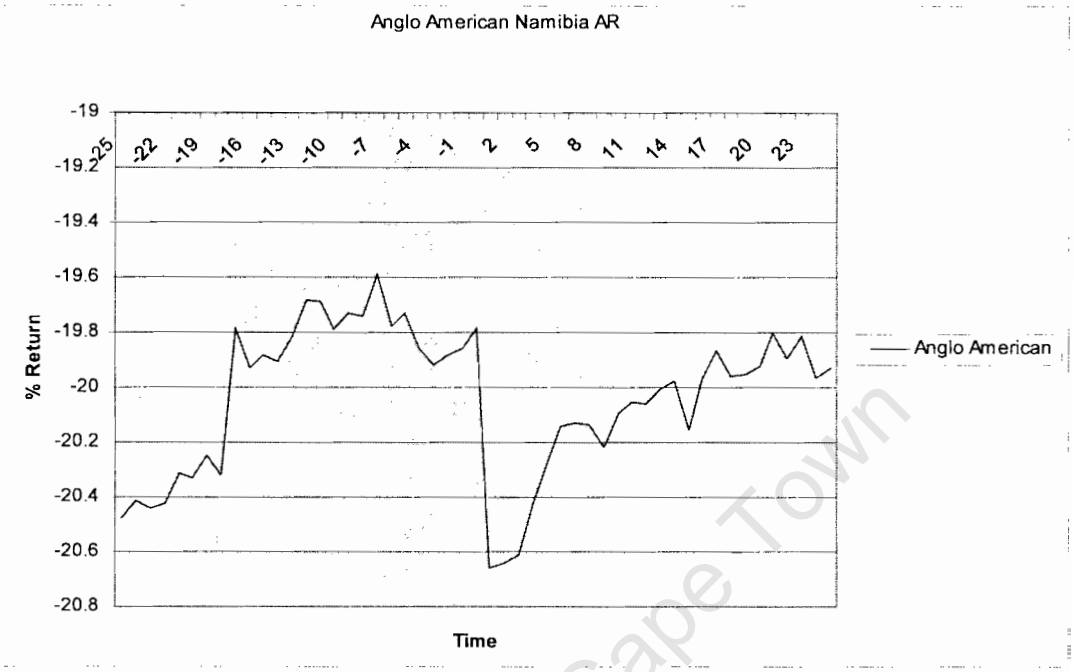
**Figure 23: Average Returns for Oceana Listing in Namibia**





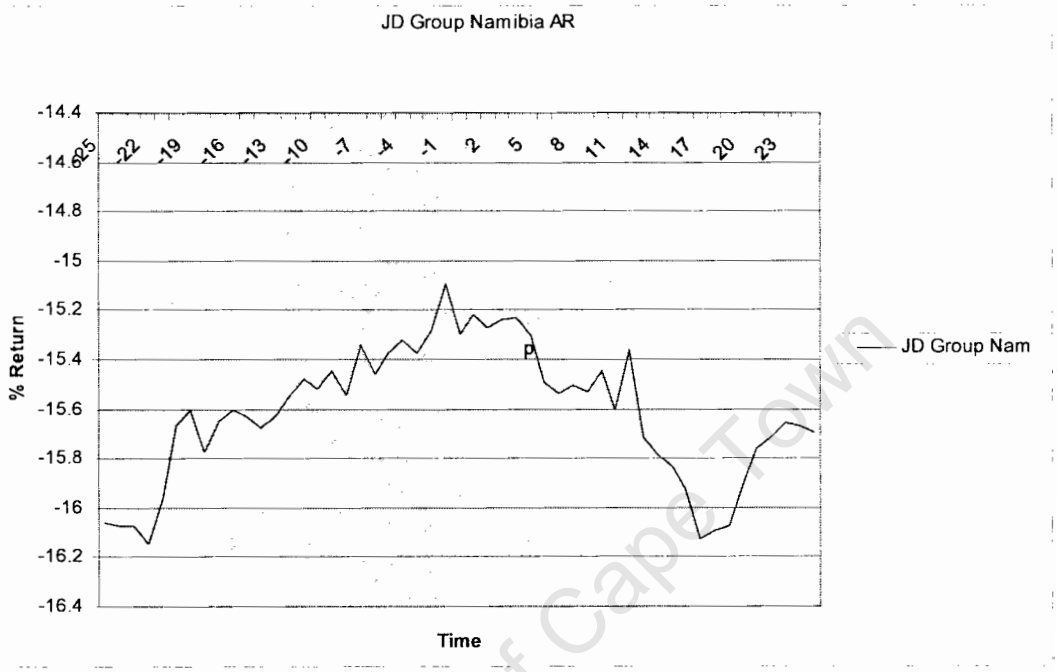

The abnormal returns for Oceana had a very slight decline before the listing date and a slight increase after the listing date, otherwise the performance was very stable. This would suggest that there was no effect on the value for the listing of Oceana in Namibia.

**Figure 24: Average Returns for Anglo American Listing in Namibia**




The performance of Anglo American increased in the 20 days before the listing and was stable at a higher rate until after the date of the listing when the abnormal returns declined. The decline was reversed in the 23 days after the listing. This would suggest that there was some value created through listing in the Namibian stock market.

**Figure 25: Average Returns for JD Group Listing in Namibia**




The performance of the JD group is interesting because there was an increase in the abnormal returns in the period before the listing of the company in Namibia, there was a decline in the abnormal returns after the date of the listing. The value that was created before the listing date was destroyed after the listing date.

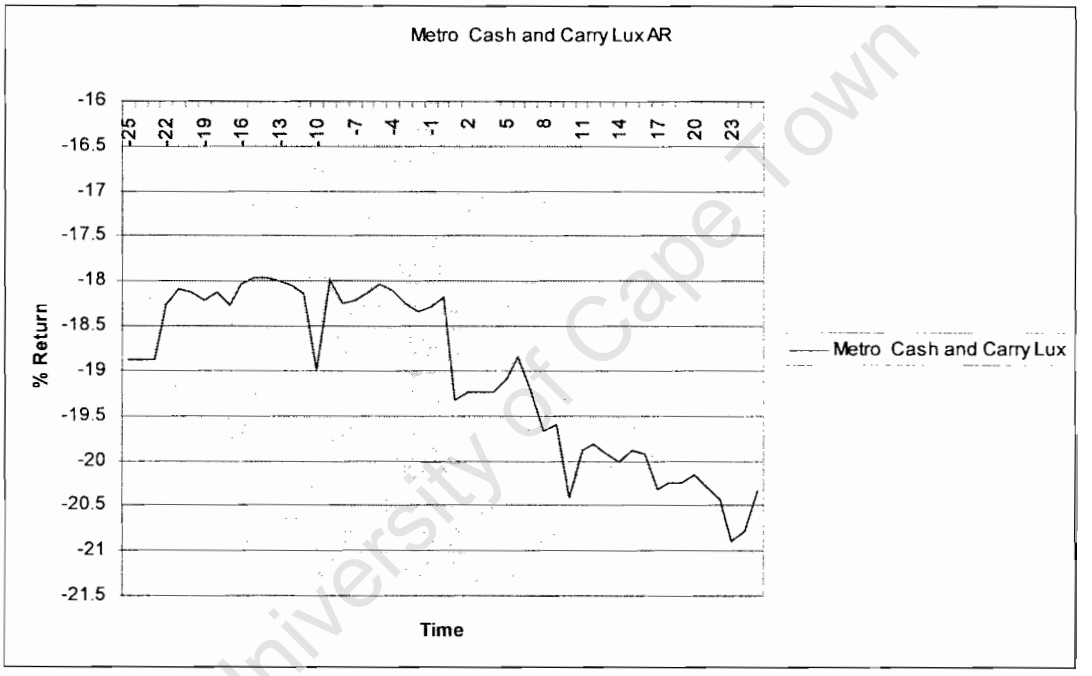
## 4.23 Namibian Conclusion

Though the number of individual companies that had a value creating listing period are almost the same as the number of companies that had a decline in abnormal returns, the average abnormal returns for the companies listed in Namibia show an increase towards the listing date, however they are preceded by almost equal decrease in the 7 days before the listing. After the listing date the abnormal returns

increased and stabilised at a level above the pre-listing activities. This suggests that there some value in listing the shares in the Namibian stock markets. This may be partly due to the pricing of information between the Namibian stock exchange and the JSE

### 4.24 Luxemburg Listed Companies

**Figure 26: Average Returns for Metro Cash and Carry Listing in Luxemburg**

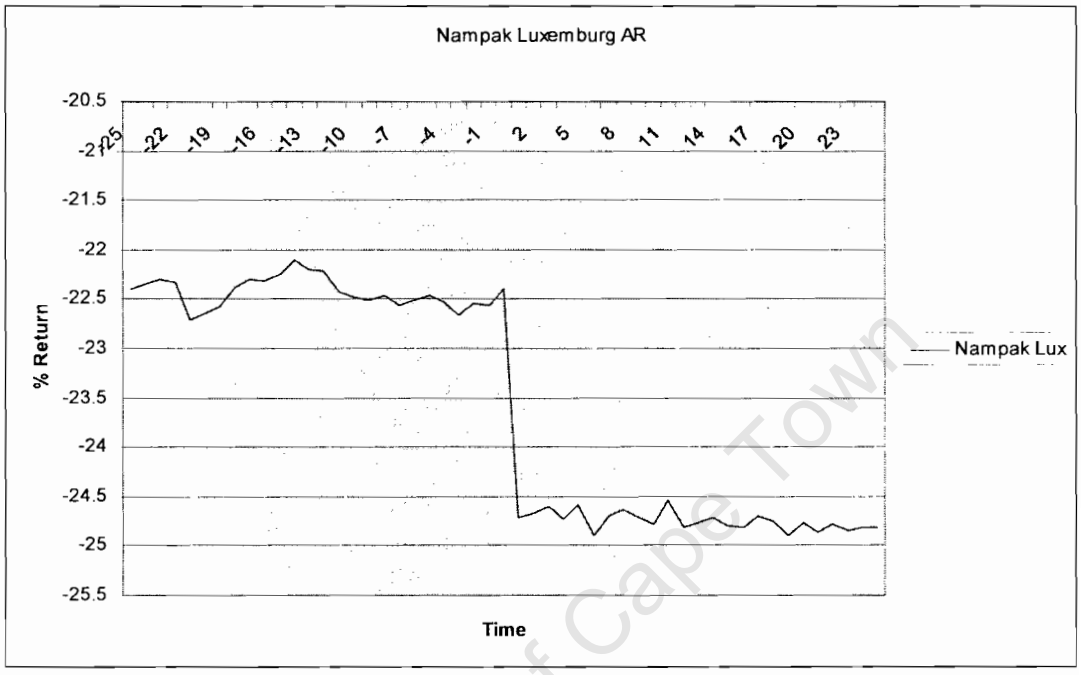





The listing of the Metro Cash and Carry in Luxemburg was characterised by falling abnormal returns after the date of the listing. The abnormal returns were flat before the date of the listing.

This would suggest that value was destroyed during the listing period.

**Figure 27: Average Returns for Nampak Listing in Luxemburg**




Nampak's abnormal returns were stable both before and after the listing, however there was a noticeable decrease in abnormal returns at the listing date. This would suggest that some value was destroyed at the listing date and the destroyed value was maintained after the listing date.



## 4.25 Luxemburg Conclusion

The combined graph of the 2 companies listed in Luxemburg shows abnormal negative returns. These negative returns were even more negative around the listing date, stabilising 3 days after the listing. While only two companies, they are reflecting a different pattern of returns from that observed in Namibia and Nasdaq and to a less extent London stock exchange. All the other stock markets reflect a positive

change in the abnormal returns around the listing date as compared to the Luxemburg exchange that is reflecting a negative return.

### 4.26 Nasdaq Listed Companies

**Figure 28: Average Returns for Durban Roodeport Deep Listing in Nasdaq**

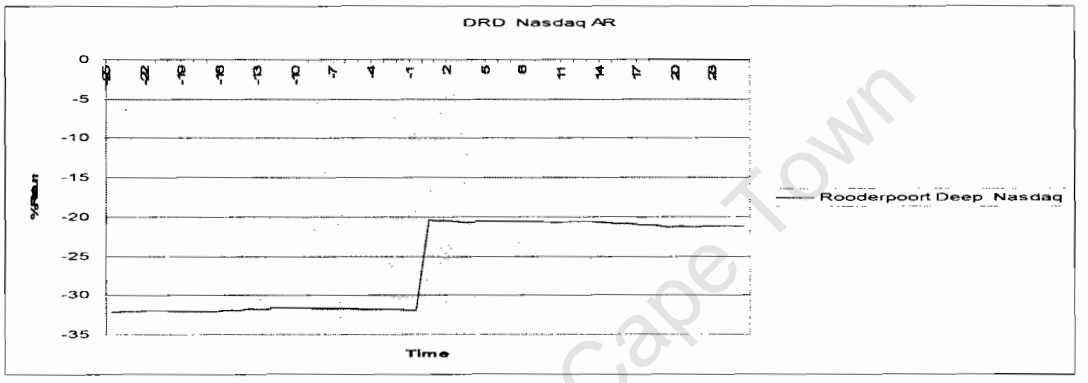
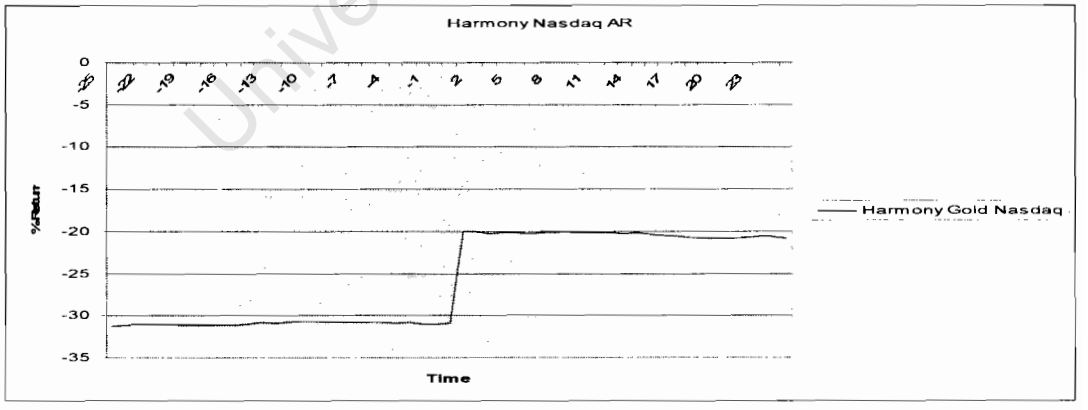





**Figure 29: Average Returns for Harmony Listing in Nasdaq**




### 4.27 Conclusion Nasdaq

Both the Durban Roodepoort Deep and the Harmony shares were stable before and after the listing date, there was a noticeable

increase in the abnormal returns at the listing date. The abnormal returns stabilized at the increased levels after the listing date.

### 4.28 Conclusion on H3

H3: The changes in the returns are associated with the form of listing (e.g. primary or secondary listing).

This hypothesis was indirectly tested by analysing the shares that are listed in London. This is because a large number of South African companies that have a primary foreign listing have their listing in South Africa. The sample had no primary listings in any other market except for London and thus the LSE primary listings are used as a surrogate for performance of primary listings.

**There were no abnormally positive or negative returns on the listing in London and therefore there seem to be no identifiable difference between abnormal returns on the primary listing and the secondary listing.**



### 4.29 Conclusion on the Study

The study set up to analyse the effects on returns of listing South African companies in the foreign stock markets. The analysis was taken for 20 companies that are listed in London Stock Exchange, Nasdaq, Luxemburg Stock Exchange and the Namibian Stock exchange. The inclusion of only 20 companies was a constraint in the study. The inclusion of these companies was due to the lack of the availability of data that could not allow for the inclusion of a large number of companies in the sample.

The study concluded that on overall there is a positive abnormal return on the listing of South African companies in foreign stock markets, the returns are however not statistically significant.

When the analysis was done on different stock markets, the following results were observed. The changes were different depending on the stock market that is identified, the Luxemburg stock exchanges showed a noticeable positive return and the Nasdaq showed a noticeable positive return. The sample on both these stock exchanges consisted of 2 companies each.

The London stock exchange was flat and did not show any noticeable positive or negative returns. The Namibian stock exchange showed noticeable positive returns around the date of the listing.

None of the stock market's abnormal returns were statistically significant. The differences in abnormal returns were also tested and they were not found to be significant.

The study could not conclude that there are abnormal significant returns through listing in foreign stock markets. The results are varied according to different stock markets, i.e. some stock markets are showing positive returns while some markets are showing negative returns. The abnormal returns between dates showed that there are negative abnormal returns before the listing date and there are positive abnormal returns after the listing date. These changes in abnormal returns were insignificant.

## 4.30 Areas for Further Research

The areas for further research may include:

1. The effects of foreign exchange listings in the risk of the foreign listed companies.
2. The effects of the foreign listings on the asset pricing - a follow up on the study by Errunza and Losq (1985) in the South African context.
3. The effects of political activity, market activity and economic activity in the risks and return of foreign exchange listed companies.

**Table of Companies Included in the Sample**

| Company | Listing Date | Form of Listing |
|---|---|---|
| **London Stock Exchange** | | |
| Anglo American | 24/05/1999 | Primary |
| Dimension Data | 01/10/1997 | Primary |
| Lonrho Limited | 26/02/2001 | Primary |
| Nedcor Limited | 15/06/1995 | Secondary |
| Sappi Limited | 19/06/1992 | Secondary |
| South African Breweries | 08/03/1999 | Primary |
| | | |
| **Luxemburg Stock Exchange** | | |
| Metro Cash and Carry | 07/02/1996 | Secondary |
| Nampak Limited | 12/10/1994 | Secondary |
| | | |
| **Namibian Stock Exchange** | | |
| Alexander Forbes | 06/10/1997 | Secondary |
| Anglo American | 07/04/2001 | Secondary |
| Gencor Limited | 05/11/1998 | Secondary |
| Goldfiels Limited | 30/05/1995 | Secondary |
| Investec Limited | 29/10/1997 | Secondary |
| JD Group | 28/08/2001 | Secondary |
| Oceana Fishing Group | 09/09/1998 | Secondary |
| Santam Limited | 16/11/1998 | Secondary |
| Transhex Limited | 21/07/1999 | Secondary |
| Wooltru Limited | 18/03/1998 | Secondary |
| | | |
| **NASDAQ** | | |
| Harmony Gold | 10/02/1996 | Secondary |
| Rooderpoort Deep | 10/02/1996 | Secondary |

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