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# **VALUE VERSUS GLAMOUR INVESTING: A SOUTH AFRICAN CASE**

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**Abstract**

Evidence from international and local studies indicates that the value investment style consistently earns returns above those of the growth investment style. The same principle seems to apply, in an international context, when using the glamour investment style, which is a sub-style of growth, as a comparative to value investing. This study aims to prove which style, value or glamour, outperforms the other thereby confirming or denying the presence of an international phenomenon in a South African context.

This study replicates a two-variable method that was pioneered in the United States, to divide stocks into value and glamour portfolio's each year. The portfolios were analysed using a five year buy-and-hold method after which the overall performance of the two portfolios was consolidated to determine which style outperformed the other.

The results of the study indicate support of the international evidence with the local results in some respects achieving far greater returns using the value investment style. This presents an opportunity for private or institutional investors to achieve consistent and abnormal returns on the JSE.

**Declaration**

I declare this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Justin Vincent Gaffney

Date



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*In memory of Aubrey and Philipina Gaffney and Harry  
Godden who remain true inspirations.*



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## 1. Introduction

The efficient market hypothesis (EMH) and capital asset pricing model (CAPM) are considered fundamental pillars of modern finance. The EMH claims that the prices of securities include all information available to investors and that the prices adjust quickly to any new information that is presented. The CAPM claims that the return of a security is directly related to the beta value (a company's measure of risk compared to the market as a whole) of the security. Thus, CAPM allows for the fair value of the security to be established "accurately", whilst EMH follows a random walk. The implication is that whilst investors can effectively price securities it is impossible for them to beat the market.

Yet, the financial literature is abundant with studies that challenge these foundations of modern finance. These studies suggest that, if certain investment style strategies are followed, investors can earn consistent abnormal returns and in most instances at a lower risk to the market. Fama and French (1992, 1998), Capaul, Rowley and Sharpe (1993), Lakonishok, Shleifer and Vishny (1994), and in a South African context, Van Rensburg and Robertson (2003a) provide evidence of some of these style strategies, all of which advocate the benefit of investing using a value style to achieve consistent abnormal returns.

By contrast, the performances of glamour style portfolios have been shown by Lakonishok *et al* (1994) and Cai (1997) to underperform value style portfolios in an American and Japanese context, respectively. However, a survey of the



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literature reveals that no published study, specifically focusing on the performance of a glamour style, has been published in a South African context. This provides a motivation to test the comparative performance of value and glamour style strategies.

### 1.1. STYLE DEFINITIONS

The traditional style comparison is between the value and growth styles. A number of international style benchmark indexes, and most of the published literature, refer to the value and growth style comparison. However, this study chooses to focus on a sub-style of growth, namely the glamour style, because it has not been tested in a South African context.

Lakonishok *et al* (1994) define a value stock as a company that has performed poorly in the past and is expected to perform poorly going forward. The Lakonishok *et al* (1994) definition is characterised by low multiples of price-based financial ratios and low rates of previous year's sales growth. They are termed "value" companies because they trade at prices close to or below the organisation's intrinsic value. The low multiples of price-based financial ratios are due to the lack of market demand for these shares that, in effect, drives the price of the value companies down. Investors tend to overlook value companies due to the negative sentiment attached to those companies even though the underlying fundamentals of the business are solid.



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Lakonishok *et al* (1994) define a glamour stock as a company that has performed well in the past and is expected to perform well in the future. Lakonishok *et al* (1994) associate high previous sales growth as good past performance and high price-based multiples as a measure of expected future growth rates. They are termed “glamour” companies because the majority of investors crave these companies, even at highly inflated prices, as the management of the companies can be seen to do no wrong. Glamour companies are companies where the market demand, based on the company’s high growth in sales in the past, outstrips supply. This, in effect, drives up the company’s stock price to a price that far exceeds the company’s intrinsic value.

Whilst it follows that there are multiple methods that can be used to translate the two style definitions into empirical terms; this study uses three two-variable methods as empirical metrics to define style. These methods were advocated in the Lakonishok *et al* (1994) study, and for a number of reasons; these methods are adopted in this paper. The arguments for using these methods are defended in the method section.

## 1.2. RESEARCH PROBLEM

The primary research problem being addressed by this study is whether a value or glamour investment style provides better returns over time relative to the JSE Securities Exchange (JSE) during the period 1 January 1998 to 31 December 2007.



The traditional comparison between style studies is the value versus growth comparison. However, Fama and French (1998), Capaul *et al* (1993) and La porta, Lakonishok, Shleifer and Vishny (1997) provide a sample of the style investing articles published in the international literature. Graham and Uliana (2001) have completed a similar study in a South African context. The question that is yet to be answered however is whether there are sub-styles of the growth approach that could possibly outperform the value style. Lakonishok *et al* (1994) found that the value style outperforms the glamour style in the United States (US). Cai (1997) found results consistent with the Lakonishok *et al* (1994) study whereby value strategies outperformed glamour strategies for the Japanese market.

This study aims to provide a set of results that is comparable to other international studies that utilised the two-variable methods advocated by Lakonishok *et al* (1994). This will provide an emerging market perspective to the debate around value and glamour styles and their comparative performance in international markets. This research also aims to determine which of the three two-variable proxies of style deliver the best results over the time period of the study.



### 1.3. RESEARCH PURPOSE

The purpose of this research is primarily to establish whether the evidence drawn from the South African market is consistent with the evidence that has been published for other international markets. The secondary purpose is to determine which combination of variables provides the best proxy of the better performing style for the South African market.

Using the SABINET electronic database and searching for articles with a keyword of glamour revealed only two articles, none of which were related to the glamour subject in a financial sense. The survey reveals no published study in a South African context that contextualises value and glamour performance on the JSE. This provides a motivation for this study.

### 1.4. RESEARCH SCOPE

The scope of the research is limited to companies that were listed on the main board of the JSE from January 1993 and December 2007. This study contributes to the South African literature on the comparative performance of the value and glamour effects. The research also contributes to the international literature as a set of empirical results that can be compared against international results that use the Lakonishok *et al* (1994) two-variable method to determine style. Companies listed on the Alternate Exchange (AltX) are excluded from this study due to the lack of historical data required for the portfolio creation strategies as are companies that were listed on South Africa's



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earlier junior boards, namely the Development Capital Market and Venture Capital Market.



## 2. Literature Review

The foundations of modern finance, namely the CAPM and EMH, have been challenged by a growing number of academic papers in recent years. The evidence presented in these papers suggests that following specific styles or strategies of investment can reward investors with consistent abnormal returns with no apparent increase in risk to the investor. Fama and French (1992, 1998), Lakonishok *et al* (1994), Capaul *et al* (1993), Cai (1997), Graham and Uliana (2001) and Van Rensburg and Robertson (2003a) provide a number of examples where certain style strategies achieve consistent abnormal returns. Furthermore, it appears that the presence of a value style effect occurs in numerous international markets outside of the US as the Fama and French (1998), Capaul *et al* (1993), Cai (1997), Graham and Uliana (2001) and Van Rensburg and Robertson (2003a) studies show.

A psychological approach to finance appears to best explain the way investment styles are able to achieve consistent abnormal returns in international markets, when compared to the principles of modern finance. The literature review presents the arguments of modern and behavioural finance. The literature review then goes on to discuss the various styles of investing as well as the motivation for choosing the value and glamour styles for the purpose of this study.



## 2.1. MODERN FINANCE

The basic tenets of modern finance are the EMH and CAPM. These models and their arguments, with regards to the value and glamour case, are presented below.

### 2.1.1. The Efficient Market Hypothesis

Fama (1970) wrote a seminal paper on the EMH stating that an efficient market is one where the prices of securities in the market, reflect all the information available to investors in that market at that specific point in time. Underlying this definition is the assumption that all investors are rational and logical people. From this definition of the EMH and the logical investor assumption, the prospect of achieving consistent abnormal returns above the average return of the efficient market is impossible because the efficient market should react quickly to all information presented and adjust market prices accordingly.

Bodie, Kane and Marcus (2005) indicate that stock prices, should also in effect, follow a random walk. A random walk, by definition, is when price changes are unpredictable and without pattern. However, if investors were able to identify patterns and predict future prices it would indicate that not all information is included in the securities current price. This would suggest that the market is not efficient. According to Bodie *et al* (2005) a random walk can only occur if all information is included in the securities price.





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Since the 1970s however, a number of studies have risen to challenge the EMH. For instance, in the mid-1980s De Bondt and Thaler (1985) provided evidence to show that the performance of “loser” portfolio’s, measured by price-to-earnings, outperformed “winner” portfolio’s by approximately 25% over 36 months. They attribute this to an overreaction hypothesis which surmises that investors’ overreact to market information driving the prices of “winner” companies abnormally higher and “loser” companies abnormally lower. This contravenes the assumption of the EMH in that the evidence suggests that investors are irrational and not logical in their behaviour. If markets are efficient then theoretically the performance of either the value or glamour styles should not present an opportunity to earn abnormal returns.

In this vein, Lakonishok *et al* (1994) found that value strategies outperform glamour style strategies in the US for the period 1963 to 1990, thereby providing investors with consistent abnormal returns. They ascribe this to the fact that the market over-reacts and under-reacts to information presented. This is in stark contrast to the conclusion that Fama and French (1992) came to where they ascribe the outperformance of value companies due to the higher risk of following that strategy.

Fama (1998) argues that some of the long-run abnormal returns anomalies should not suggest that the EMH should be totally discounted. He argues that market over-reaction should be as frequent as market under-reaction. This, in his view, indicates market efficiency as the over-reaction and under-reaction will



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act against each other and, in effect, cancel each other out. He goes on to argue that the abnormal returns are sensitive to time and minor changes with the method in which they are measured. He concludes that this would not occur if the market was inefficient.

Shiller (2003) challenges the findings in Fama (1998). Shiller (2003) argues Fama's (1998) first criticism, which is related to over- and under-reaction, is an inaccurate assumption as there is no evidence to support psychological theory that people under-react or over-react proportionately. Further, Shiller (2003) argues that Fama's (1998) second criticism is weak because the theory has been challenged in multiple geographical markets. Thus, Shiller (2003) concludes, researchers should discount the hypothesis that financial markets are efficient and that prices reflect all information available to investors.

Shiller (2000) goes further, however, in proposing that market prices, at times, are manipulated by irrational traders. This view is in opposition to the view that markets are efficient because investors that buy and sell securities, based on the advice of actions of these irrational traders, are behaving illogically. Stout (2005) declares that conventional finance makes an assumption that all investors are rational people who are concerned about their own well being. She goes on to argue that people are not always logical, that they are lead by emotion and often make poor investment decisions. She takes a view that behavioral finance is an important component of a concept she calls "new



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finance” which explains the inner workings of today’s markets better than the EMH.

Challenging the above, Malkiel (2003) suggests that stock markets are more efficient and less predictable than the studies that he has surveyed suggest. He concludes that investors sometimes make mistakes and that irregularities in markets will occur. However, he also argues that these irrationalities are unlikely to continue and cannot provide an investor with an avenue to make consistent abnormal returns.

If markets are efficient, then, the performance of glamour and value companies, as measured using multiple methods should not allow either style to achieve consistent abnormal market returns. A value or glamour effect would also not be present in multiple geographical markets if markets as a whole were efficient. Furthermore, if investors can achieve excessive returns, is this due to the additional risk that they are prepared to take and thus be rewarded for as the CAPM suggests? The section below addresses these arguments with the context of the CAPM.

### **2.1.2. The Capital Asset Pricing Model**

The works of Sharpe (1964), Lintner (1965) and Black (1972) are credited with the creation of the CAPM. According to Damodaran (1997), the CAPM



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associates the expected return of the security with the securities measure of risk. The CAPM is identified by the equation below:

$$R = R_f + \beta (R_m - R_f);$$

where

$R$  = the expected return of a security;

$\beta$  = the securities measure of risk (expected volatility of the asset's return over time, relative to the return of the market);

$R_f$  = expected return of a risk free asset; and

$R_m$  = expected return on full risk asset.

Roll (1977) raised a number of fundamental problems with the CAPM in what is commonly known as Roll's critique. He pointed out that it is impossible to create and observe a true market portfolio because a true market portfolio would include every asset available that can be invested in. The second problem that Roll (1977) argues is that the CAPM is satisfied for any mean-variance efficient portfolio. Third, he argues that using a proxy for the market portfolio has three problems, namely:

- a) the true market portfolio might be mean-variance efficient when the proxy is not;
- b) the proxy might be mean-variance efficient, however the market portfolio could be inefficient; and
- c) most "reasonable" proxies will have a high correlation with each other and the market portfolio whether they are mean-variance efficient or not.



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In addition to Roll's (1977) arguments, Fama and French (1996) surmise that, according to the evidence, expected returns of a security cannot be explained by the beta value alone. This, in their opinion, is a significant blow to the CAPM. They go on to suggest that the failures of the CAPM can be explained either by models, such as Merton's (1973) intertemporal CAPM (ICAPM) and Ross's (1976) arbitrage pricing theory (APT) or alternatively through irrational asset pricing theories. The irrational pricing theories argument is the stance that Lakonishok *et al* (1994) take in explaining the reasons behind the value effect in the US market.

Mehra and Prescott (1985) argue that the average excess return of equities over the risk free rate has been too high to be consistent within acceptable levels of risk aversion. Mehra and Prescott (1985) came to this conclusion after reviewing excess returns for the US market from 1889-1978. Fama and French (2002) offer one interpretation of Mehra and Prescott's (1985) puzzle by arguing that the puzzle is a result of capital gains exceeding dividend growth rates by a large margin in modern times. What is apparent from both of these studies is that the equity risk premium is not an accepted variable that can be used mindlessly in the CAPM. The equity risk premium appears to be a variable that changes depending on the underlying behaviour of the market.

Lakonishok *et al* (1994) challenge the Fama and French (1992) observation that the value effect can be attributable to the fact that the value style is a more risky one. They find that the value strategies are in fact less risky than the glamour



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strategies when using conventional measures of risk. This challenges the concept of the CAPM because the returns earned by following a value strategy, were not more risky than a strategy that followed a glamour strategy.

Ang and Chen (2007) find that the CAPM accurately explained the value effect found in the US market, from the year 1926 to 1963. Consistent with Ang and Chen (2007), Fama and French (2006) also found that the CAPM provides a good explanation of the pre-1963 value premium that was observed. However, Fama and French (2006) attributed that to firm size or a non-beta risk, which is related to size, that resulted in these returns and not the beta value itself which adds to the criticism of the risk and return argument of the CAPM.

Fama and French (2006) also find that from year 1963 to 2004 the CAPM does not explain the value effect found in this period as the value companies have a lower beta value than the growth companies. This finding is also in opposition to the CAPM which suggests that increased risk is the reason for these returns.

In a study completed by Van Rensburg and Robertson (2003b), they show that companies with low price-to-earnings ratios (value companies) not only earned higher returns but did so with a lower beta value. Van Rensburg and Robertson (2003b) conclude by suggesting that beta seems inversely related to returns. This is another challenge to the CAPM but has a South African context which provides evidence that a value style of investing has outperformed a glamour style of investing in South Africa.



## 2.2. BEHAVIOURAL FINANCE

Lakonishok *et al* (1994) and Fama and French (1992) show that contrarian investment strategies focused on investing using a value style will earn substantially higher returns than strategies using a glamour style. A reproduction of the Lakonishok *et al* (1994) one-variable method with slight modifications is used by the Brandes Institute (2008) as a basis to publish *Value versus Glamour: A Global Phenomenon*. This business research report uses the price-to-book, price-to-cash flow and price-to-earnings ratios as proxies of value or glamour. The report extols the virtues of value investing over glamour investing not only in the US, but in Australia, Canada, France, Germany, Italy, Japan and the United Kingdom.

Behavioral finance proponents argue that stock market returns, to a large extent, are predictable. This is in opposition to the EMH. Barberis and Thaler (2002) define behavioural finance as the collection of financial events that can be understood using models where some participants are not wholly logical and sensible. This is in direct contrast with the basic assumption of Fama's (1970) EMH. Lakonishok *et al* (1994) propose an argument that the excessive returns experienced by value companies over glamour companies is as a result of the investor's ability to overestimate short term returns and underestimate long-term returns.



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Lakonishok *et al* (1994) argue that the observations made by Fama and French (1992), where they attribute abnormal returns to excessive risk on the part of value companies, are incorrect. Lakonishok *et al* (1994) conjecture that the abnormal returns of the value investing style could be as a result of:

- a. investors extrapolating the growth of glamour companies too far into the future;
- b. investors inconsistently associating well-run firms with good investments;
- c. investors following the pack and investing in companies that are seen in a positive light; and
- d. investors having short time horizons.

A consistent value or glamour premium will indicate that the purest form of an EMH does not exist in the South African market. This could be best explained by the theories that make up the broadening field of behavioural finance and more specifically style investing.

### **2.3. STYLE INVESTING**

Fama and French (1998), Capaul *et al* (1993) and Lakonishok *et al* (1994) provide evidence that suggests if an investor follows a certain style of investment they can achieve abnormal returns in a specific market. Equity style investment is defined by Christopherson and Williams (1997) as an investment choice where investors use the same proven method to attempt to achieve abnormal returns over time.





Fabozzi (1998) indicates that there are two large equity style classifications that are used today. They are the value and growth investment equity styles. He mentions that each of these two styles can be broken down into the value and growth sub-styles. The value sub-styles are:

- a. low price-to-earnings which is characterised by investing in companies that have a low price-to-earnings ratio;
- b. the contrarian style is defined as investing in organisations that have a low price relative to the organisations book value; and
- c. the final sub-style is the yield style and this is characterised by investing in organisations that have high dividend yields which are able to retain those dividend yields going forward.

According to Fabozzi (1998) the growth sub-styles are:

- a. a sub-style that advocates investing in well known companies that have consistent growth; and
- b. a second sub-style that invests in organisations that has above average earnings growth. These organisations differ from the consistent growth sub-style as their earnings are typically more volatile and not as consistent.

The Morgan Stanley Capital Index (MSCI) BARRA (2007) investment market indices denote the following methods of classifying mutual funds into either value or growth styles. The value style is measured by book value-to-price, 12



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month forward looking price-to-earnings ratio and dividend yields. The growth style is measured by the long-term forward earnings per share (EPS) growth rate, short-term forward EPS growth rate, current internal growth rate, long-term historical EPS growth trend and long-term historical sales per share growth trend.

Morningstar (2002) introduced the Morningstar Style Box as a tool to help investors measure their exposure to certain styles. The Morningstar Style Box utilises ten factors to measure a securities value-growth style. The value style is measured by variables such as the price-to-projected earnings (a forward looking variable), price-to-book, price-to-sales, price-to-cash flow and dividend yield. The growth style, in contrast, is measured using long term projected earnings growth (forward looking variable), book value growth, sales growth, cash flow growth and historical earnings growth.

The Morningstar Style Box also uses three size factors to break securities down into small, medium and large capitalisation stocks. The size aspect would provide another interesting angle to investigate in the value versus glamour argument; however for the purposes of this study it has been excluded due to time constraints.

As can be seen with Fabozzi (1998), MSCI BARRA (2007) and Morningstar (2002) the usual comparison between style investments is between the value and growth styles, not value and glamour. The three approaches, detailed



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above, also define the value and growth styles using different methods that illustrate the numerous methods available to classify stocks into an investment style.

Capaul *et al* (1993), Chan and Lakonishok (2002), Fama and French (1998), Gharghori *et al* (2007) and in a local context Graham and Uliana (2001) provide reference studies on the value versus growth argument. In each of these studies the growth style has been shown to under perform to the value style. This raises the question as to whether all forms of growth style investing under perform. Lakonishok *et al* (1994) have shown that in a US context that the value style still outperforms the glamour style. Cai (1997) proves that the value effect follows the evidence found in the US for the Japanese market. This study aims to interrogate the same argument regarding the value and glamour styles, but in a South African context.

### 2.3.1. Value and Growth Styles

In the academic literature, value style performance is usually compared to the growth style, as the methods used to determine a value style are the antithesis of the methods to determine a growth style. Fama and French (1998) showed that value companies, measure by price-to-book value, outperformed growth companies in 12 out of 13 international markets. Lakonishok *et al* (1994), however, compare value and glamour portfolios using a combination of one-variable and two-variable methods to determine the two style portfolios.



Capaul *et al* (1993) also found that portfolio's formed with low price-to-book ratios (value style) outperformed portfolio's formed using high price-to-book (glamour style) ratios in six developed countries markets. The period of the study was from January 1981 to June 1992.

The glamour style was chosen above the growth style because Graham and Uliana (2001) have already investigated the value and growth styles for the JSE. Graham and Uliana (2001) found that, for the period after 1992, value shares outperformed growth shares. However, they also found that, in the period 1987-1992, growth shares outperformed value shares. Graham and Uliana (2001) used the ratio of market value-to-book value to determine the value and growth companies. This ratio was used because Fama and French (1992) had identified the market to book ratio as one of two variables that explained the returns found from 1963 to 1990.

#### **2.3.1.1. Glamour**

The definition of glamour companies is a debateable one. Some studies use glamour and growth styles interchangeably by using single-variable methods to empirically define growth or glamour. Confusion can thus occur as different studies allude to the fact that glamour companies are in fact growth companies because the same methods and variables are used. However, other studies clearly create distinctions between growth and glamour companies in the definition and method used to empirically define the style. For the purpose of



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this study a glamour stock is empirically defined using the two-variable methods advocated by Lakonishok *et al* (1994). The two-variable methods use the average five year average annual growth in sales percentage as the first variable to segregate the data into three segments. The data set is also divided into three segments by using price-to-book, price-to-cash flow and price-to-earnings as the second variables. The two variables are sorted independently with the companies that have high or low five year average annual growth in sales percentage and price-based ratios meeting the portfolio creation criteria. These two-variable methods are discussed in detail in the method section of this document.

Campbell *et al* (2005) differentiates growth and glamour companies by stating that a glamour company's systematic risk is driven by investor fervour. Campbell *et al* (2005) go on to say that growth companies and their associated high beta values are driven by the underlying cash flows of the growth companies. This position adds to the behavioural argument regarding investment performance.

Lakonishok *et al* (1994) distinguish glamour companies from temporary losers and temporary winners. Temporary losers are companies that have had low sales growth in the past but still have high multiples which show that the market expects the stock will recover. A temporary winner is defined as a stock where the sales growth in the past has been high but the multiple is low. This shows that the company's performance is expected to slow down. A value stock by



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contrast has low past sales growth and low multiples as it has performed poorly in the past and is expected by the market to perform poorly going forward.

Lakonishok *et al* (1994) and Cai (1997) conducted studies that prove value strategies outperform glamour strategies in the US and Japanese markets respectively. In an updated and reviewed study, Chan and Lakonishok (2002) confirm that value investing provides superior returns in the US and that the value premium exists in other financial markets such as Australia, whose exposure to resource companies is similar to South Africa. In fact the value premium for Australia was abnormally large which poses the question as to the extent of the effect in another emerging market such as South Africa.

The motivation for using a glamour style for this study is primarily because the performance of a glamour style of investment has not been published for the South African market. Replicating a method used in other international studies, the results of this study can be compared to those studies.

#### **2.3.1.2. Concept Stocks versus Glamour Stocks**

A distinction must be made between glamour companies and concept companies because the two can be easily confused. A concept stock, as defined by Hsieh and Walking (2006), is a stock where the investor buys into a 'concept' offered by the firm with a belief that the stock will deliver future returns despite the lack of current financial evidence that it will be able to do so.



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Empirically, Hsieh and Walking (2006) define a concept stock as a stock that has a high market-to-revenue ratio. Typically the stock has a high market capitalisation based on high demand for the stock and low revenues which explains that the investor has bought into the 'concept' that the firm is offering and has not bought into the ability of the companies past earnings. Although the demand for glamour and concept companies drives the price to high levels the difference is that a glamour stock has a history of high revenue growth in its previous years whereas a concept stock does not.

As noted, this study focuses on the comparative performance of glamour and value styles.

### **2.3.2. Which Style Outperforms?**

Considering the international literature, Chan, Hamoa and Lakonishok (1991) found evidence that confirmed that value investment strategies outperform glamour strategies in a Japanese context. Brouwer, van der Put and Veld (1995) confirm the results found by Chan *et al* (1991) in Japan and Lakonishok *et al* (1994) in the US that value strategies outperform glamour strategies in France, Germany, the Netherlands and the United Kingdom. Brown, Rhee and Zhang (2008) also found that there were value premiums in the markets of Hong Kong, Korea and Singapore.



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Fraser and Page (2000) found that in the period January 1973 and October 1997 industrial companies in South Africa showed a value effect. This is partly in agreement with Graham and Uliana (2001) who found that growth shares outperformed value shares on the JSE for the period 1987 to 1992. However, in the period 1993-1996 value shares outperformed growth shares on the JSE. They infer that this possibly could be attributed to the socio-economic situation in South Africa at that time. This study will contribute to the literature on the value and glamour phenomenon, specifically focusing on the South African market.

### 2.3.3. Proxies of Value

In the international literature Gharghori, Strykowski and Veeraraghavan (2007) find that the value effect exists in Australia where investment strategies that follow the value style outperform strategies that follow the growth style. Gharghori *et al* (2007) also find that that the price-to-book ratio is the most significant proxy for determining value or glamour. This is supported by Cai (1997), using the method developed by Lakonishok *et al* (1994), who finds that value companies consistently outperform glamour companies using a variety of variables to determine glamour or value. This is consistent with the Lakonishok *et al* (1994) findings for the US using the same method.

Cubbin, Eidne, Firer and Gilbert (2006) found that the anomaly of mean reversion is present on the JSE Securities Exchange (the JSE), when using the





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price-to-earnings ratio as an indicator. This is consistent with the De Bondt and Thaler (1985) study for the US. This suggests that the approach of value investing could be successful in the South African context.

Using the two-variable methods that is described in section four below, the author will be able to determine which combination of variables provides the best proxy of the outperforming style.



### 3. Research Hypothesis

The purpose of the study is to determine which investment style provides better, consistent returns for the portfolio performance period 1 January 1999 to 31 December 2007.

#### 3.1. COMPARATIVE PERFORMANCE OF VALUE VERSUS GLAMOUR

The study will use the three two-variable methods as designed in Lakonishok *et al* (1994) to measure the comparative performance relative to the international evidence. The study will also determine which of the three two-variable methods provides the best overall returns for the period of the study.

##### 3.1.1. International comparison

The null hypotheses states that the returns found in the South African market will align to those found by Lakonishok *et al* (1994) and Cai (1997).

#### Hypothesis 1

$H_0$ : Average  $R_{\text{International}} = \text{Average } R_{\text{South Africa}}$

$H_1$ : Average  $R_{\text{International}} \neq \text{Average } R_{\text{South Africa}}$

The hypothesis will be tested by comparing the returns found in the South African market to those found for the US and Japanese markets using the same two-variable method.



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### 3.1.2. Two-variable style method comparison

The null hypothesis states that the average return of the value portfolio is equal to the average return of the glamour portfolio. The alternate hypothesis states that the average return of the value portfolio differs from the average return of the glamour portfolio.

#### Hypothesis 2

$H_0$ : Average  $R_{2 \text{ Variable Value Method}} = \text{Average } R_{2 \text{ Variable Glamour Method}}$

$H_1$ : Average  $R_{2 \text{ Variable Value Method}} \neq \text{Average } R_{2 \text{ Variable Glamour Method}}$

This hypothesis will be tested using combinations of a financial ratio and the sales growth percentage variable as proxies to determine allocation to the value and glamour style portfolios. The combinations of financial variables that have been used are:

- a. growth in sales and price-to-book (price-to-book);
- b. growth in sales and price-to-cash flow (price-to-cash flow); and
- c. growth in sales and price-to-earnings (price-to-earnings).

The expectation of this paper is that the results of the value versus glamour debate, in a South African context, will follow the international evidence where the value style of investing outperforms the glamour style of investing.

In summary, the aim of this study is to determine if the value or glamour style of investing outperforms on the JSE over the time period of the study. The



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Lakonishok *et al* (1994) two-variable methods was used as the method to create the value and glamour portfolios because the method has not been used to test a value style for the JSE and it best reflects the definition of a glamour style.



## 4. Research Method

The details of the research method used in this study are provided in the following sections.

### 4.1. RESEARCH METHOD

This design was quantitative in nature because the study analysed the comparative performance of the portfolios, using the Lakonishok *et al* (1994) two-variable methods, over time. The data used to create and analyse the portfolios was quantitative data obtained from secondary sources.

The research design that was used to interrogate the studies purpose was a causal design because the study looks to explore the choice of investment strategies using a value or glamour style (the cause) and their respective performance over time (the effect). According to Zikmund (2003) quasi-experimental designs do not allow the researcher to have full control over all variables that can influence the study which is the case in this instance as there are a number of extraneous variables that the researcher will not be able to control when conducting the experiment. Examples of extraneous variables are the sub-prime financial crisis and the 1994 South African elections.

Zikmund (2003) states that a time series design is used when the experiment is conducted over long periods of time so that researchers can tell between temporary and permanent changes in the dependant variables. For the purpose



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of this study the author was trying to evaluate the comparative performances of two different investment styles that have been selected based over the time period of 5 years per portfolio. Portfolio analysis will be used to determine which style value or glamour outperforms the other over time.

The empirical analysis for this study was calculated using a five year buy-and-hold method for the performance period 1 January 1999 to 31 December 2007. Sales growth percentages are used for the period 1 January 1993 to 31 December 1997 to create the initial value and glamour portfolios. This frequency allowed the researcher to draw stronger conclusions on the relationships between the independent variables and the returns as per Gharghori *et al* (2007).

## **4.2. POPULATION, SAMPLE AND UNIT OF ANALYSIS**

The population, sample and unit of analysis used in the study are discussed in the following sections.

### **4.2.1. Population**

The universe for this study was all shares listed on the main board of the JSE. The population excluded the shares that were listed on the AltX and other junior boards due to the lack of five years prior financial periods from which to create the portfolios. In future it would be interesting to include shares from the junior boards, using the same method, when the market has matured.



#### **4.2.2. Sample**

The sample portfolios contained companies that were listed on the JSE from 1 January 1998 and 31 December 2007. In combination with the first condition, the companies must have had sales growth percentages for five years before the stock could be considered for a portfolio. In addition, the sample portfolios created contained companies that met the requirements of the portfolio creation and maintenance rules.

#### **4.2.3. Unit of Analysis**

The unit of analysis was the two portfolios that were created each year, namely the glamour and value portfolios as measured using the Lakonishok *et al* (1994) five year buy-and-hold method. The results of the two portfolios, created each year, were used to determine an annualised value and glamour performance from January 1993 and December 2007. This aggregated performance was then be used to determine which style (value or glamour) outperformed the other on a year to year basis and over the total time period.

#### **4.2.4. Sampling Method**

As per Zikmund (2003) the sampling method for this study was probability sampling because every company in the population had an equal and known non-zero probability of being selected which complied with the probability



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sampling definition. Stratified random sampling is used because the sample portfolios were created by two methods which use financial variables that identify membership to each portfolio.

#### **4.3. DATA COLLECTION, PORTFOLIO ANALYSIS AND DATA MANAGEMENT**

The process followed to collect, analyse and manage the data for the study is discussed in the following sections.

##### **4.3.1. Data Collection**

The data used for this study was obtained from secondary sources and was not considered primary data because the data were not gathered for the purpose of this study as per Zikmund (2003).

Monthly financial ratios (price-to-earnings, price-to-cash flow, price-to-market and sales growth), based on audited full year financial data, and monthly share price data was obtained from two sources, namely McGregor Bureau of Financial Analysis (McGregor BFA) and the Profile Media Share Magic databases. It is important to note that the standardised financial statements function, on the McGregor BFA database, was used when collecting financial data so that the financial ratios and growth variables for each company were calculated in the same way. Information for delisted companies was obtained from both databases and was included in the sample, through the application of a number of rules, in an effort to eliminate survivorship bias.





### 4.3.2. Portfolio Analysis

The performance of the portfolios was tracked using Microsoft Excel as per the Lakonishok *et al* (1994) two-variable methods.

#### 4.3.2.1. Portfolio Creation

Earlier in this document it was established that there were a number of methods that could be used to determine style portfolios and to categorise companies into these portfolios. Lakonishok *et al* (1994) used a one-variable and two-variable methods to create value and glamour portfolios. The respective methods used by Lakonishok *et al* (1994) are discussed below. A motivation for using the two-variable methods for this study is also provided.

Lakonishok *et al* (1994) used two methods to define glamour companies. The first method used for portfolio creation in the Lakonishok *et al* (1994) study was a simple one-variable method where financial ratios are used as a basis for the style strategies. The four financial ratios are:

- a. price-to-book;
- b. price-to-cash flow;
- c. price-to-earnings; and
- d. growth in sales.



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In Lakonishok *et al* (1994) the variables above are utilised to categorise companies into deciles with the two extreme deciles forming the glamour and value portfolios.

The second method used by Lakonishok *et al* (1994) used a number of two-variable methods to categorise companies into value and glamour portfolios. The combination of variables that Lakonishok *et al* (1994) uses for their two-variable methods are:

- a. growth in sales and price-to-book;
- b. growth in sales and price-to-cash flow; and
- c. growth in sales and price-to-earnings.

The two-variable methods independently sorted the universe into three groups for each variable. The first group contained 30% of the companies with the lowest five year average annual sales growth percentage. The second group contained the companies whose sales growth falls into the middle 40% and the third group contained the final 30% of companies whose sales growth is the highest. The same method was applied to the price-based financial ratios so that there are two sets of company's that are divided into three groups independently. The companies that show the lowest sales growth and the lowest multiples of financial ratios formed the value portfolio. Glamour companies, in contrast, had the highest sales growth and highest multiples of financial ratios.



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Cai (1997) replicated the Lakonishok *et al* (1994) one-variable and two-variable methods for his study pertaining to the Tokyo Stock Exchange. This study provided a Japanese perspective to the value versus glamour argument, where the value portfolio performance was found to consistently beat the glamour portfolio performance. This provides another study against which to compare the South African results.

Alternative methods to define glamour companies were provided by the Eleswarapu and Reinganum (2004) study, which provided three methods to define glamour companies namely:

- a. the ratio of the price-to-book value of equity;
- b. the ratio of operating cash flow-to-market capitalisation; and
- c. the ratio of net sales-to-market capitalisation.

The ratio of price-to-book value of equity was one of the variables that the Lakonishok *et al* (1994) one-variable method uses to create the style portfolios. However, the Eleswarapu and Reinganum (2004) study definitions did not provide the best empirical definition of value or glamour when compared to the definition of a glamour and value stock earlier in this section of the document.

The Lakonishok *et al* (1994) two-variable methods were preferred for the purpose of this study. The use of the Lakonishok *et al* (1994) two-variable methods in measuring performance of value and glamour companies on the JSE, enabled the results of this study to be compared to the results of the original Lakonishok *et al* (1994) study which focused on the US market and the



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Cai (1997) study for the Japanese market. Utilising the Lakonishok *et al* (1994) method also allowed comparisons to be drawn with the other international studies that used the Lakonishok *et al* (1994) two-variable methods. Barberis, Shleifer and Vishny (1998) defined glamour companies as companies that had high valuations relative to either their assets or their earnings. They went on to mention that these companies tended to have particularly high sales growth rates in the previous years. The Lakonishok *et al* (1994) two-variable value method was preferred for the true glamour style definition because the two-variable methods are believed to better define the glamour style empirically given the literature reviewed.

For the purposes of this study, any company that did not have five consecutive years of sales in order to create a five year average annual sales growth percentage was excluded. This effectively removed all of the banking stocks listed on the JSE as they do not report a sales line item in their financials. Companies that reported negative price-based financial ratios were also excluded as they do not represent stocks that investors would normally consider.

#### **4.3.3. Portfolio Maintenance**

All companies were equally weighted as per the Lakonishok *et al* (1994) method. Buy and hold strategies were followed with a holding period of five years post portfolio creation as per the Lakonishok *et al* (1994) method. This



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was also in line with the findings of Rousseau and Van Rensburg (2004) that found that returns on value portfolios increased when the holding period extended beyond 12 months. According to Lakonishok *et al* (1994) a five year buy-and-hold period, as was applied in this study, accurately represents the horizons suitable for long-term investors.

To remain consistent with the Lakonishok *et al* (1994) study the following definitions were used:

- a. earnings are calculated before taking extraordinary items into effect;
- b. the growth is sales percentage for each year was defined as the years growth in sales divided by the previous year's sales;
- c. cash flow is defined as the total of earnings and depreciation; and
- d. operating income is defined as earnings prior to interest, tax and depreciation deductions.

A set of rules was developed so that the portfolios handled certain transactions consistently. This set of rules is described below:

- a. transaction costs and tax implications were assumed to be zero;
- b. dividends received were reinvested in the stock that received the dividend at the date of receipt;
- c. cash left over from reinvesting in whole shares was not included in the cash element of the portfolio; and



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- d. cash distributions received for companies that delisted were reinvested in the portfolio at the end of a quarterly rebalancing period.

A quarterly rebalancing period was preferred to a monthly rebalancing period because transaction costs associated with monthly rebalancing would affect the portfolio's performance. Although for the purpose of this study transaction costs are ignored, quarterly rebalancing provides a more realistic approach to portfolio maintenance.

#### **4.3.4. Data Management**

The data obtained from these sources was adjusted to take into account certain organisational transactions or events that occurred during the period in review, such as mergers, acquisitions, firm delisting's, initial public offerings and company suspensions. Where possible the author has made every effort to clean the data where inconsistencies were found. A set of rules was developed so that any occurrence of an event was handled consistently.

##### **4.3.4.1. Look-ahead bias**

Look-ahead bias occurs when financial information that was used for the sample was not available to the public at that point in time. The occurrence of a value premium in multiple geographic locations negated the concept of look-ahead bias in this study.



#### 4.3.4.2. Excluding certain data

Companies that presented negative ratios in any of the periods for the sample were excluded from the sample. Lakonishok *et al* (1994) followed the exact same procedure, so in a bid to keep the studies comparable the procedure was replicated in this study.

#### 4.3.4.3. Survivorship Bias

Gilbert and Strugnell (2007) extended the Cubbin *et al* (2006) and Bailey and Gilbert (2007) studies by an additional 21 months with a view to determine if survivorship bias existed and whether it was significant or not. Gilbert and Stugnell (2007) found that survivorship bias did exist and that it should be addressed when completing similar studies to Cubbin *et al* (2006) and Bailey and Gilbert (2007). This study was similar to those studies and as such has addressed the issue of survivorship bias using the following rules:

The issue of survivorship bias has been addressed by the following set of rules for each transaction:

- a. if a company was delisted – the final price of the stock as taken at the last date the share was registered on the main board of the JSE. This price was multiplied by the number of shares that the portfolio owns. The investment was then placed into a short-dated government bond with the gains from the bond being reallocated into the portfolio;



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- b. if a company was acquired – the price that was accepted by the majority of shareholders from the acquirer is the price that is multiplied by the number of shares held in the portfolio. The investment was then placed into a short-dated government bond with the gains from the bond being reallocated into the portfolio;
  - c. if a company went bankrupt - the total value of the investment was defaulted to zero from the date of the bankruptcy for the duration of the portfolio;
  - d. if a company was suspended from the board – the total value of the investment was defaulted to zero from the date of suspension;
  - e. if a company declares a dividend – dividends are applied to the portfolio at the end of the month that they were declared through the dividend being reinvested in the company that declared the dividend;
  - f. if a company declares a special dividend – the special dividend is used to reinvest in the portfolio;
  - g. if a company unbundles a business unit – the new company is added to the portfolio, if it is a listed company; and
  - h. if there is an option of a cash offer or an offer through the issue of shares, the cash offer was taken. This cash in then reinvested in the portfolio opposed to keeping it in cash or investing it into a long-term bond as those asset classes have been proven to offer inferior returns, to the equity asset class, over time. Ibbotson and Sinquefeld (1989) argued this in their definitive study using US market data as did Firer and McLeod (1999), in a South African context, using a similar method.





If the researcher was unable to determine the exact details of a corporate events transaction, it was assumed that the shares in the company were sold at the delisting date.

#### **4.4. DATA VALIDITY, RELIABILITY AND SENSITIVITY**

The data that was used for the purposes of this study was obtained from multiple data providers namely McGregor BFA and Profile Media. Upon inspection both data sets appeared to handle transactions and corporate events in a similar manner however there were inconsistencies. Where inconsistencies were found the researcher reverted to the Stock Exchange News Service (SENS) announcements of the transaction.

Financial data that was reported in currencies other than the rand were converted back into Rand terms using the appropriate exchange rate at the date of financial results that were reported. The exchange rate data was obtained from Profile Data through their Share Magic PRO tool.

#### **4.5. LIMITATIONS**

The limitations of this study are detailed in the sub sections below.



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#### **4.5.1. Time**

The first limitation was the time period of the study which was from 1 January 1998 and 31 December 2007. The results of the study were accurate for the period under review. However, results for previous periods might provide results that contrast those seen in this study. This provides an opportunity for future research that can be followed to compare with the results of this study.

#### **4.5.2. Sample Size**

Companies listed on the AltX were excluded from this study due the lack of prior historical information regarding the sales growth percentage that was required for the portfolio formation methods. As the AltX board matures, the study could be replicated with a specific focus on the AltX and the value and glamour style performance for shares listed on the AltX. This will provide an opportunity to investigate the value or glamour effect in a universe where the size of the companies, as measured by their market capitalisation, is another variable that can be introduced into equation.

#### **4.5.3. Data Quality**

The fundamental accounting data and pricing data was obtained from the McGregor BFA Blink and the Profile Media Share Magic tools. The average annual growth in sales variable was calculate by taking the current year's sales figure and dividing it by the previous year's sales figure thereby determining a percentage increase or decrease in the sales line item of the income statement.



Unfortunately data regarding company events was not available for the period of the study. McGregor BFA did have a module that could be additionally purchase however the data from this data set only goes back to year 2003 which would only have provided one year's worth of events. MSCI Barra were also approached, however could not provide access to a clean corporate events data set. To capture corporate events, the Profile Media database contained information regarding corporate events. This information was included into the portfolios at the date that the event happened as per the Profile Media data provided. The author consulted the SENS for information regarding transactions that were suspiciously handed by the data providers. The SENS announcements were used as the authoritative source if a transaction was questionable. Although this made changes to the original data sets received, it ensures that the data set used for this study was improved in order to provide better results.

Unfortunately the final corporate actions related to the following companies could not be determined:

- a. NEI Holdings (NEI);
- b. Glodina (GDA);
- c. Moribo Leisure (MRB);
- d. Fraser Alexander (FRX); and
- e. CorpCapital (CPC).



The companies were assumed to have gone bankrupt with the portfolio performance reflecting these bankruptcies. This is important to note because if liquidation dividends, cash distributions or scrip offers were made they were not included in the portfolio performance.

It was assumed that the Profile Media and McGregor BFA databases contained the same data. The ideal situation would have been to gather and analyse the data from one data provider, however given the circumstances that was not possible.



## 5. Data Analysis

The aim of this research is to determine which of the two investment styles, namely value or glamour, outperform the other during the period 1999 to 2007.

This chapter is divided into three sections. In the introductory section a summary of the data set is presented. The second part of this chapter presents the statistical information regarding the accounting characteristics of the glamour and value style portfolios that were used to create the portfolios. The final part of this chapter, presents the results of the value versus glamour argument.

### 5.1. SUMMARY OF THE DATA SET

To determine which stocks would meet the qualifying criteria for the two investment styles, three two-variable methods were used as per the Lakonishok *et al* (1994) study. These methods required a five year average annual growth in sales percentage to be calculated from past sales data and one of the following financial ratios: price-to-book value, price-to-cash flow and price-to-earnings. Stocks were then allocated, using an equal weighting, to the glamour portfolios by meeting the criteria of having a high growth in sales and a high price-based financial ratio. The value portfolios, in contrast, were created from the stocks that attributed a low growth in sales and low price-based financial ratio.



This section presents a summary of the data set that was used to create the glamour and value style portfolios.

The total number of stocks that met the portfolio consideration criteria is shown in the table below:

	1999	2000	2001	2002	2003
Total qualifying stocks - 5 year growth in sales and price-to-book value	222	193	163	164	168
Total qualifying stocks - 5 year growth in sales and price-to-cash flow	222	182	166	164	163
Total qualifying stocks - 5 year growth in sales and price-to-earnings	204	170	158	158	156

**Table 1:** Universe total by year and portfolio creation method

Year 1999 has the highest number of companies that were considered to create the portfolios as per the table above. The total number of companies for all three two-variable methods declined in years 2000 and 2001 but appeared to stabilise in years 2002 and 2003. This data infers that there are more stocks that met the portfolio consideration criteria in year 1999 when compared to year 2003.

Summaries of the total number of stocks that qualified for each investment style portfolio per two-variable portfolio creation method are shown in table's two to four below. Each of the three tables indicates that there are not equal numbers of stocks per investment style portfolio. For example in year 1999 the glamour investment style had a total of 30 stocks that qualified for the glamour portfolio but the value style had a total of 29. This is as a result of the Lakonishok *et al*



(1994) method where stocks are independently ranked by each of the two variables as advocated in the Lakonishok *et al* (1994) two-variable method.

The five year average annual growth in sales (GIS) and price-to-book value (P2BV) two-variable method showed the highest number of stocks, on average, across the three two-variable methods. This is shown in table two below.

Five year average annual growth in sales and price-to-book value					
	1999	2000	2001	2002	2003
<b>Glamour</b>	30	24	20	19	23
<b>Value</b>	29	28	22	20	19

**Table 2:** Total number of stocks per portfolio for GIS and P2BV method

A summary of the number of companies that met the past five years average annual growth in sales and price-to-cash flow portfolio creation method are shown in table three below.

Five year average annual growth in sales and price-to-cash flow					
	1999	2000	2001	2002	2003
<b>Glamour</b>	27	20	15	14	15
<b>Value</b>	20	20	18	20	17

**Table 3:** Total number of stocks per portfolio for GIS and P2CF method

The total number of companies that met the past five years average annual growth in sales and price-to-earnings qualifying criteria are shown in table four.

Five year average annual growth in sales and price-to-earnings
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	1999	2000	2001	2002	2003
<b>Glamour</b>	26	23	19	17	12
<b>Value</b>	19	22	20	19	12

**Table 4:** Total number of stocks per portfolio for GIS and P2E method

The highest number of stocks that qualified for the glamour style was achieved in year 1999 consistently across all three two-variable proxies of glamour with the exception of the value style using the five year average annual growth in sales and price-to-earnings ratio.

#### 5.1.1. Data set by sector

A sectoral breakdown by style and two-variable method was obtained by classifying the data manually using the Financial Times and London Stock Exchange (FTSE) Global Classification System (GCS) – Economic Groups (2009). One addition was made to the FTSE GCS groups that being the no sector provided sector. This addition was made to account for the companies that did not have a sector indicator in the McGregor BFA data set.

The tables below indicate the sectoral breakdowns, as defined by the FTSE GCS – Economic Groups (2009). The sectoral breakdowns indicate what percentage of stocks that met the two-variable criteria for the glamour and value investment styles respectively. A red amber green (RAG) scheme was used to highlight the relative percentage of stocks per sector. A colour gradient scheme was also employed where dark green indicates a higher percentage than light green.





Table five shows the percentage of stocks by sector that met the five year average annual growth in sales and price-to-book value glamour style portfolio.

	5 Year growth in sales and price-to-book value - Glamour Style				
	1999	2000	2001	2002	2003
Resources	17%	17%	30%	47%	30%
Basic Industries	3%	0%	0%	0%	0%
General Industrials	10%	4%	10%	0%	0%
Cyclical Consumer Goods	10%	17%	20%	5%	4%
Non Cyclical Consumer Goods	7%	0%	0%	16%	0%
Cyclical Services	7%	21%	10%	16%	35%
Non Cyclical Services	10%	8%	10%	0%	17%
Utilities	0%	4%	5%	0%	0%
Financials	3%	4%	0%	11%	0%
Information Technology	21%	13%	15%	5%	9%
Specialist Securities	0%	4%	0%	0%	0%
No sector provided	10%	8%	0%	0%	4%
Total	100%	100%	100%	100%	100%

**Table 5:** Glamour style sector percentage breakdown for GIS and P2BV method

In table five the glamour style portfolios created using the five year average annual growth in sales and price-to-book value method show a consistent high number of resource stocks across all years although there is a large increase from 2001. It also shows that there were a relatively high number of information technology stocks through 1999 and 2001. This was expected as prices for technology stocks were abnormally high for that period due to investor's appetite for technology counters. The percentage of cyclical services stocks that met the glamour portfolio criteria also picked up in 2003 which underlines the cyclical nature of markets.



Table six shows the percentage of stocks by sector that met the five year average annual growth in sales and price-to-book value style portfolio.

	5 Year growth in sales and price-to-book value - Value Style				
	1999	2000	2001	2002	2003
Resources	7%	4%	5%	0%	6%
Basic Industries	7%	18%	14%	20%	22%
General Industrials	21%	21%	14%	20%	22%
Cyclical Consumer Goods	14%	11%	9%	10%	0%
Non Cyclical Consumer Goods	17%	14%	18%	20%	6%
Cyclical Services	7%	7%	9%	20%	17%
Non Cyclical Services	7%	0%	5%	5%	6%
Utilities	0%	0%	0%	0%	0%
Financials	3%	4%	9%	0%	0%
Information Technology	0%	0%	0%	0%	11%
Specialist Securities	3%	4%	5%	5%	0%
No sector provided	14%	18%	14%	0%	11%
Total	100%	100%	100%	100%	100%

**Table 6:** Value style sector percentage breakdown for GIS and P2BV method

The value portfolio's as defined by the five year average annual growth in sales and price-to-book value two-variable method showed a consistently big proportion of stocks that were in the general industries sector across all five years. As expected there were no stocks in the information technology sector in years 1999 through to 2001. Cyclical services picked up towards 2002 but started dropping off in 2003 presumably as those stocks started moving from value stocks to glamour stocks.

Table seven shows the sectoral percentage breakdown for the glamour style that met the five year average annual growth in sales and price-to-cash flow criteria.



	5 Year growth in sales and price-to-cash flow - Glamour Style				
	1999	2000	2001	2002	2003
Resources	22%	15%	40%	43%	53%
Basic Industries	0%	5%	0%	0%	0%
General Industrials	11%	5%	13%	0%	0%
Cyclical Consumer Goods	22%	15%	0%	7%	0%
Non Cyclical Consumer Goods	0%	0%	13%	0%	0%
Cyclical Services	7%	20%	13%	7%	20%
Non Cyclical Services	11%	10%	0%	14%	13%
Utilities	0%	0%	0%	0%	0%
Financials	15%	10%	13%	14%	7%
Information Technology	11%	10%	0%	7%	7%
Specialist Securities	0%	5%	0%	0%	0%
No sector provided	0%	5%	7%	7%	0%
Total	100%	100%	100%	100%	100%

**Table 7:** Glamour style sector percentage breakdown for GIS and P2BV

method

The five year sector breakdown for the glamour investment style as defined by the five year average annual growth in sales and price-to-cash flow two-variable method indicates a high proportion of resource stocks as per the previous glamour style portfolio method. Interestingly, stocks that represent the financials sector remained well represented throughout the five years even excluding banking stocks. Information technology stocks, were as expected, well represented in the years 1999 to 2000 but not as well represented thereafter after the dot com bubble burst.

Table eight shows the percentage of stocks by sector for the value style as defined by the five year average annual growth in sales and price-to-cash flow variables.

	5 Year growth in sales and price-to-cash flow - Value Style				
	1999	2000	2001	2002	2003
Resources	0%	5%	6%	5%	6%



Basic Industries	0%	15%	6%	10%	24%
General Industrials	25%	15%	39%	20%	24%
Cyclical Consumer Goods	20%	15%	11%	10%	12%
Non Cyclical Consumer Goods	5%	15%	11%	15%	6%
Cyclical Services	10%	5%	6%	5%	6%
Non Cyclical Services	5%	0%	0%	0%	0%
Utilities	0%	0%	0%	0%	0%
Financials	5%	5%	0%	5%	0%
Information Technology	5%	5%	0%	5%	6%
Specialist Securities	5%	5%	6%	5%	0%
No sector provided	20%	15%	17%	20%	18%
Total	100%	100%	100%	100%	100%

**Table 8:** Value style sector percentage breakdown for GIS and P2BV method

In table eight a consistently high percentage of companies that represent the general industries sector were found. Companies that represented the cyclical consumer goods sector were well represented in the earlier years through 1999 and 2000.

Table nine graphically depicts the sector breakdown in percentages for the glamour style as defined by the five year average annual growth in sales and price-to-earnings variables.

	5 Year growth in sales and price-to-earnings - Glamour Style				
	1999	2000	2001	2002	2003
Resources	23%	13%	32%	35%	75%
Basic Industries	4%	4%	0%	0%	0%
General Industrials	12%	9%	11%	6%	0%
Cyclical Consumer Goods	23%	13%	0%	6%	0%
Non Cyclical Consumer Goods	0%	0%	0%	0%	0%
Cyclical Services	4%	22%	32%	12%	8%
Non Cyclical Services	12%	9%	11%	12%	8%
Utilities	0%	0%	0%	6%	0%
Financials	8%	4%	5%	12%	8%
Information Technology	12%	13%	5%	12%	0%
Specialist Securities	0%	4%	0%	0%	0%
No sector provided	4%	9%	5%	0%	0%
Total	100%	100%	100%	100%	100%



**Table 9:** Glamour style sector percentage breakdown for GIS and P2BV method

The glamour style portfolios as defined by the five year annual average growth in sales and price-to-earnings two-variable method, in table nine, again shows a consistently high representation of resource stocks especially in 2003. Cyclical services reached a high in 2001 of 32% of the total and then subsequently started moving back down in 2002 and 2003. Information technology stocks again, as expected, formed a part of the portfolios in year 1999 and 2000.

Table ten graphically depicts the sector breakdown in percentages for the value style as defined by the five year average annual growth in sales and price-to-earnings variables.

	5 Year growth in sales and price-to-earnings - Value Style				
	1999	2000	2001	2002	2003
Resources	0%	5%	5%	0%	0%
Basic Industries	5%	14%	15%	16%	8%
General Industrials	16%	14%	20%	21%	42%
Cyclical Consumer Goods	16%	14%	10%	11%	8%
Non Cyclical Consumer Goods	11%	5%	15%	21%	8%
Cyclical Services	16%	14%	5%	11%	8%
Non Cyclical Services	11%	0%	10%	0%	0%
Utilities	0%	0%	0%	0%	0%
Financials	0%	5%	5%	5%	0%
Information Technology	5%	5%	5%	0%	0%
Specialist Securities	5%	5%	0%	5%	0%
No sector provided	16%	23%	10%	11%	25%
<b>Total</b>	100%	100%	100%	100%	100%

**Table 10:** Value style sector percentage breakdown for GIS and P2BV method



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The corresponding value style portfolios again had a consistent representation across all sectors barring the resources, utilities and financial services sectors. Interestingly there were a consistent percentage of stocks that had no sector provided in the data set. On investigation it was found that the majority of stocks with no sector allocations were stocks that had previously been delisted.

## 5.2. DESCRIPTION OF THE INVESTMENT STYLE PORTFOLIO CHARACTERISTICS

The descriptive statistics that for the accounting variables which were used to create the respective value and glamour portfolios are described in the sections below. The sections have been divided into the three respective two-variable methods that were used to create the portfolios.

The study used the Lakonishok *et al* (1994) two-variable methods to create portfolios that represent the value and glamour styles. The three methods and the portfolio creation criteria that were used are summarised below:

- a. 5 year annual growth in sales and price-to-book ratio;
- b. 5 year annual growth in sales and price-to-cash flow; and
- c. 5 year annual growth in sales and price-to-earnings.

Appendix three contains the respective descriptive statistics listed in tables by portfolio creation method variable.



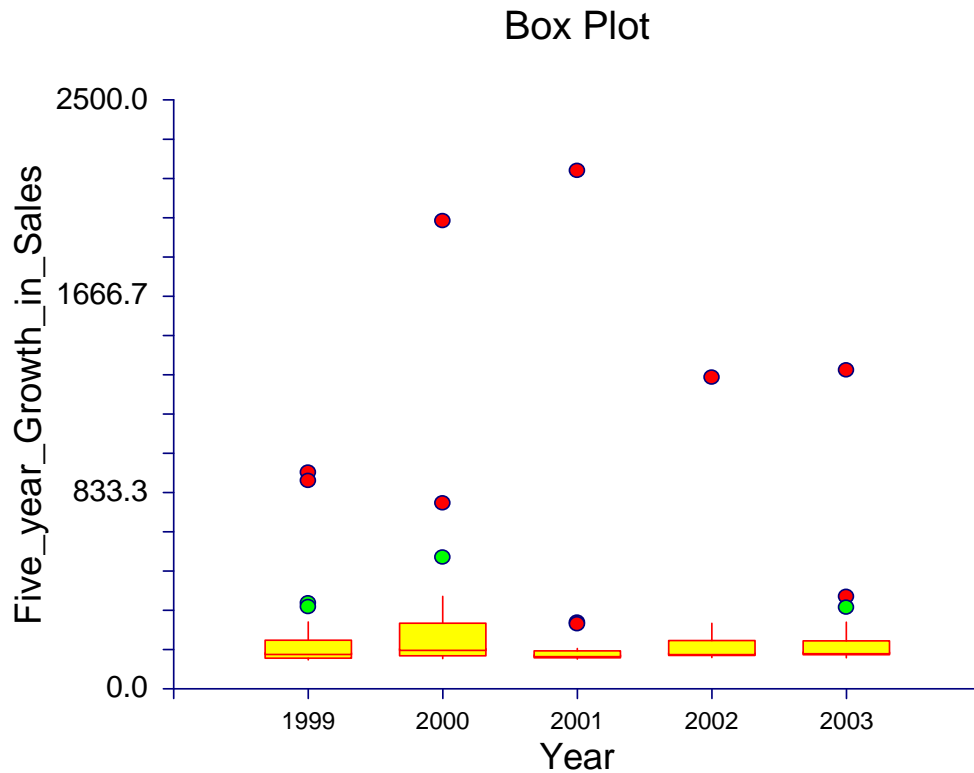
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## 5.2.1. Five year average annual growth in sales and price-to-book value

This section provides information on the glamour and value style characteristics that were used to create the portfolios.

### 5.2.1.1. Glamour style characteristics

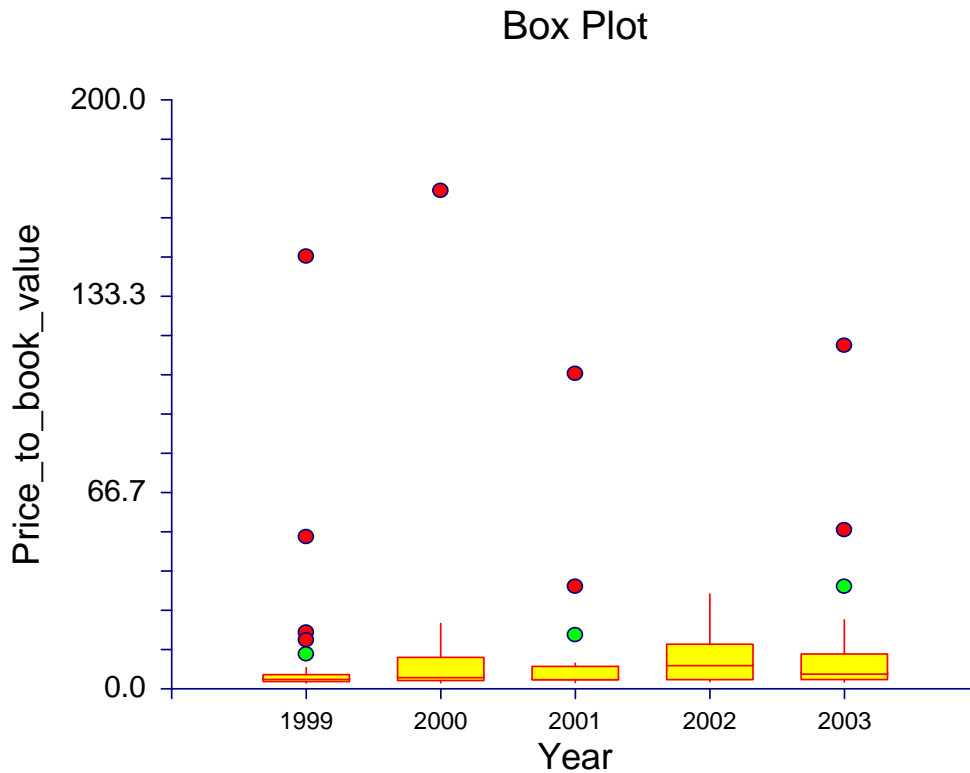
The box plot below in figure one shows the five year average annual sales growth for the glamour style as defined by the five year average annual growth in sales and price-to-book value method. The yearly means of the five year average annual growth in sales variable for the glamour style were consistent with the minimum being 221% and the maximum 302%. Interestingly there were a number of extreme outliers in all five years but more specifically in years 2000 and 2001 where Merafe Resources recorded five year average annual growth rates of 1987% and 2199% respectively. In years 2002 and 2003 Paramount Property Fund recorded five year average annual growth rates of 1322% and 1353% respectively. The extreme outliers were all, predictably, above the mean of the five year average annual growth in sales percentage.



**Figure 1: Five year average annual sales growth box plot – Glamour Style**

The box plot in figure three shows the descriptive statistics for the price-to-book value variable by year for the glamour style. Year 1999 had a number of fence and extreme outliers. The two most extreme outliers were Compagnie Financiere Richemont and the IQS Spicer Group with price-to-book values of 146.9 and 51.6 respectively. The IQS Spicer Group value can be understood because this was the start of the boom for Information Technology (IT) stocks. In 2000, Primedia has a price-to-book value of 169 which was also an extreme outlier with the next highest ratio being 22.2 by Elementone. Year 2002 showed the most consistent results with a range of 29 compared to ranges of 145, 167, 104 and 114 for years 1999, 2000, 2001 and 2003.





**Figure 2: Descriptive price-to-book value statistics for the glamour style**

#### 5.2.1.2. Value style characteristics

The box plot below in figure two shows the five year average annual sales growth for the value style. The yearly means for each of the five years were 103.6 for 1999, 101.5 for 2000, 97 for 2001, 97 for 2002 and 97 for 2003. Moribo Leisure was one of the lowest two outliers in three consecutive years from 2001 to 2003. Simmer and Jack, a mining operation, was one of the lowest outliers in years 1999 and 2000 which indicates that the mining organisations do form a part of the lower end of the scale and the higher end of the scale, like Merafe resources have.

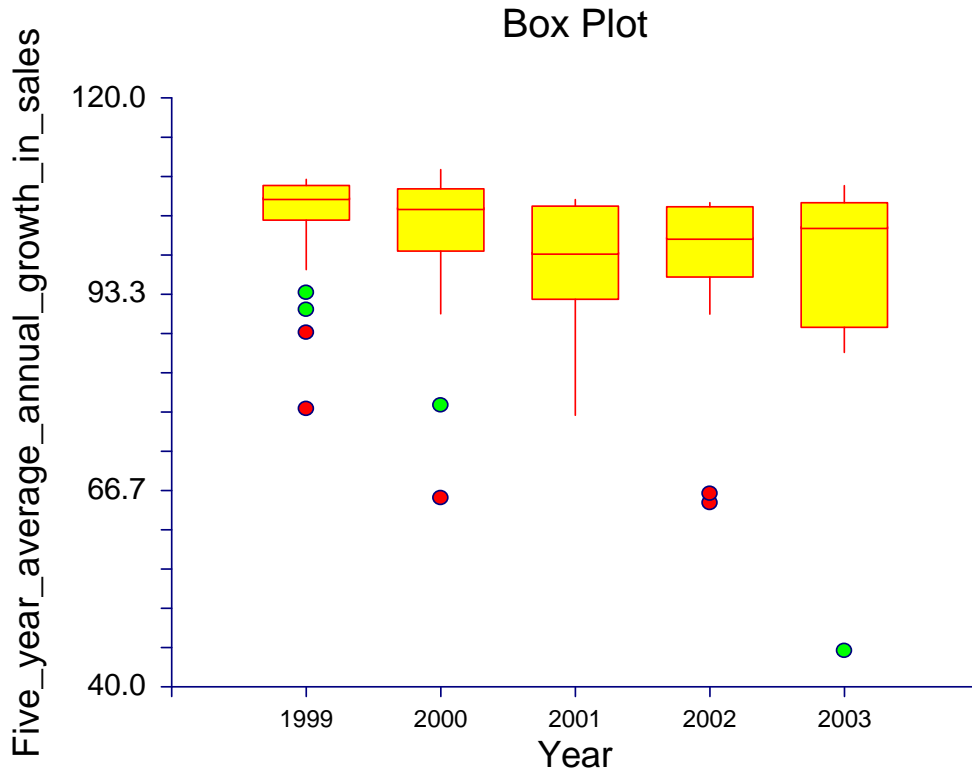
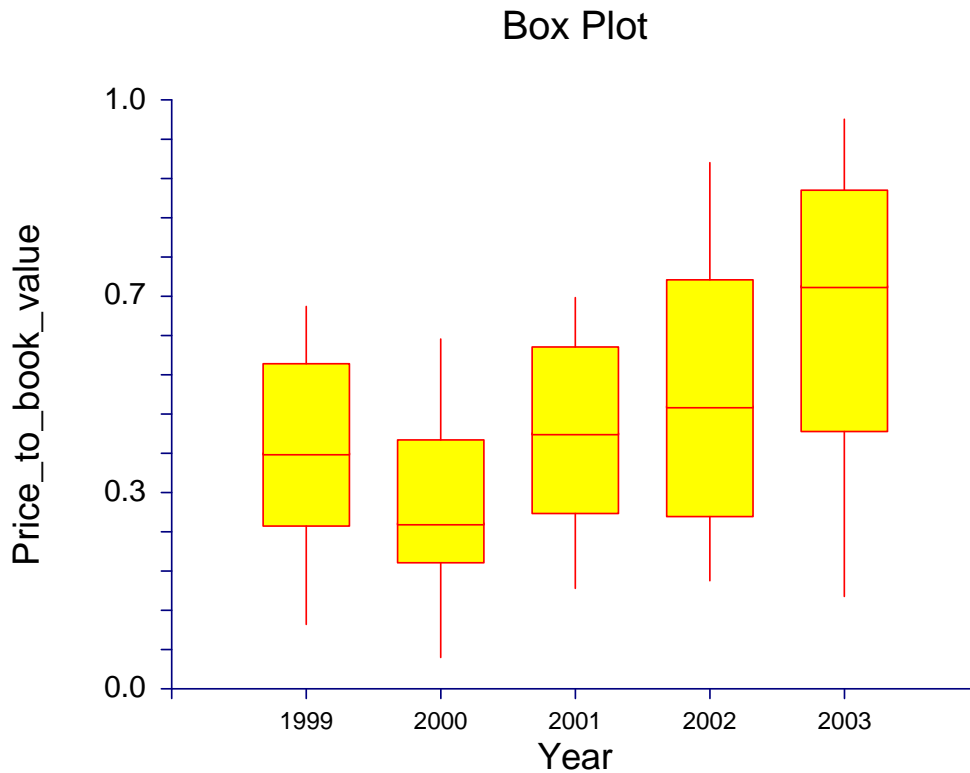


Figure 3: Five year average annual sales growth box plot – Value Style

Figure four shows the descriptive statistics for the price-to-book variable for the value style. Every company that fell into the lowest 30% of the price-to-book value ratio, traded at a discount to the company's book value. Year 2000 indicated the lowest mean price-to-book value for the value style with a mean ratio of 0.32.



**Figure 4: Descriptive Price-to-book value statistics for the value style**

### **5.2.2. Five year annual average growth in sales and price-to-cash flow**

This section provides information on the glamour and value style characteristics that were used to create the portfolios.

#### **5.2.2.1. Glamour style characteristics**

The box plot in figure five indicates the five year average annual growth in sales variable for the glamour style by year. This figure is consistent with figure one where there are a number of extreme outliers that have a very high five year



average annual growth in sales percentage. This is to be expected because the method seeks to capture the stocks that have performed well in the past as per the glamour definition provided in chapter two of this document. The highest average five year average annual growth in sales was found in 2001 with a mean of 288%. The year with the lowest average five year average annual growth in sales was year 2002 with a mean of 161%.

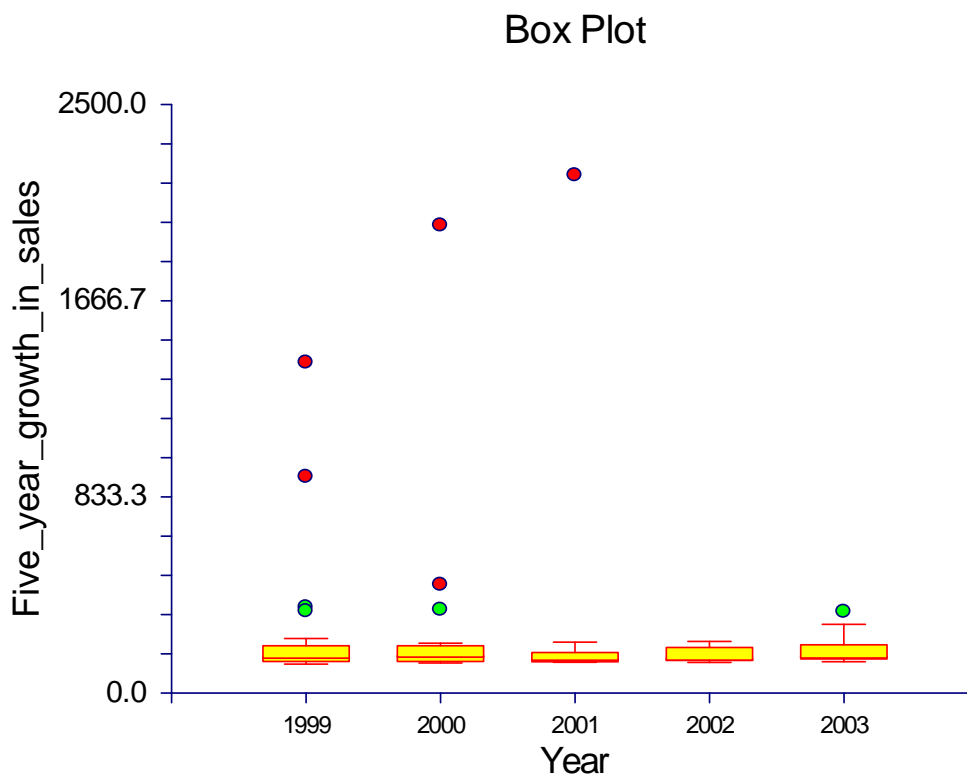


Figure 5: Five year average annual sales growth box plot for the glamour style

Figure six shows the box plot for the price-to-cash flow variable for the glamour style of investment. The peak price-to-cash flow mean was found in 2000 with a value of 58. The lowest mean price-to-cash flow is shown in year 2002 with a value of 10. This is quite a large range for the price-to-cash flow variable.



Box Plot

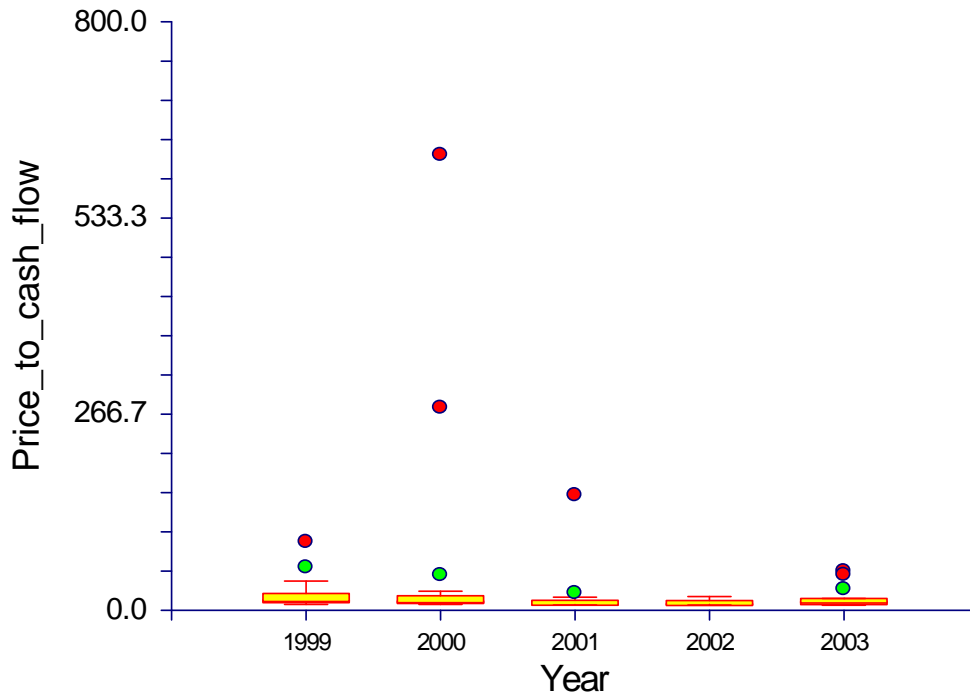


Figure 6: Price-to-cash flow box plot for the glamour style

**5.2.2.2. Value style characteristics**

Figure seven shows the box plot for the five year average annual growth in sales percentage for the value style. As expected the mean was much lower than that of the glamour portfolio using the same method. The highest average was experienced in 1999 with a value of 104% and the lowest value was experienced in 2002 with a mean of 97%. The box plot indicates a more consistent grouping of data for this percentage as opposed to the glamour five year average annual growth in sales percentage.

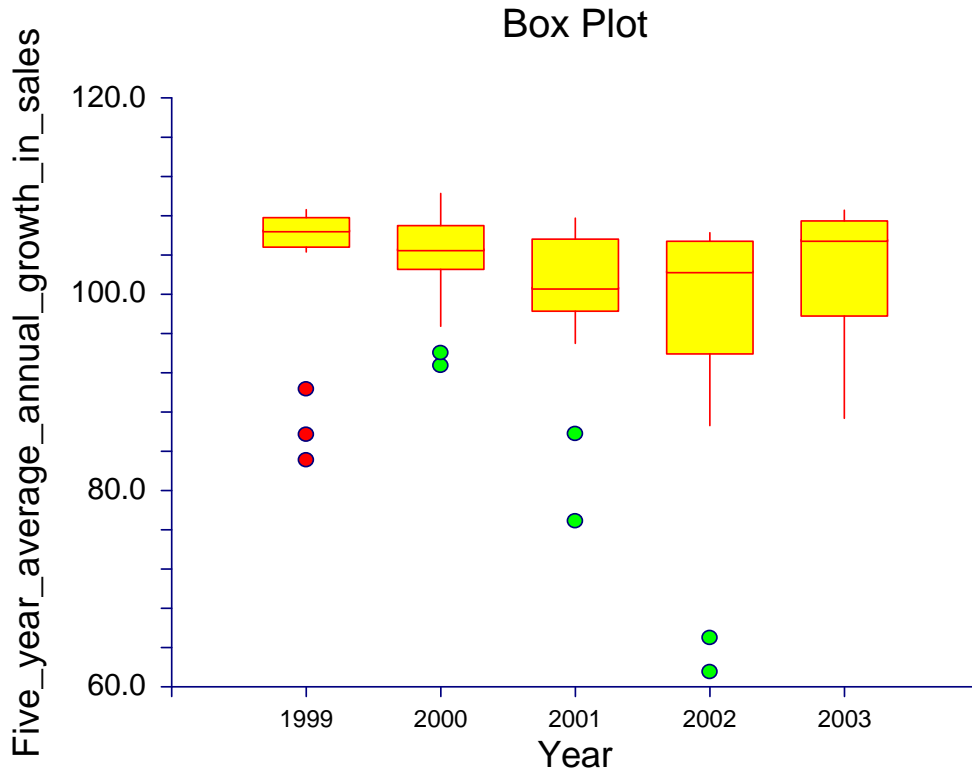
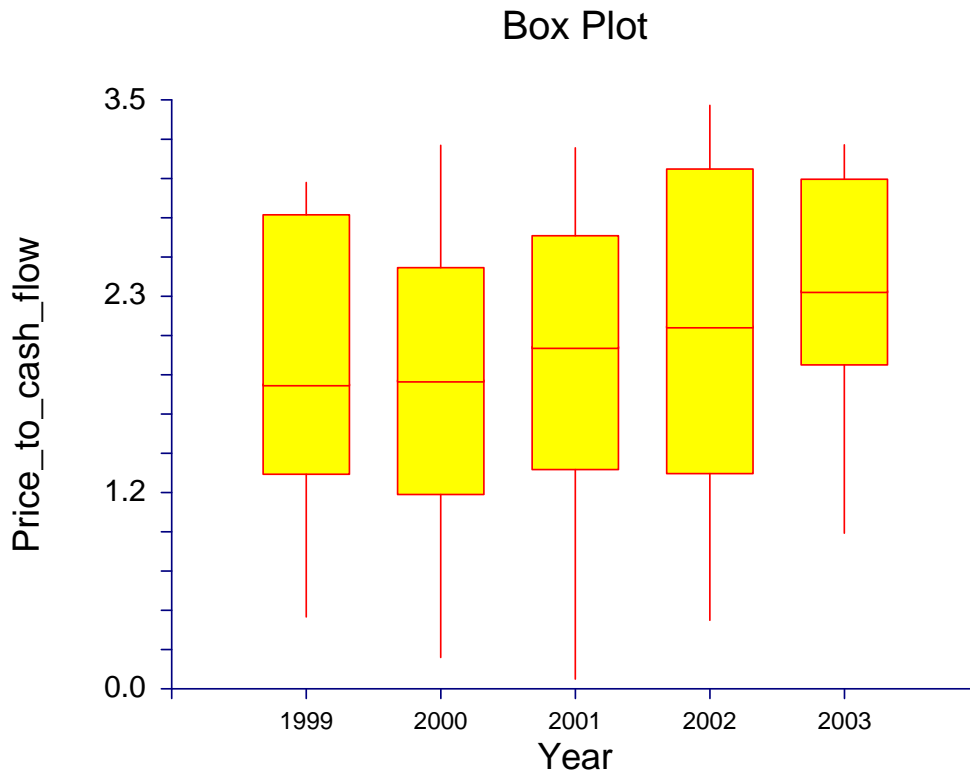


Figure 7: Five year average annual sales growth box plot for the value style

Figure eight indicates the value style box plot for the price-to-cash flow variable. This figure shows a very consistent grouping of data with a consistent average of between 1.8 and 2.3 for the highest and lowest means respectively. Year 2003 showed the highest average with 2.3 and year 2000 showed the lowest with 1.8.



**Figure 8: Price-to-cash flow box plot for the value style**

### **5.2.3. Five year annual average growth in sales and price-to-earnings**

This section provides information on the glamour and value style characteristics that were used to create the portfolios.

#### **5.2.3.1. Glamour style characteristics**

The box plot in figure nine graphically represents the five year average annual growth in sales percentage for the glamour style as measured by the five year average annual growth in sales and price-to-earnings two variable method. Consistent with each glamour five year average annual growth in sales



percentage figure nine shows a number of extreme outliers as represented in the data set. Year 2001 has the highest outlier at a value of 2200%.

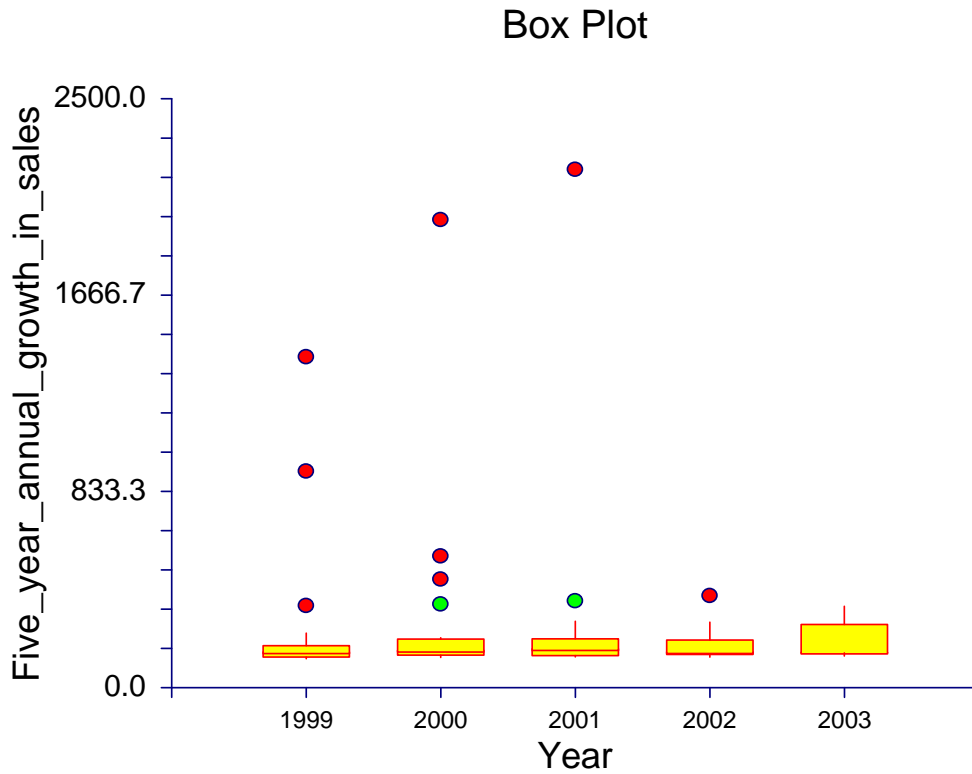
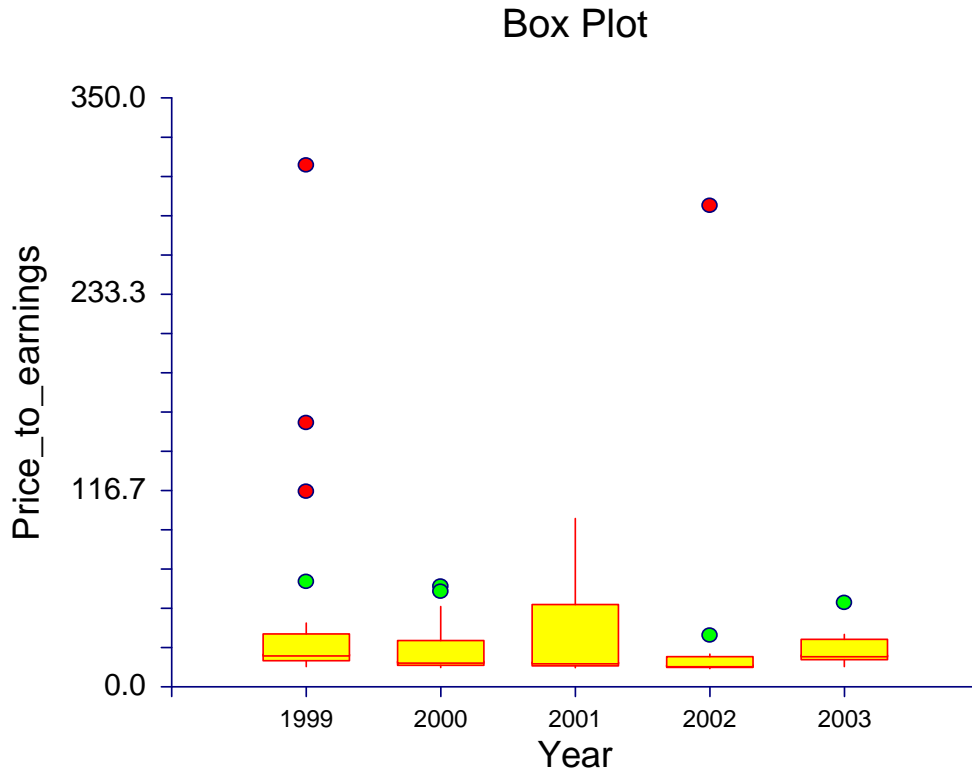


Figure 9: Five year average annual sales growth box plot – Glamour Style

Figure ten depicts the price-to-earnings statistics for the five year average annual growth in sales and price-to-earnings method. The highest average price-to-earnings ratio was experienced in year 2000 with a ratio of 42. This was affected by one rim outlier and three extreme outliers indicated in green and red respectively. The lowest mean was found in 2002 with a ratio of 23.

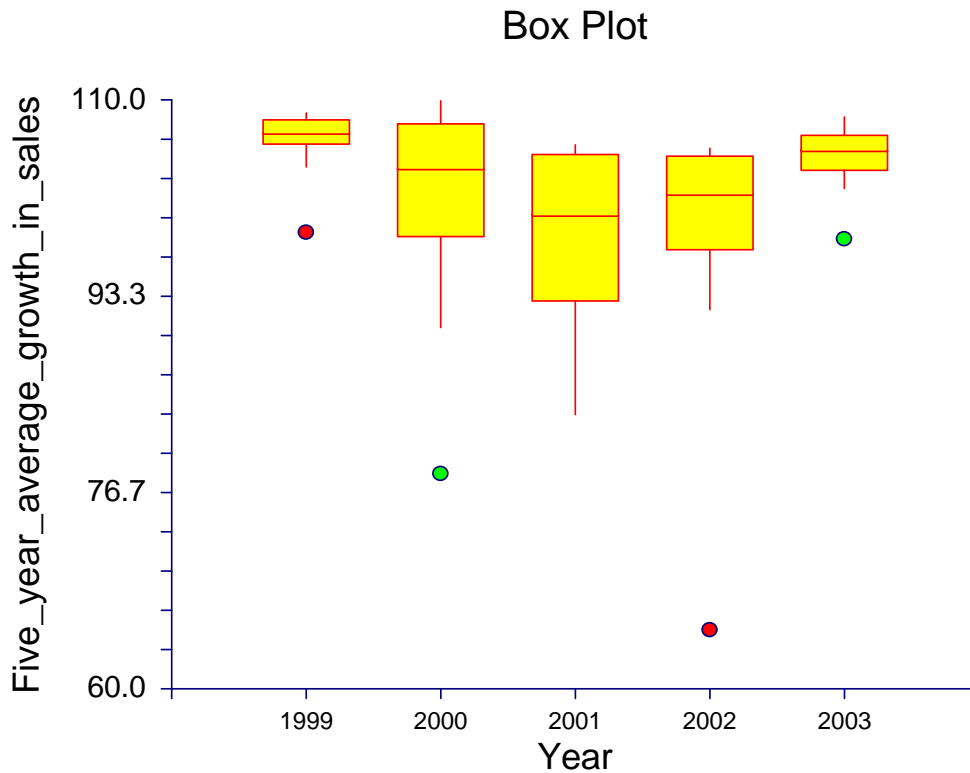




**Figure 10: Price-to-earnings box plot – Glamour Style**

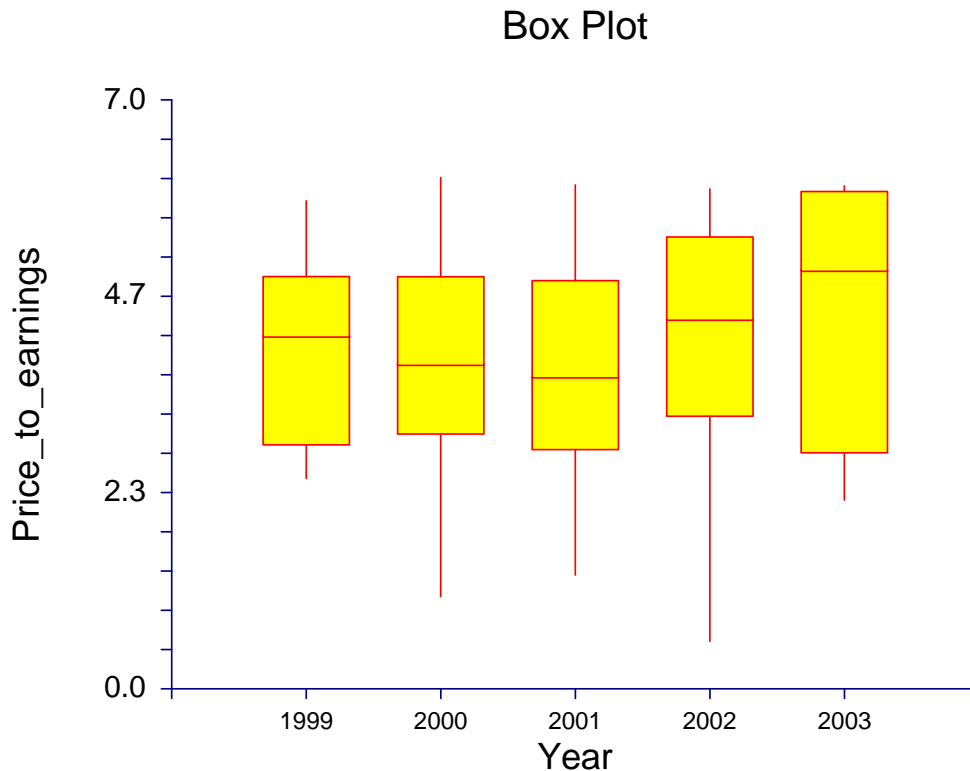
**5.2.3.2. Value style characteristics**

Figure eleven represents the five year average annual growth in sales descriptive statistics for the value style as measured using the five year average annual growth in sales and price-to-earnings method. The mean range is fairly consistent in and around the 100 percentage mark. The lowest mean being in 2001 with 98%.



**Figure 11: Five year average annual sales growth box plot – Value Style**

Figure twelve concludes the descriptive box plots for each of the two variable creation methods. It represents the five year average annual growth in sales and price-to-earnings variables for the value style. The box plots show a relatively low ratio when compared to the value seen in the corresponding glamour style, the lowest average of which was 23. As observed in figure twelve the highest price-to-earnings ratio was in 2001 with a mean ratio of 3.8.



**Figure 12: Price-to-earnings box plot – Value Style**

### 5.3. INTERNATIONAL PERFORMANCE COMPARATIVES

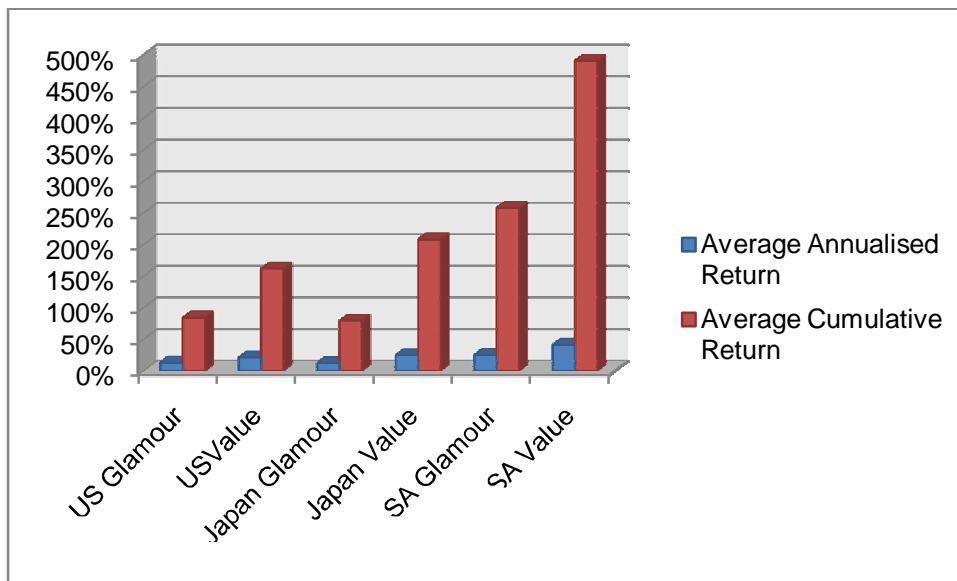
This section of the chapter presents the results of the glamour and value investment style portfolios created using the three two-variable methods as designed by Lakonishok *et al* (1994). The respective portfolio performances were determined by using five time series data sets, starting from 1999 and ending in 2003. The unit of analysis for this study, which is used to determine which style outperforms the other, is the two comparative style portfolios that were created using one of the three two-variable proxies of value. An initial investment was made in the year of the start of the portfolio.



The comparative performance of the local value and glamour findings are shown in the sections below. The results for the US Glamour and US Value style portfolios were taken from Lakonishok et al (1994). The Japanese results were obtained from Cai (1997).

**5.3.1.1. Five year average annual growth in sales and price-to-book value**

Figure thirteen below shows the comparative performance across geographies using the five year average annualised performance and five year cumulative performance figures for the five year average annual growth in sales and price-to-book value method.



**Figure 13: International and local annualised and cumulative performance by percentage**



**5.3.1.1. Five year average annual growth in sales and price-to-cash flow**

Figure fourteen below shows the respective portfolio returns for the five year average annual growth in sales and price-to-cash. The five year average annualised portfolio returns are shown in blue. The portfolio returns are shown in a cumulative series in red.

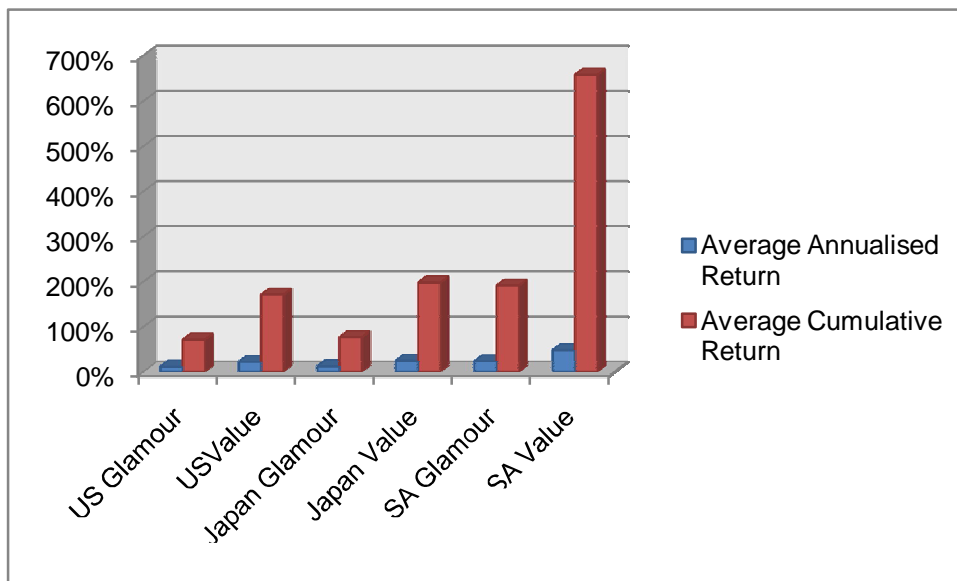


Figure 14: International and local annualised and cumulative performance by percentage

**5.3.1.2. Five year average annual growth in sales and price-to-earnings**

Figure 15 represents the international comparative performance for the value and glamour investment styles using the five year average annual growth in sales and price-to-earnings two variable method.

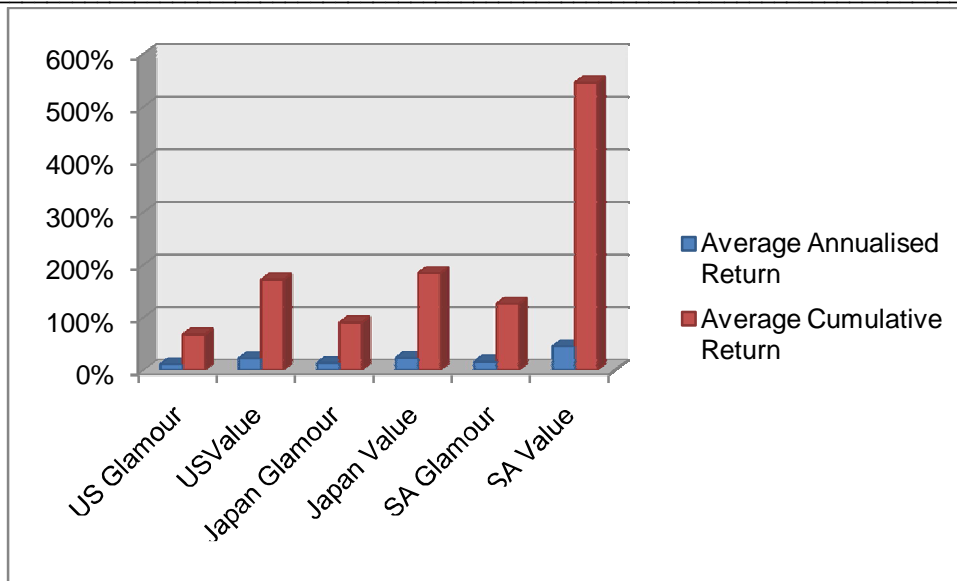


Figure 15: International and local annualised and cumulative performance by percentage

**5.4. LOCAL COMPARATIVES**

The three two-variable portfolio methods returns are shown in three sections below, for the South African market.

**5.4.1. Five year average annual growth in sales and price-to-book value**

The portfolio performance graphs are split into two namely the five year cumulative performance returns and the five year annualised performance returns.

**5.4.1.1. Five year cumulative compound performance**

Figure 16 shows the five year cumulative portfolio performance comparison by year expressed as a percentage.

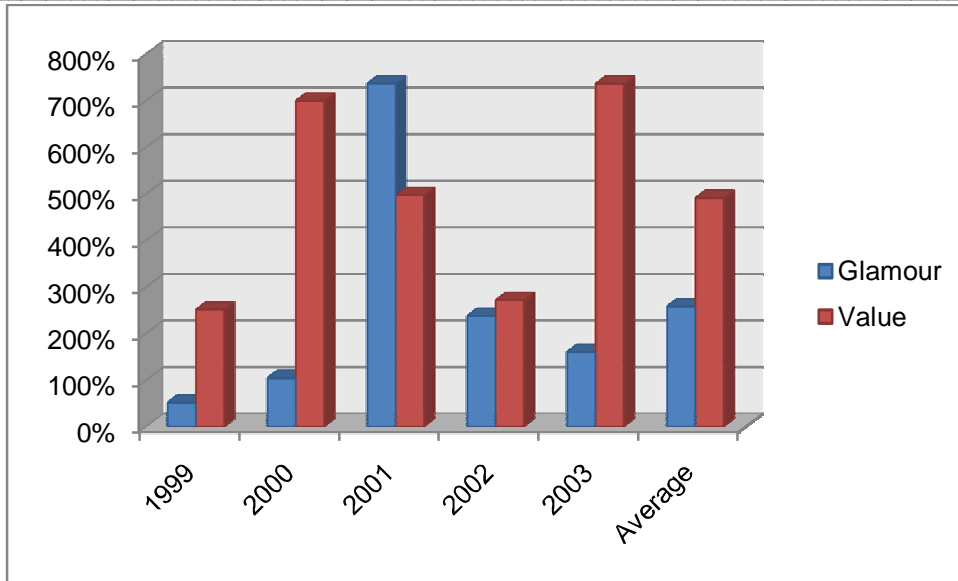


Figure 16: Five year cumulative portfolio performance comparison by year

#### 5.4.1.2. Five year annualized performance

Figure 17 shows the five year annualised portfolio performance returns by year, expressed as a percentage.

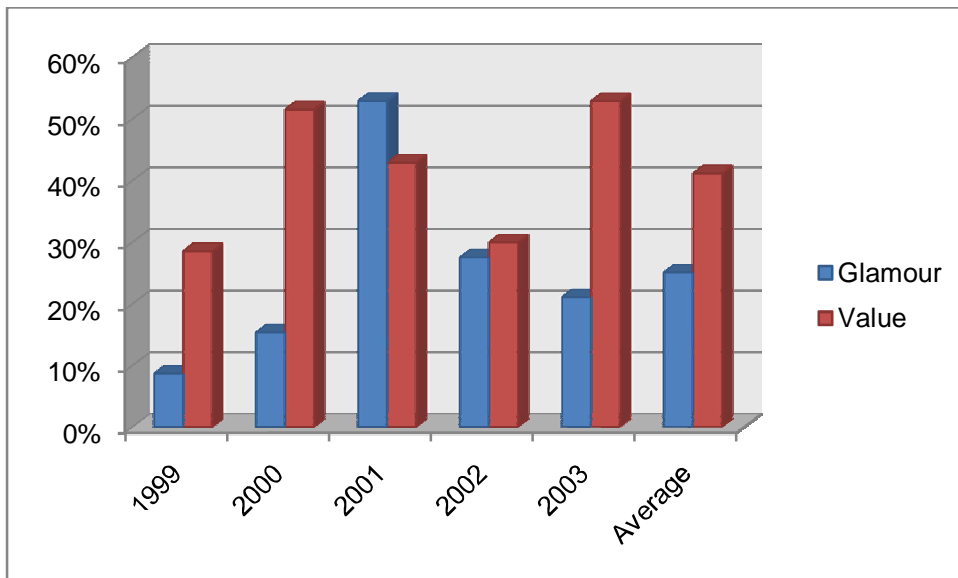


Figure 17: Annualised five year portfolio return comparison by year



**5.4.2. Five year average annual growth in sales and price-to-cash flow**

The portfolio performance graphs are split into two namely the five year cumulative performance returns and the five year annualised performance returns.

**5.4.2.1. Five year cumulative compound performance**

Figure 18 indicates the five year cumulative portfolio performance comparison by year, expressed as a percentage.

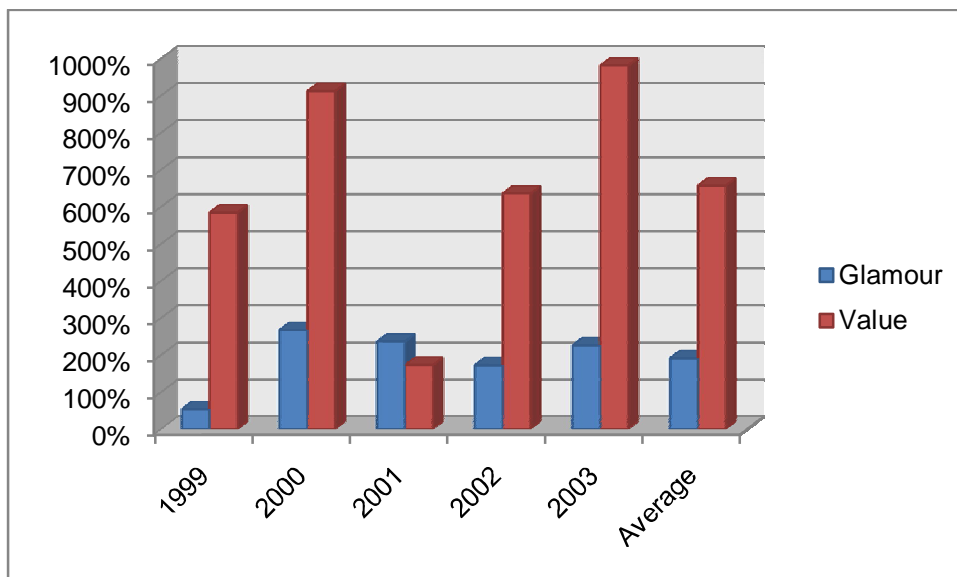


Figure 18: Five year cumulative portfolio performance comparison by year

**5.4.2.2. Five year annualized performance**

Figure 19 shows the five year annualised portfolio performance by year, expressed as a percentage.



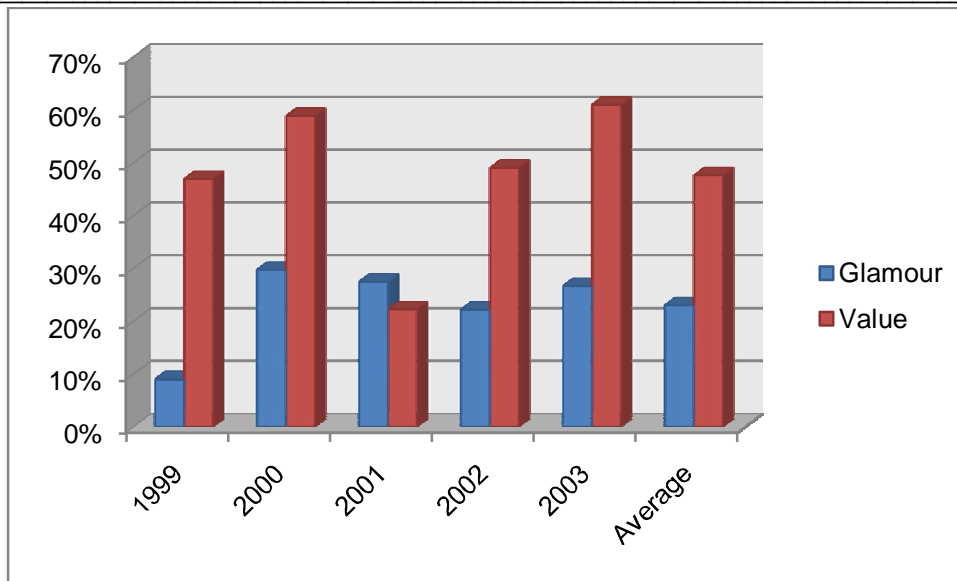


Figure 19: Annualised five year portfolio return comparison by year

### 5.4.3. Five year average annual growth in sales and price-to-earnings

Two portfolio performance graphs are shown below. The five year cumulative compound portfolio performance and the five year average annualised portfolio performance returns. Both graphs are expressed as a percentage.

#### 5.4.3.1. Five year cumulative compound performance

Figure 20 shows the five year cumulative portfolio performance by year, expressed as a percentage.

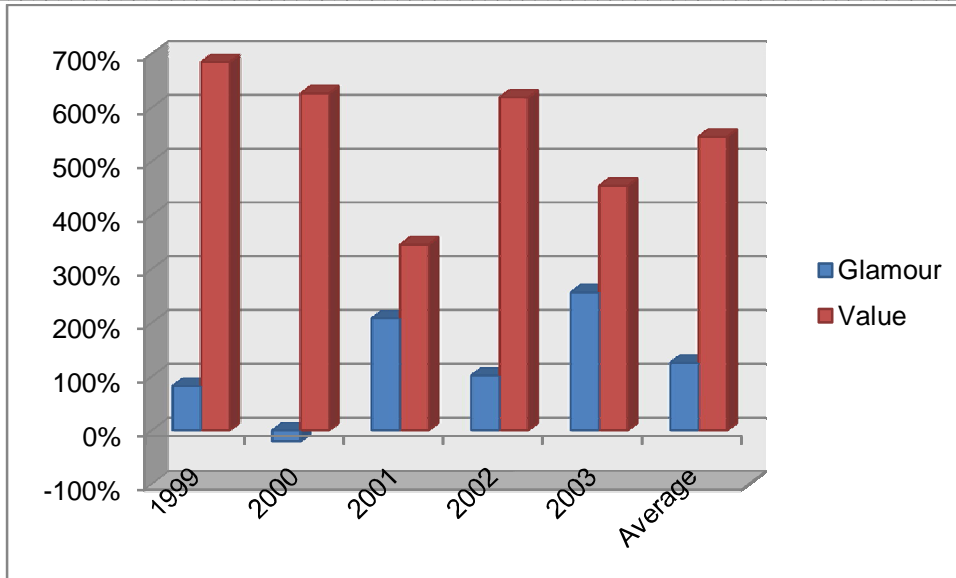


Figure 20: Five year cumulative portfolio performance comparison by year

### 5.4.3.2. Five year annualized performance

Figure 20 one shows the five year annualised portfolio performance returns by year, expressed as a percentage.

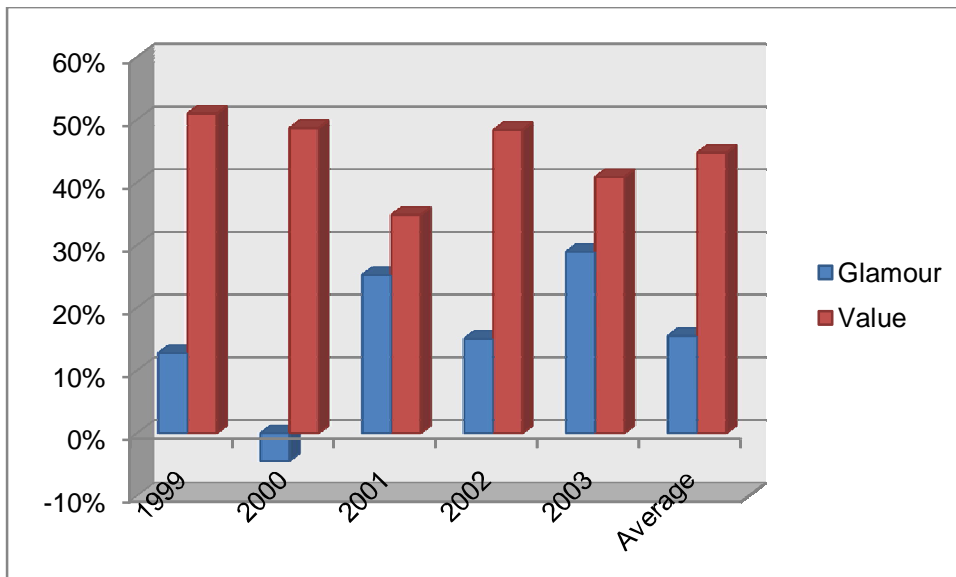


Figure 21: Annualised five year portfolio return comparison by year



## 6. Discussion of Results

The overall hypotheses, as stated in chapter three, are shown below.

### Hypothesis 1

$H_0$ : Average  $R_{\text{International}} = \text{Average } R_{\text{South Africa}}$

$H_1$ : Average  $R_{\text{International}} \neq \text{Average } R_{\text{South Africa}}$

### Hypothesis 2

$H_0$ : Average  $R_{2 \text{ Variable Value Method}} = \text{Average } R_{2 \text{ Variable Glamour Method}}$

$H_1$ : Average  $R_{2 \text{ Variable Value Method}} \neq \text{Average } R_{2 \text{ Variable Glamour Method}}$

To remain consistent with the structure of the document this chapter is designed to answer the hypotheses as stated above by comparing the results to the international results and second by determining which proxy provides the best performance returns.

#### 6.1. INTERNATIONAL COMPARISON

The two international studies that are used to compare results against are the Lakonishok *et al* (1994) study and the Cai (1997) study for the US and Japanese markets respectively.



The three tables below show the average annualised return and cumulative returns over five years for all three studies using the three two-variable methods.

	P2BV					
	United States		Japan		South Africa	
	US Glamour	US Value	Japan Glamour	Japan Value	SA Glamour	SA Value
Average Annualised Return	13%	21%	12%	25%	25%	41%
Average Cumulative Return	84%	162%	80%	208%	258%	491%

**Table11:** Five year average annual growth in sales and price-to-book value international comparison

Using the five year average annual growth in sales and price-to-book value two-variable method, the highest average annualised return is shown by the South African market with a value of 41% for the value portfolio. Interesting to note is that the South African glamour portfolio matches the Japanese portfolio for returns and beats the US value portfolio.

Looking at the cumulative five year returns per portfolio South Africa's value portfolio achieved a comparatively large 491% return, compared to the Japanese return of 208% and the US return of 162%, this is quite substantial. Figure 13 on page 75 tells the story, with South African cumulative returns showing huge upside compared to the US and Japanese value returns.



	P2CF					
	United States		Japan		South Africa	
	US Glamour	US Value	Japan Glamour	Japan Value	SA Glamour	SA Value
Average Annualised Return	11%	22%	12%	24%	23%	48%
Average Cumulative Return	71%	171%	77%	198%	191%	658%

**Table12:** Five year average annual growth in sales and price-to-cash flow international comparison

The five year average annual growth in sales and price-to-cash flow portfolio creation method revealed interesting results for the South African value portfolio again. The South African average annualised return was 48%, double the US return and the Japanese returns. The South African glamour portfolio also outperformed the US and Japanese annualised glamour return but did not outperform the US and Japanese annualised value returns.

The South African five year cumulative series presented another large amount of 648% on average over the five portfolio years from 1999 to 2003. This was by far the highest cumulative return achieved by any portfolio with the Japanese and US value portfolios presenting the next best returns of 198% and 171% respectively. Figure 14 on page 76 shows the huge gap between the US and Japanese value returns when compared to the South African returns.

	P2E					
	United States		Japan		South Africa	
	US Glamour	US Value	Japan Glamour	Japan Value	SA Glamour	SA Value
Average Annualised Return	11%	22%	14%	23%	16%	45%
Average Cumulative Return	67%	172%	91%	184%	126%	546%



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**Table13:** Five year average annual growth in sales and price-to-earnings international comparison

Table 13 shows the percentage returns for the five year average annual growth in sales and price-to-earnings two-variable method. The South African value portfolio outperformed its Japanese and US counterpart portfolios by a large average annualised margin again close to double the Japanese and US returns. The South African value portfolio return achieved 45% annualised returns compared to 23% for the Japanese market and 22% for the US market. The South African annualised glamour returns came closer to the Japanese returns showing 16% compared to 14%.

On a cumulative returns basis, the South African value portfolio again achieved abnormal returns of 546% dwarfing the Japanese and US value returns which were 184% and 172%. This is best depicted by figure 15 on page 77 of this document.

The results confirm those found in Lakonishok *et al* (1994) and Cai (1994) where all three value portfolios outperform the glamour portfolios. This confirms the expectation that a value effect exists in the South African market, however one should be cautioned that the number of year surveyed in the South African sample was not as large as the US or Japanese samples so would be affected by short term shifts. One of these shifts that might explain the consistently high returns of the South African value portfolios is that the period 1999 to 2007 was



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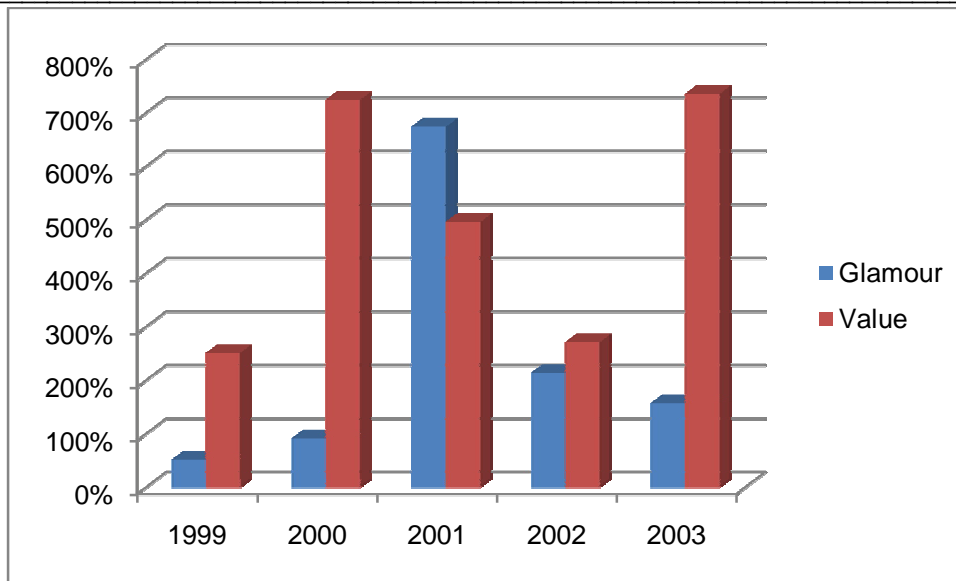
a boom time for the JSE with large returns being made on most counters. This research should be completed with a larger time period, if possible, to iron out any short term effects.

## 6.2. STYLE METHOD RESULTS

Three two-variable methods were used to empirically define the two investment styles. This method is a replication of the method employed by Lakonishok *et al* (1994) which is described in detail in chapter four. This section determines which of the three two-variable methods provided the best returns over the time period surveyed. The results are discussed below. All figures referred to in the subsequent sections are in chapter five of this document.

### 6.2.1. Five year average annual growth in sales and price-to-book value

Figure 22 graphically depicts the value and glamour style performance by portfolio creation year for the five year average annual growth in sales and price-to-book value two-variable methods. SA can be seen value portfolios consistently outperform the glamour portfolios with 2001 being a large exception for the glamour portfolio. This was probably due to the craving of resource stocks as a hedge against the rand in 2001.

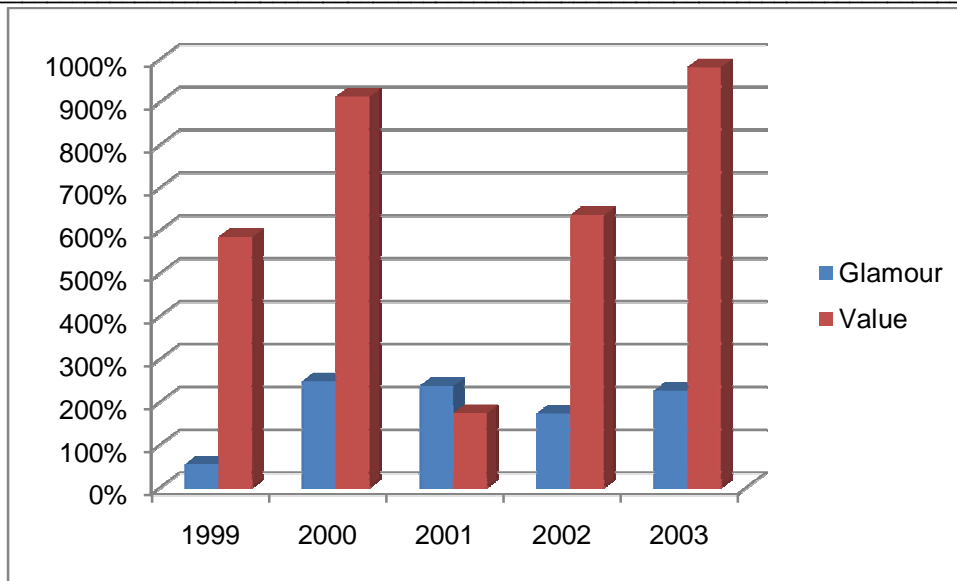


**Figure 22: Five year average annual growth in sales and price-to-book value style returns compared by year**

### **6.2.2. Five year average annual growth in sales and price-to-cash flow**

Figure 23 shows the comparative performance of the value and glamour style portfolios when defined using the five year average annual growth in sales and price-to-cash flow two-variable method. Value portfolios defined using this method consistently achieve returns above those of the glamour portfolios with 2000 and 2003 achieving very large cumulative returns respectively. However the only anomaly was the returns achieved in 2001 where the glamour portfolio again beat the value portfolio. The glamour portfolios do achieve positive cumulative returns in the 150% to 200% range, but do not come close to the value portfolio performance in any year except for 2001.

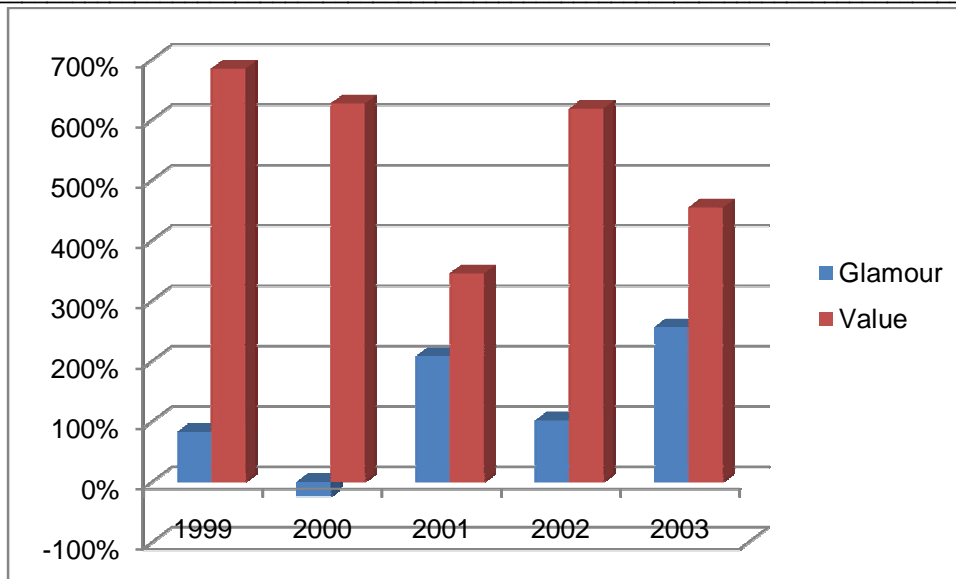




**Figure 23: Five year average annual growth in sales and price-to-cash flow style returns compared by year**

**6.2.3. Five year average annual growth in sales and price-to-earnings**

Figure 24 represents the returns annualized returns for the two style portfolios as defined by the five year average annual growth in sales and price-to-earnings two-variable method. This series shows the most consistent returns data for the value portfolio which consistently beat the glamour portfolios. Year 1999 was a good year for the value portfolios achieving a cumulative return of over 650%.



**Figure 24: Five year average annual growth in sales and price-to-earnings style returns compared by year**

#### 6.2.4. Conclusion

These results presented here and in chapter five clearly indicate the presence of a value effect in the South African market which is consistent the findings of Lakonishok *et al* (1994) and Cai (1997) in other international markets. This confirms the value effects found by Graham and Uliana (2001) and Van Rensburg and Robertson (2003a) although with a different method that defines style. This is a troubling indictment against the proponents of the EMH, which as should not allow consistent abnormal returns to be achieved through any method.



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### 6.3. IMPLICATIONS

The implications of the results of this study show that there is indeed a value effect present on the JSE for the period January 1999 to December 2007. This was determined using three two-variable methods. This indicates that if an investor would followed value investment style strategies, as done in this research, that he would have achieved cumulative returns of 491% using the five year average annual growth in sales and price-to-book value, 658% using the five year average annual growth in sales and price-to-cash flow and finally 546% using the five year average annual growth in sales and price-to-earnings method. These consistent returns will not be ignored by any rational investor.

A weakness in the data set used can be identified by the consistent high number of resource stocks that form a part of all the glamour style portfolios each year independent of which two-variable method is used. A further alteration could be made to this study to exclude resource stocks and to observe the change in the sectoral breakdown; however this was not conducted in this study but is recommended as a possible avenue for future research on this topic.

A second aspect that is immediately observed in the lack of representation of the financial services and utilities sectors. The financial services sector is poorly represented because typical banking stocks do not record sales in their financials. One of the variables in the two-variable method is the five year



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average annual growth in sales which excluded all of the banking stocks from meeting the portfolio creation criteria. The utilities sector on the other hand is due to the low number of utility stocks that is listed on the JSE.

A final aspect that is worth noting is the high number of companies that had no sector allocation in all of value style portfolios to the comparatively low number of companies that had no sector allocation in the glamour portfolios. On investigation it was found that the companies that delisted early in the data set had little or no sector allocations to them. This would indicate that a high number of companies that met the three value portfolio creation criteria delisted, for whatever reason, at some point between the time the portfolio was created and the time the data was obtained.



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## 7. Conclusion

The primary objective of this research was to determine if South African markets follow the international evidence by showing a value effect, where value investing strategies consistently achieve abnormal returns when compared to glamour investing strategies. The secondary objective was to determine which of the three two-variable methods provides the best returns as measured by portfolio performance consistently.

The results as shown in chapter five and described in chapter six indicate the presence of a value effect for the South African market, which is consistent with those same value effects found by Lakonishok *et al* (1994) and Cai (1997). When comparing the results to those found by Lakonishok *et al* (1994) and Cai (1997) it was found that the South African results beat those found in the US and Japanese markets respectively. This could be attributed to the time periods of the studies which are not aligned. The period of the South African study is also much shorter than the other two in comparison which would have affected the averaged return results as this study only used a five year portfolio creation period.

This research adds to the financial body of literature with a localised study of the value and glamour style investing argument. The results confirm the presence of a value effect which is consistent with other local studies value and growth studies such as Graham and Uliana (2001) and Van Rensburg and



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Robertson (2003b). However, this study used a glamour comparison and not a growth comparison.

These results are not explained by one of the tenets of modern financial theory namely the EMH. Efficient markets should, in theory, follow a random walk and should not provide investors with an opportunity to earn abnormal returns as they would have done if they had followed the method prescribed for the period of the study. Unfortunately beta values for each stock and the corresponding beta values for each portfolio were not calculated. This would have provided some insight into the fundamental argument behind the CAPM where high returns are achieved as a result of the higher level of risk taken. This provides an opportunity for future research.

Professionals in the investment management industry and people interested in investment returns would find the results of the research compelling and possibly use the two-variable method or a derivation thereof as a method to drive their own investment decisions. The five year average annual growth in sales and price-to-cash flow two-variable method provided the best returns over the time period surveyed with a total of 658% cumulative return and a massive 48% annualised return over the period surveyed.



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### 7.1.1. Recommendations for future research

This study compared the long-term performance of the three two-variable proxies of value and glamour namely:

- growth in sales and price-to-book value;
- growth in sales and price-to-cash flow; and
- growth in sales and price-to-earnings.

Lakonishok *et al* (1994) compared the performance of a one-variable method of determining style to the two-variable method and found that the two-variable method showed higher overall performance for the US markets. Many studies make use of a one-variable method to determine a style of investing and the styles comparative performance. Fraser and Page (2000) found that the ratio of book-to-market was a better indicator of value than the dividend yield was in a South African context. Graham and Uliana (2001) replicate a one-variable method, used by Fama and French (1992) and Capaul *et al* (1993), to test a value or growth effect for the JSE. They find that value shares outperform growth shares from 1992 to 1996. A study that utilises the one-variable methods for the JSE can be used to compare against these results to determine if the method that is used to define an investment style makes a material difference to the returns that can be achieved.

This study used a single holding period of five years to determine portfolio performance. Lakonishok *et al* (1994) used multiple holding periods and calculated the respective performance using the one and two-variable methods



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with the different holding periods. The interrogation of portfolio performance using shorter portfolio holding periods will confirm or deny if the value or glamour effect is a short-run or long-run effect. The extension of the time period constraint of this study would also provide the investment community with a view as to whether the value phenomenon, as found in this study and international evidence, is a consistent feature of the South African investing landscape. The portfolios could also be created using a market capitalisation weighting opposed to the equal weighting method employed by this study.

This study did not address the question as to whether value style investment is riskier than glamour style investing. This would be an interesting proposition to challenge because the earlier theory indicates that the value style outperforms due to its risky nature. However, more recent theory from the US has indicated that this might have been the case in the past, but that it is in fact the glamour style which now carries the highest risk to an investor as determined by the portfolio's beta value. This investigation would provide sound evidence on which to determine the reasons behind an investment styles performance as it would address one of the fundamental variables of the CAPM equation.

Lakonishok *et al* (1994) used a method that restricts the universe of stocks to the top 50% and then top 20% of stocks by market capitalisation to test the size effect on the value and glamour argument. The argument being addressed was that the limited universe of stocks would provide a better range of stocks that institutional investors would consider. Lakonishok *et al* (1994) found that the





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value effect still existed even with the size restriction. The firm size variable was not used in this study to determine if the value or glamour effect exists in a size restricted universe. Unfortunately the relative maturity of the Alt-X also limited the ability of the researcher to delve into examining the performance of small-cap stocks using the two-variable method. However, as the Alt-X matures, the value or glamour effect can be tested and compared against the international evidence which suggests that the value effect is present in both large and small capitalisation stocks.

These future research topics would provide an avenue in which to add to the financial body of literature on the value and glamour argument as well as the growing body of knowledge on behavioural finance and its effects on long-term investing.



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**9. Appendix One: Consistency Matrix**

**TITLE: Value versus Glamour: A South African case**

Proposition/Questions/ Hypothesis	Literature Review	Data Collection Tool	Analysis
$H_0$ : Average $R_{Value} = \text{Average } R_{Glamour}$ $H_1$ : Average $R_{Value} \neq \text{Average } R_{Glamour}$	Lakonishok <i>et al</i> (1994) Fraser and Page (2000) Graham and Uliana (2001)	Secondary Data	Portfolio Analysis – One-variable
Which variables are the best proxies for a value/glamour strategy?	Fama and MacBeth (1973) Lakonishok <i>et al</i> (1994) Van Rensburg (2001) Van Rensburg and Robertson (2003a) Van Rensburg and Robertson (2003B) Cubbin <i>et al</i> (2006) Gharghori, Strykowski and Veeraraghavan (2007)	Secondary Data	Portfolio Analysis – Two-variables



10. Appendix Two: Companies per portfolio

10.1. FIVE YEAR ANNUAL AVERAGE GROWTH IN SALES AND PRICE-TO-BOOK VALUE

10.1.1. Glamour Style

Glamour Style				
1999	2000	2001	2002	2003
ADCORP HOLDINGS LIMITED	ADCORP HOLDINGS LIMITED	ADCORP HOLDINGS LIMITED	ADCORP HOLDINGS LIMITED	ADCORP HOLDINGS LIMITED
ADVANCED TECHNICAL SYSTEMS LIMITED	AFRICAN LIFE ASSURANCE COMPANY LD	ANGLO AMERICAN PLC	ANGLO AMERICAN PLC	AFROX HEALTHCARE LIMITED
AFRICAN LIFE ASSURANCE COMPANY LD	ANGLO AMERICAN PLC	ANGLO PLATINUM LIMITED	ANGLOGOLD ASHANTI LIMITED	ANGLO AMERICAN PLC
ANGLO PLATINUM LIMITED	ASSORE LIMITED	ANGLOGOLD ASHANTI LIMITED	ASPEN PHARMACARE HOLDINGS LIMITED	ANGLOGOLD ASHANTI LIMITED
ANGLOGOLD ASHANTI LIMITED	ATLAS PROPERTIES LIMITED	ASSORE LIMITED	ASSORE LIMITED	ASPEN PHARMACARE HOLDINGS LIMITED
ATLAS PROPERTIES LIMITED	AUTOPAGE HOLDINGS LIMITED	CLICKS GROUP LIMITED	BEST CUT LIMITED	ASSORE LIMITED
AUTOPAGE HOLDINGS LIMITED	CLICKS GROUP LIMITED	DIMENSION DATA HOLDINGS PLC	DRDGOLD LIMITED	ATLAS PROPERTIES LIMITED
BASIL READ HOLDINGS LIMITED	DE BEERS CONSOLIDATED MINES LTD/CENTENARY DEPOSITARY AG	ENERGY AFRICA LIMITED	GOLD FIELDS LIMITED	DIMENSION DATA HOLDINGS PLC
CLICKS GROUP LIMITED	DIMENSION DATA HOLDINGS PLC	FORTUNE BEVERAGES LIMITED	GOODHOPE DIAMONDS (KIMBERLEY) LTD	DRDGOLD LIMITED
COMPAGNIE FIN RICHEMONT	ELEMENTONE LIMITED	IMPERIAL HOLDINGS LIMITED	HARMONY GOLD MINING COMPANY LIMITED	GOLD FIELDS LIMITED
CORPCAPITAL LIMITED	ENERGY AFRICA LIMITED	JASCO ELECTRONICS HOLDINGS LIMITED	IMPALA PLATINUM HOLDINGS LIMITED	GROWTHPOINT PROPERTIES LIMITED
DE BEERS CONSOLIDATED MINES LTD/CENTENARY DEPOSITARY AG	JIGSAW HOLDINGS LIMITED	KAGISO MEDIA LIMITED	KAGISO MEDIA LIMITED	IMPALA PLATINUM HOLDINGS LIMITED
DEL MONTE ROYAL FOODS LIMITED	JOHNNIC HOLDINGS LIMITED	MERAFE RESOURCES LIMITED	METRO CASH & CARRY LIMITED	KAGISO MEDIA LIMITED
DIMENSION DATA HOLDINGS PLC	L A GROUP LIMITED	METRO CASH & CARRY LIMITED	MTN GROUP LIMITED	KING CONSOLIDATED HOLDINGS LIMITED
ENERGY AFRICA LIMITED	MERAFE RESOURCES LIMITED	NORTHAM PLATINUM LIMITED	NORTHAM PLATINUM LIMITED	METRO CASH & CARRY LIMITED
FASHION AFRICA LIMITED	METRO CASH & CARRY LIMITED	PREMIUM PROPERTIES LIMITED	PARAMOUNT PROPERTY FUND LIMITED	MTN GROUP LIMITED
IMPERIAL HOLDINGS LIMITED	M-WEB HOLDINGS LIMITED	SHOPRITE HOLDINGS LIMITED	PRIMEDIA LIMITED	MVELAPHANDA RESOURCES



## VALUE VERSUS GLAMOUR INVESTING: A SOL

				LIMITED
IQS SPICER GROUP LIMITED	NASPERS LIMITED	SPANJAARD LIMITED	THE BIDVEST GROUP LIMITED	NASPERS LIMITED
LA GROUP LIMITED	PRIMEDIA LIMITED	SPESCOM LIMITED	TIGON LIMITED	PARAMOUNT PROPERTY FUND LIMITED
MERAFE RESOURCES LIMITED	RRM INVESTMENT HOLDINGS LIMITED	THE BIDVEST GROUP LIMITED		PRIMEDIA LIMITED
MR PRICE GROUP LIMITED	SHOPRITE HOLDINGS LIMITED			SAGE GROUP LIMITED
NORTHAM PLATINUM LIMITED	SPANJAARD LIMITED			THE BIDVEST GROUP LIMITED
PEPKOR LIMITED	SPESCOM LIMITED			TOURISM INVESTMENT CORPORATION LD
PROFURN LIMITED	THE BIDVEST GROUP LIMITED			
SHOPRITE HOLDINGS LIMITED				
SPANJAARD LIMITED				
SPESCOM LIMITED				
TELJOY HOLDINGS LIMITED				
THE BIDVEST GROUP LIMITED				
TIGER WHEELS LIMITED				
30	24	20	19	23

### 10.1.2. Value Style

Value Style				
1999	2000	2001	2002	2003
ARCELORMITTAL SA LIMITED	ARCELORMITTAL SA LIMITED	CLYDE INDUSTRIAL CORPORATION LIMITED	ALEX WHITE HOLDINGS LIMITED	ALEX WHITE HOLDINGS LIMITED
AVI LIMITED	BOLTON FOOTWEAR LIMITED	CONAFEX HOLDINGS SOCIETE ANONYME	CANADIAN OVERSEAS PACKAGING IND LD	ARCELORMITTAL SA LIMITED
BOLTON FOOTWEAR LIMITED	BOLTON INDUSTRIAL HOLDINGS LIMITED	EUREKA INDUSTRIAL LIMITED	CONCOR LIMITED	BUILDMAX LIMITED
BOLTON INDUSTRIAL HOLDINGS LIMITED	CANADIAN OVERSEAS PACKAGING IND LD	FURNEX CAPITAL LIMITED	DORBYL LIMITED	CANADIAN OVERSEAS PACKAGING IND LD
CANADIAN OVERSEAS PACKAGING IND LD	CARGO CARRIERS LIMITED	GLODINA HOLDINGS LIMITED	EDGARS CONSOLIDATED STORES LIMITED	CONCOR LIMITED
CARGO CARRIERS LIMITED	CENMAG HOLDINGS LIMITED	GRINDROD LIMITED	EMERGENT PROPERTIES LIMITED	GLODINA HOLDINGS LIMITED
CLYDE INDUSTRIAL CORPORATION LIMITED	CLYDE INDUSTRIAL CORPORATION LIMITED	GROUP FIVE LIMITED	GROUP FIVE LIMITED	GRINTEK LIMITED
FRASER ALEXANDER LIMITED	DUNLOP AFRICA LIMITED	GUBB AND INGGS LIMITED	IPROP HOLDINGS LIMITED	HIGHVELD STEEL AND VANADIUM CORP LD



VALUE VERSUS GLAMOUR INVESTING: A SOL

GOLD FIELDS LIMITED	FASIC LIMITED	IPROP HOLDINGS LIMITED	KAP INTERNATIONAL HOLDINGS LIMITED	KELGRAN LIMITED
INMINS LIMITED	GLODINA HOLDINGS LIMITED	KELGRAN LIMITED	MARSHALL MONTEAGLE HLDGS SOC ANON	MARSHALL MONTEAGLE HLDGS SOC ANON
IPROP HOLDINGS LIMITED	GROUP FIVE HOLDINGS LIMITED	MARSHALL MONTEAGLE HLDGS SOC ANON	MASONITE (AFRICA) LIMITED	MASONITE (AFRICA) LIMITED
IRVIN AND JOHNSON LIMITED	GROUP FIVE LIMITED	MASONITE (AFRICA) LIMITED	MOBILE INDUSTRIES LIMITED	MERCHANT & INDUSTRIAL PROP LIMITED
MARSHALL MONTEAGLE HLDGS SOC ANON	INMINS LIMITED	MORIBO LEISURE LIMITED	MORIBO LEISURE LIMITED	MORIBO LEISURE LIMITED
MDM GROWTH INVESTMENT LIMITED	IPROP HOLDINGS LIMITED	NAMBIAN SEA PRODUCTS LIMITED	PALS HOLDING LIMITED	PUTCO LIMITED
METAIR INVESTMENTS LIMITED	MASONITE (AFRICA) LIMITED	NINIAN AND LESTER HOLDINGS LIMITED	PEPKOR LIMITED	RAINBOW CHICKEN LIMITED
NAMBIAN SEA PRODUCTS LIMITED	METAIR INVESTMENTS LIMITED	OMNIA HOLDINGS LIMITED	SABLE HOLDINGS LIMITED	SABLE HOLDINGS LIMITED
NEI AFRICA HOLDINGS LIMITED	NAMBIAN SEA PRODUCTS LIMITED	PALS HOLDING LIMITED	SEARDEL INVESTMENT CORPORATION LD	THE DON GROUP LIMITED
NINIAN AND LESTER HOLDINGS LIMITED	NINIAN AND LESTER HOLDINGS LIMITED	PUTCO LIMITED	THE DON GROUP LIMITED	WESCO INVESTMENTS LIMITED
NORTHERN ENGINEERING IND AFRICA LD	NORTHERN ENGINEERING IND AFRICA LD	RAINBOW CHICKEN LIMITED	W B HOLDINGS LIMITED	WOOLTRU LIMITED
PALS HOLDING LIMITED	PALS HOLDING LIMITED	THE GRIQUALAND EXPLORATION AND FINANCE COMPANY LTD	YABENG INVESTMENT HOLDING COMP LD	
PUTCO LIMITED	PUTCO LIMITED	WESCO INVESTMENTS LIMITED		
PUTPROP LIMITED	RAINBOW CHICKEN LIMITED	YABENG INVESTMENT HOLDING COMP LD		
RAINBOW CHICKEN LIMITED	SABLE HOLDINGS LIMITED			
RELYANT RETAIL LIMITED	SIMMER AND JACK MINES LIMITED			
SIMMER AND JACK MINES LIMITED	THE GRIQUALAND EXPLORATION AND FINANCE COMPANY LTD			
THE GRIQUALAND EXPLORATION AND FINANCE COMPANY LTD	TOYOTA (SOUTH AFRICA) LIMITED			
TOYOTA (SOUTH AFRICA) LIMITED	VENTER LEISURE AND COMM TRAILERS LD			
WACO INTERNATIONAL LIMITED	W B HOLDINGS LIMITED			
WESCO INVESTMENTS LIMITED				
29	28	22	20	19

## 10.2. FIVE YEAR ANNUAL AVERAGE GROWTH IN SALES AND PRICE-TO-CASH FLOW

### 10.2.1. Glamour Style

Glamour Style				
1999	2000	2001	2002	2003
ADCORP HOLDINGS LIMITED	AFRICAN LIFE ASSURANCE COMPANY LD	AFRICAN LIFE ASSURANCE COMPANY LD	ANGLO PLATINUM LIMITED	AFRICAN MEDIA ENTERTAINMENT LIMITED
AFRICAN LIFE ASSURANCE COMPANY LD	ASPEN PHARMACARE HOLDINGS LIMITED	ANGLO PLATINUM LIMITED	ANGLOGOLD ASHANTI LIMITED	ANGLO AMERICAN PLC
ANGLO PLATINUM LIMITED	ATLAS PROPERTIES LIMITED	ANGLOGOLD ASHANTI LIMITED	ASPEN PHARMACARE HOLDINGS LIMITED	ANGLO PLATINUM LIMITED
ANGLOGOLD ASHANTI LIMITED	AUTOPAGE HOLDINGS LIMITED	ASPEN PHARMACARE HOLDINGS LIMITED	DISTELL GROUP LIMITED	ANGLOGOLD ASHANTI LIMITED
ASPEN PHARMACARE HOLDINGS LIMITED	BATEMAN PROJECT HOLDINGS LIMITED	BELL EQUIPMENT LIMITED	GOLD FIELDS LIMITED	ASPEN PHARMACARE HOLDINGS LIMITED
ATLAS PROPERTIES LIMITED	BEST CUT LIMITED	CAXTON PUBLISHERS AND PRINTERS LD	HARMONY GOLD MINING COMPANY LIMITED	DIMENSION DATA HOLDINGS PLC
CLICKS GROUP LIMITED	CLICKS GROUP LIMITED	CORPCAPITAL LIMITED	IMPALA PLATINUM HOLDINGS LIMITED	DRDGOLD LIMITED
DE BEERS CONSOLIDATED MINES LTD/CENTENARY DEPOSITARY AG	DE BEERS CONSOLIDATED MINES LTD/CENTENARY DEPOSITARY AG	GOLD FIELDS LIMITED	JIGSAW HOLDINGS LIMITED	GOLD FIELDS LIMITED
DIMENSION DATA HOLDINGS PLC	DIMENSION DATA HOLDINGS PLC	HARMONY GOLD MINING COMPANY LIMITED	LIBERTY HOLDINGS LIMITED	HARMONY GOLD MINING COMPANY LIMITED
IMPERIAL HOLDINGS LIMITED	ELEMENTONE LIMITED	IMPERIAL HOLDINGS LIMITED	MTN GROUP LIMITED	IMPALA PLATINUM HOLDINGS LIMITED
IQS SPICER GROUP LIMITED	GOLD FIELDS LIMITED	KAGISO MEDIA LIMITED	PETMIN LIMITED	MVELAPHANDA RESOURCES LIMITED
LA GROUP LIMITED	JIGSAW HOLDINGS LIMITED	LIBERTY GROUP LIMITED	RAND LEASES PROPERTIES LIMITED	NASPERS LIMITED
MERAFE RESOURCES LIMITED	JOHNNIC HOLDINGS LIMITED	MERAFE RESOURCES LIMITED	THE BIDVEST GROUP LIMITED	NETCARE LIMITED
MR PRICE GROUP LIMITED	MERAFE RESOURCES LIMITED	PETMIN LIMITED		RAND LEASES PROPERTIES LIMITED
MUTUAL & FEDERAL INSURANCE COMPANY LD	METRO CASH & CARRY LIMITED	THE BIDVEST GROUP LIMITED		S&J LAND HOLDINGS LIMITED
NU-WORLD HOLDINGS LIMITED	NASPERS LIMITED			



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PETMIN LIMITED	NU-WORLD HOLDINGS LIMITED			
PROFURN LIMITED	RRM INVESTMENT HOLDINGS LIMITED			
PSG GROUP LIMITED	SPANJAARD LIMITED			
S&J LAND HOLDINGS LIMITED	THE BIDVEST GROUP LIMITED			
SAMRAND DEVELOPMENT HOLDINGS LD				
SHOPRITE HOLDINGS LIMITED				
SPANJAARD LIMITED				
SPESCOM LIMITED				
THE BIDVEST GROUP LIMITED				
TIGER WHEELS LIMITED				
WHITE WATER RESOURCES LIMITED				
27	20	15	13	15

### 10.2.2. Value Style

Value Style				
1999	2000	2001	2002	2003
A E C I LIMITED	ARCELORMITTAL SA LIMITED	A E C I LIMITED	AFRICAN RAINBOW MINERALS LIMITED	AFRICAN AND OVERSEAS ENTERPRISES LD
AFRICAN AND OVERSEAS ENTERPRISES LD	AVI LIMITED	ARCELORMITTAL SA LIMITED	ALEX WHITE HOLDINGS LIMITED	AFRICAN RAINBOW MINERALS LIMITED
BOLTON FOOTWEAR LIMITED	BOLTON FOOTWEAR LIMITED	CARGO CARRIERS LIMITED	CASHBUILD LIMITED	ALEX WHITE HOLDINGS LIMITED
BOLTON INDUSTRIAL HOLDINGS LIMITED	BOLTON INDUSTRIAL HOLDINGS LIMITED	GRINDROD LIMITED	CONCOR LIMITED	ARCELORMITTAL SA LIMITED
CARGO CARRIERS LIMITED	CARGO CARRIERS LIMITED	GROUP FIVE LIMITED	CONTROL INSTRUMENTS GROUP LIMITED	BASIL READ HOLDINGS LIMITED
COMPASS PROPERTY HOLDINGS LTD	CENMAG HOLDINGS LIMITED	GUBB AND INGGS LIMITED	DORBYL LIMITED	BUILDMAX LIMITED
CORPCAPITAL LIMITED	CLYDE INDUSTRIAL CORPORATION LIMITED	KAP INTERNATIONAL HOLDINGS LIMITED	EDGARS CONSOLIDATED STORES LIMITED	CARGO CARRIERS LIMITED
EUREKA INDUSTRIAL LIMITED	CULLINAN HOLDINGS LIMITED	KELGRAN LIMITED	GENBEL SOUTH AFRICA LIMITED	CONCOR LIMITED



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FRALEX LIMITED	DUNLOP AFRICA LIMITED	MALBAK LIMITED	HOWDEN AFRICA HOLDINGS LIMITED	DORBYL LIMITED
FRASER ALEXANDER LIMITED	GRINTEK LIMITED	MC CARTHY LIMITED	KAP INTERNATIONAL HOLDINGS LIMITED	GRINTEK LIMITED
INMINS LIMITED	GROUP FIVE HOLDINGS LIMITED	METAIR INVESTMENTS LIMITED	MALBAK LIMITED	MASONITE (AFRICA) LIMITED
JOHNNIC HOLDINGS LIMITED	INMINS LIMITED	MORIBO LEISURE LIMITED	MASONITE (AFRICA) LIMITED	MATHOMO GROUP LIMITED
METAIR INVESTMENTS LIMITED	MASONITE (AFRICA) LIMITED	NINIAN AND LESTER HOLDINGS LIMITED	MC CARTHY LIMITED	MC CARTHY LIMITED
NEI AFRICA HOLDINGS LIMITED	MC CARTHY LIMITED	PALS HOLDING LIMITED	PALS HOLDING LIMITED	PEPKOR LIMITED
NINIAN AND LESTER HOLDINGS LIMITED	METAIR INVESTMENTS LIMITED	PUTCO LIMITED	PUTCO LIMITED	PUTCO LIMITED
NORTHERN ENGINEERING IND AFRICA LD	METOREX LIMITED	RAINBOW CHICKEN LIMITED	SABLE HOLDINGS LIMITED	RAINBOW CHICKEN LIMITED
PALS HOLDING LIMITED	NINIAN AND LESTER HOLDINGS LIMITED	THE LASER GROUP LIMITED	SEARDEL INVESTMENT CORPORATION LD	SUN INTERNATIONAL LIMITED
PUTCO LIMITED	PALS HOLDING LIMITED	YABENG INVESTMENT HOLDING COMP LD	W B HOLDINGS LIMITED	
WACO INTERNATIONAL LIMITED	RAINBOW CHICKEN LIMITED		WOOLTRU LIMITED	
WESCO INVESTMENTS LIMITED	THE GRIQUALAND EXPLORATION AND FINANCE COMPANY LTD		YABENG INVESTMENT HOLDING COMP LD	
20	20	18	20	17

### 10.3. FIVE YEAR ANNUAL AVERAGE GROWTH IN SALES AND PRICE-TO-EARNINGS

#### 10.3.1. Glamour Style

Glamour Style				
1999	2000	2001	2002	2003
ADCORP HOLDINGS LIMITED	AFRICAN LIFE ASSURANCE COMPANY LD	AFRICAN LIFE ASSURANCE COMPANY LD	ANGLO AMERICAN PLC	ADCORP HOLDINGS LIMITED
AFRICAN LIFE ASSURANCE COMPANY	ANGLOGOLD ASHANTI LIMITED	ANGLO AMERICAN PLC	ANGLO PLATINUM LIMITED	ANGLO AMERICAN PLC



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LD				
ANGLO PLATINUM LIMITED	ASPEN PHARMACARE HOLDINGS LIMITED	ANGLOGOLD ASHANTI LIMITED	ANGLOGOLD ASHANTI LIMITED	ANGLO PLATINUM LIMITED
ANGLOGOLD ASHANTI LIMITED	AUTOPAGE HOLDINGS LIMITED	ASPEN PHARMACARE HOLDINGS LIMITED	ASPEN PHARMACARE HOLDINGS LIMITED	ANGLOGOLD ASHANTI LIMITED
AUTOPAGE HOLDINGS LIMITED	BATEMAN PROJECT HOLDINGS LIMITED	CAXTON CTP PUBLISHERS AND PRINTERS	DIMENSION DATA HOLDINGS PLC	ASSORE LIMITED
ASPEN PHARMACARE HOLDINGS LIMITED	CAXTON CTP PUBLISHERS AND PRINTERS	CAXTON PUBLISHERS AND PRINTERS LD	ENERGY AFRICA LIMITED	BHP BILLITON PLC
THE BIDVEST GROUP LIMITED	CAXTON PUBLISHERS AND PRINTERS LD	COMPAREX HOLDINGS LIMITED	GOLD FIELDS LIMITED	GOLD FIELDS LIMITED
CLICKS GROUP LIMITED	CLICKS GROUP LIMITED	ELEMENTONE LIMITED	HARMONY GOLD MINING COMPANY LIMITED	HARMONY GOLD MINING COMPANY LIMITED
DE BEERS CONSOLIDATED MINES LTD/CENTENARY DEPOSITARY AG	DE BEERS CONSOLIDATED MINES LTD/CENTENARY DEPOSITARY AG	FORM HOLDINGS LIMITED	JOHNNIC HOLDINGS LIMITED	METOREX LIMITED
DIMENSION DATA HOLDINGS PLC	DIMENSION DATA HOLDINGS PLC	GOLD FIELDS LIMITED	LIBERTY GROUP LIMITED	MVELAPHANDA RESOURCES LIMITED
FASHION AFRICA LIMITED	ELEMENTONE LIMITED	HARMONY GOLD MINING COMPANY LIMITED	LIBERTY HOLDINGS LIMITED	PRIMEDIA LIMITED
IMPERIAL HOLDINGS LIMITED	FORM HOLDINGS LIMITED	IMPERIAL HOLDINGS LIMITED	METRO CASH & CARRY LIMITED	S&J LAND HOLDINGS LIMITED
MUTUAL & FEDERAL INSURANCE COMP LD	IMPERIAL HOLDINGS LIMITED	JOHNNIC HOLDINGS LIMITED	MTN GROUP LIMITED	
MR PRICE GROUP LIMITED	JIGSAW HOLDINGS LIMITED	MERAFE RESOURCES LIMITED	PETMIN LIMITED	
MERAFE RESOURCES LIMITED	JOHNNIC HOLDINGS LIMITED	PETMIN LIMITED	PLATE GLASS AND SHATTERPRUFE INDUSTRIES LIMITED	
PEPKOR LIMITED	MERAFE RESOURCES LIMITED	PRIMEDIA LIMITED	THE BIDVEST GROUP LIMITED	
PETMIN LIMITED	METRO CASH & CARRY LIMITED	RAND LEASES PROPERTIES LIMITED	TIGON LIMITED	
PROFURN LIMITED	PRIMEDIA LIMITED	THE BIDVEST GROUP LIMITED		
SAPPI LIMITED	RRM INVESTMENT HOLDINGS LIMITED	TIGER WHEELS LIMITED		
SHOPRITE HOLDINGS LIMITED	SHOPRITE HOLDINGS LIMITED			
SAMRAND DEVELOPMENT HOLDINGS LD	SPESCOM LIMITED			
SPANJAARD LIMITED	THE BIDVEST GROUP LIMITED			
IQS SPICER GROUP LIMITED	TIGER WHEELS LIMITED			
TIGER WHEELS LIMITED				
TELJOY HOLDINGS LIMITED				
WHITE WATER RESOURCES LIMITED				



26	23	19	17	12

### 10.3.2. Value Style

Value Style				
1999	2000	2001	2002	2003
BOLTON FOOTWEAR LIMITED	BOLTON FOOTWEAR LIMITED	CLYDE INDUSTRIAL CORPORATION LIMITED	ALEX WHITE HOLDINGS LIMITED	AFRICAN AND OVERSEAS ENTERPRISES LD
BOLTON INDUSTRIAL HOLDINGS LIMITED	BOLTON INDUSTRIAL HOLDINGS LIMITED	CONAFEX HOLDINGS SOCIETE ANONYME	CASHBUILD LIMITED	ALEX WHITE HOLDINGS LIMITED
CANADIAN OVERSEAS PACKAGING IND LD	CENMAG HOLDINGS LIMITED	ELB GROUP LIMITED	DORBYL LIMITED	ARCELORMITTAL SA LIMITED
CARGO CARRIERS LIMITED	CLYDE INDUSTRIAL CORPORATION LIMITED	FURNEX CAPITAL LIMITED	GRINDROD LIMITED	CONCOR LIMITED
COMPASS PROPERTY HOLDINGS LTD	DUNLOP AFRICA LIMITED	GRINDROD LIMITED	GROUP FIVE LIMITED	DORBYL LIMITED
FRALEX LIMITED	FASIC LIMITED	GRINTEK LIMITED	HUDACO INDUSTRIES LIMITED	GRINDROD LIMITED
FRASER ALEXANDER LIMITED	GRINTEK LIMITED	GROUP FIVE LIMITED	KAP INTERNATIONAL HOLDINGS LIMITED	HUDACO INDUSTRIES LIMITED
INMINS LIMITED	GROUP FIVE HOLDINGS LIMITED	GUBB AND INGGS LIMITED	MC CARTHY LIMITED	MATHOMO GROUP LIMITED
MARSHALL MONTEAGLE HLDGS SOC ANON	GROUP FIVE LIMITED	HUDACO INDUSTRIES LIMITED	MURRAY AND ROBERTS HOLDINGS LIMITED	MC CARTHY LIMITED
METAIR INVESTMENTS LIMITED	HUDACO INDUSTRIES LIMITED	IPROP HOLDINGS LIMITED	OCTODEC INVESTMENTS LIMITED	PUTCO LIMITED
NEI AFRICA HOLDINGS LIMITED	INMINS LIMITED	KELGRAN LIMITED	PALS HOLDING LIMITED	PUTPROP LIMITED
NINIAN AND LESTER HOLDINGS LIMITED	IPROP HOLDINGS LIMITED	MARSHALL MONTEAGLE HLDGS SOC ANON	PEPKOR LIMITED	RAINBOW CHICKEN LIMITED
NORTHERN ENGINEERING IND AFRICA LD	METAIR INVESTMENTS LIMITED	MASONITE (AFRICA) LIMITED	PUTCO LIMITED	
PALS HOLDING LIMITED	METOREX LIMITED	METAIR INVESTMENTS LIMITED	RAINBOW CHICKEN LIMITED	
PANGBOURNE PROPERTIES LIMITED	NINIAN AND LESTER HOLDINGS LIMITED	NIN	SABLE HOLDINGS LIMITED	
PUTPROP LIMITED	NORTHERN ENGINEERING IND AFRICA LD	PALS HOLDING LIMITED	SEARDEL INVESTMENT CORPORATION LD	



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SEA HARVEST CORPORATION LIMITED	PALS HOLDING LIMITED	PUTCO LIMITED	W B HOLDINGS LIMITED	
VOLTEX HOLDINGS LIMITED	PUTCO LIMITED	RAINBOW CHICKEN LIMITED	WOOLTRU LIMITED	
WACO INTERNATIONAL LIMITED	PUTPROP LIMITED	THE GRIQUALAND EXPLORATION AND FINANCE COMPANY LTD	YABENG INVESTMENT HOLDING COMP LD	
	SABLE HOLDINGS LIMITED	THE LASER GROUP LIMITED		
	THE GRIQUALAND EXPLORATION AND FINANCE COMPANY LTD			
	VOLTEX HOLDINGS LIMITED			
19	22	20	19	12

## 11. Appendix Two: Descriptive statistics tables for each method of style investing

### 11.1.1. Five year average annual growth in sales and price-to-book value method

Style	Year	Variable	Count	Mean Value	Median	Standard Deviation	Standard Error	Minimum	Maximum	Range	Skewness
Glamour	1999	GIS	30	221.375	152.69	194.9153	35.58651	122.69	918.56	795.87	2.94774
Value	1999	GIS	29	103.6379	106.41	7.439455	1.381472	77.78	108.93	31.15	-2.032555
Glamour	2000	GIS	24	302.3104	169.98	391.9019	79.99663	128.3	1986.43	1858.13	3.578465
Value	2000	GIS	28	101.5271	105.06	9.886698	1.86841	65.67	110.26	44.59	-2.235154
Glamour	2001	GIS	20	258.285	143.415	459.0725	102.6517	126.24	2199.77	2073.53	4.068954
Value	2001	GIS	22	97.09818	98.985	8.270809	1.763342	76.89	106.18	29.29	-0.7778347
Glamour	2002	GIS	19	233.4474	151.88	267.2706	61.31608	132.6	1322.04	1189.44	3.831528
Value	2002	GIS	20	97.232	101.015	11.75821	2.629216	65	105.77	40.77	-1.973554
Glamour	2003	GIS	23	237.2461	155.57	253.236	52.80335	131.59	1352.77	1221.18	3.954232
Value	2003	GIS	19	96.80106	102.48	14.78718	3.392413	44.92	108.08	63.16	-2.409944

Table 1: Descriptive statistics of the five year average annual growth in sales variable by year and style

Style	Year	Variable	Count	Mean Value	Median	Standard Deviation	Standard Error	Minimum	Maximum	Range	Skewness
Glamour	1999	P2BV	30	11.00496	3.7176	27.35908	4.995061	1.9804	146.8856	144.9052	4.392377
Value	1999	P2BV	29	0.4086517	0.4001	0.1578412	2.93E-02	0.1093	0.6492	0.5399	0.2602406
Glamour	2000	P2BV	24	13.1805	4.32035	33.60485	6.85956	2.0487	169.1722	167.1235	4.425699
Value	2000	P2BV	28	0.3165571	0.2813	0.1403213	2.65E-02	0.0533	0.594	0.5407	0.2810389
Glamour	2001	P2BV	20	11.56899	3.64305	23.71664	5.303202	2.1037	107.0402	104.9365	3.541358
Value	2001	P2BV	22	0.4249182	0.4343	0.1587712	3.39E-02	0.1705	0.6643	0.4938	5.78E-02
Glamour	2002	P2BV	19	10.51134	8.4109	9.259866	2.124359	2.4284	32.1793	29.7509	1.095243
Value	2002	P2BV	20	0.499745	0.4799	0.2411989	5.39E-02	0.1835	0.8934	0.7099	0.2071684
Glamour	2003	P2BV	23	14.89374	5.533	25.33353	5.282406	2.3091	116.6031	114.294	3.14804
Value	2003	P2BV	19	0.6234263	0.6841	0.2448216	5.62E-02	0.1569	0.9671	0.8102	-0.2476576

Table 2: Descriptive statistics for the price-to-book value variable by year and style

### 11.1.1. Five year average annual growth in sales and price-to-cash flow method

Style	Year	Variable	Count	Mean	Median	Standard Deviation	Standard Error	Minimum	Maximum	Range	Skewness
Glamour	1999	GIS	27	244.7641	155.08	279.1582	53.72403	122.69	1404.02	1281.33	3.32506
Value	1999	GIS	20	103.868	106.525	7.722293	1.726757	83.11	108.61	25.5	-1.956292
Glamour	2000	GIS	20	272.8465	159.41	411.7559	92.07141	127.58	1986.43	1858.85	3.873695
Value	2000	GIS	20	103.8345	104.595	4.857898	1.086259	92.72	110.26	17.54	-0.954901
Glamour	2001	GIS	15	288.258	146.4	529.4089	136.6928	130.79	2199.77	2068.98	3.460833
Value	2001	GIS	18	99.82166	100.69	7.812726	1.841477	76.89	107.75	30.86	-1.669159
Glamour	2002	GIS	14	161.4678	146.76	31.13257	8.320529	129.9	219.47	89.57	0.6684284
Value	2002	GIS	20	97.709	102.35	12.96295	2.898603	61.53	106.26	44.73	-1.968295
Glamour	2003	GIS	15	187.706	155.57	65.27545	16.85405	133.03	345.71	212.68	1.353483
Value	2003	GIS	17	102.4041	105.56	6.440684	1.562095	87.35	108.55	21.2	-1.047657

Table 3: Descriptive statistics for the five year average annual growth in sales variable by year and style

Style	Year	Variable	Count	Mean	Median	Standard Deviation	Standard Error	Minimum	Maximum	Range	Skewness
Glamour	1999	P2CF	27	21.01025	14.0723	18.46641	3.553863	7.9779	93.0975	85.1196	2.627932
Value	1999	P2CF	20	1.9399	1.81045	0.8513975	0.1903783	0.4275	3.0092	2.5817	-0.2318195
Glamour	2000	P2CF	20	58.0121	12.58465	144.6347	32.3413	7.9881	619.2355	611.2474	3.309417
Value	2000	P2CF	20	1.823405	1.83365	0.8221345	0.1838349	0.1863	3.2298	3.0435	-0.2825771
Glamour	2001	P2CF	15	20.51452	9.0722	37.91382	9.789307	7.172	156.5618	149.3898	3.390106
Value	2001	P2CF	18	1.894033	2.03295	0.9617323	0.2266825	0.0578	3.2149	3.1571	0.3780254
Glamour	2002	P2CF	14	10.26295	8.81165	3.33334	0.8908725	7.121	18.7416	11.6206	1.320743
Value	2002	P2CF	18	1.894033	2.1551	0.9617323	0.2266825	0.0578	3.2149	3.1571	-5.04E-02
Glamour	2003	P2CF	15	17.39715	12.168	14.61148	3.772669	6.8577	53.2644	46.4067	1.705013
Value	2003	P2CF	17	2.340459	2.3655	0.7020971	0.1702836	0.9251	3.2327	2.3076	-0.3429738

Table 4: Descriptive statistics for the price-to-cash flow variable by year and style

### 11.1.2. Five year average annual growth in sales and price-to-earnings method

Style	Year	Variable	Count	Mean	Median	Standard Deviation	Standard Error	Minimum	Maximum	Range	Skewness
Glamour	1999	GIS	26	238.3417	151.4109	284.2496	55.74593	122.6933	1404.022	1281.328	3.341783
Value	1999	GIS	19	106.6379	107.23	2.337132	0.5361748	98.75	108.9	10.15	-2.106678
Glamour	2000	GIS	23	275.0881	158.1059	389.0401	81.12048	128.2988	1986.427	1858.129	3.95111
Value	2000	GIS	22	102.0277	104.22	7.621887	1.624992	78.26	109.92	31.66	-1.580305
Glamour	2001	GIS	19	286.265	164.8045	467.1345	107.168	130.7928	2199.772	2068.979	3.90379
Value	2001	GIS	20	98.5245	100.265	7.519372	1.681383	83.28	106.18	22.9	-0.6978472
Glamour	2002	GIS	17	182.4715	151.8762	66.48764	16.12562	129.737	390.4207	260.6837	2.025887
Value	2002	GIS	19	99.45421	102.04	9.350861	2.145235	65	105.89	40.89	-2.808503
Glamour	2003	GIS	12	197.8803	150.17	71.74842	20.71198	134.3646	345.712	211.3474	0.8743861
Value	2003	GIS	12	105.28	105.755	2.800292	0.8083747	98.19	108.55	10.36	-1.373253

Table 5: Descriptive statistics for the five year average annual growth in sales variable by year and style

Style	Year	Variable	Count	Mean	Median	Standard Deviation	Standard Error	Minimum	Maximum	Range	Skewness
Glamour	1999	P2E	26	42.21154	19.3	63.94328	12.54031	12	310	298	3.250309
Value	1999	P2E	19	3.989474	4.2	1.061914	0.2436197	2.5	5.8	3.3	0.1205454
Glamour	2000	P2E	23	22.81054	15.0477	15.17054	3.163277	11.4694	59.7429	48.2735	1.441739
Value	2000	P2E	22	3.939473	3.8639	1.347837	0.2873599	1.0959	6.0769	4.981	-0.1587164
Glamour	2001	P2E	19	26.83197	14.5957	23.7737	5.45406	11.3705	100	88.6295	1.81132
Value	2001	P2E	20	3.808355	3.7153	1.215487	0.2717912	1.3514	5.9884	4.637	-1.14E-02
Glamour	2002	P2E	17	30.65252	12.8764	65.98479	16.00366	10.8416	286	275.1584	3.715579
Value	2002	P2E	19	4.008247	4.4	1.56039	0.357978	0.5635	5.9416	5.3781	-0.9102755
Glamour	2003	P2E	12	23.03348	18.8354	10.37384	2.994668	12.0228	50	37.9772	1.505868
Value	2003	P2E	12	4.429133	4.98185	1.528804	0.4413278	2.2439	5.9783	3.7344	-0.267902

Table 6: Descriptive statistics for the price-to-earnings variable by year and style