

**THE EFFECT OF CORPORATE DIVERSIFICATION ON FIRM  
VALUE: AN EMPIRICAL ASSESSMENT OF THE JSE SECURITIES  
EXCHANGE LISTED COMPANIES**

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## **Abstract**

This paper examines the value effect of corporate diversification on firm listed on the JSE Securities Exchange. The value gain or loss for the diversified firms is measured using Berger and Ofek's (1995) model that estimates the value of diversified companies' segments as though they were independent companies. The result indicates corporate diversification in South Africa is value enhancing. Evidence shows that sample of diversified companies are traded, on average, 39-57 (Excess Value of 0.33 to 0.45) percent above the industry averages. The value gain is higher in related-diversification than unrelated ones.

A similar assessment of a sample of 57 focused companies showed a much lower Excess Value (EV). The EV for diversified companies (0.33 - 0.45) is higher than the EV for focused companies (0.00 - 0.19) suggesting that diversified companies are traded at premium as compared to focused companies. Further analysis of the result shows that the value gain is higher in the medium sized sample companies as compared to the bigger companies. Regression of the EV in relation to firms' characteristics (number of segments per company, capital expenditure, and profitability) showed no significant relationship.

To explain the possible sources for the higher premium shown in diversified companies, analysis of the companies leverage and effective tax rate shows that diversified companies have, on average 13% lower debt-to-assets ratio and pay 4.13% lower tax rate than focused companies. It suggests that higher leverage, which gives companies greater tax shield, is not one of the sources for the observed higher premium. It, however, indicates that a lower tax derived by combining businesses with imperfectly correlated cash flows can be one of the contributing factors for the value gain. A comparison of Price-to-Earning and Price-to-Book value ratios for the sample diversified and focused companies suggests, in contradiction with the above results, that focused companies perform better than diversified companies.

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## **1 INTRODUCTION**

More than four decades have passed since Modigliani and Miller (1958) published their famous paper on how financing decisions affect firm value. They proved, under a very restrictive set of assumptions, that any financial attempt to increase shareholder wealth is ineffective. Corporate diversification should have no valuation consequence in the Modigliani-Miller (MM) world. That is, investors should be able to diversify their portfolios without any cost and with out the help of corporate managers.

In contrast to MM's theory, however, the 1950s and 60s was marked with a wave of diversification, culminating in the merger boom of the late 1960s (Diltz and Hyland, 2003). During the 1980s and 90s, however, companies moved in the opposite direction. Many firms began to sell divisions and assets not related to their core business lines. Corporate refocusing programs are at the heart of a general movement toward specialization. This is consistent with the majority of the results of the studies conducted during the period, which indicated that the market reacts negatively to diversification and, firms that become more focused, increase in value.

Various arguments have been given to explain why diversification may affect firm value positively and negatively. The primary motive for corporate diversification is the synergy created as a result of the merger. More diversified firms may enjoy lower costs or higher profits as a result of synergies in production, distribution, marketing, research and other activities (Rogers, 2001). Diversification may also increase firm value because of the fact that conglomerates have greater debt capacity that increases the firms' tax advantage. Due to the existence of informational asymmetries in capital markets, firms can develop internal capital markets through diversification (Diltz and Hyland, 2003). Other possible reasons for diversification include protection of value of human capital, reduction in aggregate risk, etc. Ultimately all the above listed benefits of diversification must increase the value of the shareholder's interest in the firm.

The value-reducing effect of diversification includes the use of increased discretionary resources to undertake value-decreasing investments, cross-subsidies that allow poor segments to drain resources from better performing segments, and misalignment of incentives between central and divisional managers (Berger & Ofek, 1995). Worst of all, managers can engage in a merger decision that might not be in the best interest of the shareholders due to the managers' personal interest in it. Given these various and sometimes contradictory explanations regarding the effect of corporate diversification on firm value, it is not surprising that we have witnessed large scale movements toward greater diversification at certain times and greater focus at other times over the past three decades.

In the South African context, the existing limited literature indicates a merger activity that followed the general trend in the U.S. A considerable degree of merger activity took place over the period 1960 to 1985 (Affleck-Graves, 1989). On the other hand, the general view on the valuation effect of diversification is not clear due of the absence of empirical research on subject. With the exception of Affleck-Graves et al (1988b), Affleck-Graves (1989), Davidson (1997), and Barr and Kantor (1994) there appears to be a shortage of empirical studies which have investigated the subject. Some of these studies highlight that diversification is not in the best interest of South African shareholders. Others suggest that diversification results in greater value gain.

Although there is substantial literature in the U.S that compares the performance of diversified firms and specialized firms, this literature has not reached a decisive conclusion. The reason is that the results are sensitive to the measures used to perform the comparisons; to the way these measures are normalized to facilitate comparisons across firms, and to the starting dates of the comparisons. But the researcher believes it is important to continue to evaluate carefully the performance of the diversifying firms using a variety of samples and empirical methodologies. Considering the fact that only limited research has been done so far in South Africa, this research can help to form a basis for general literature on the subject. Using Berger and Ofek's estimation of imputed value of segments in a diversified firm for comparison with actual value, this research

tries to establish a relationship between corporate diversification and firm value in the JSE listed companies.

## **1.1 Definitions**

**Corporate Diversification:** the step taken to extend business operations, by a firm, into other fields, whether related or unrelated, in order to increase products, reduce costs, exploit more promising opportunities, or otherwise increase profitability and long term potential.

**Diversification Discount:** the amount or percentage of value by which a share price may sell below its actual value due to diversification.

**Divesture:** elimination by a company of a subsidiary, facility, or other substantial property through sale or spin-off.

**Focused Firm:** a company engaged in a form of business limited to a very small number of products for a particular target market.

## **1.2 Statement of the Problem**

The ultimate goal of any company is to enhance shareholders' wealth. As part of its strategy to achieve this goal, management may take merger and acquisition (M&A) decisions which form the bulk of corporate diversification strategy. The anticipated synergic benefits from the M&A are usually the main motives behind any merger decisions. However, the fundamental question that can be asked is how many of the corporate diversification decisions taken led to greater shareholder value? Most of the literature consulted reveals that synergies are not often realized. In the absence of synergy, the company not only fails to attain the intended gain in value, but also loses its value to less than the sum of the pre-merger values of the component firms.

The objective of this research is, therefore, to evaluate the effect of corporate diversification on a firm's combined value in the South African context. This being the main aim of the research, the study, further endeavours to:

- Uncover any evidence of the average relationship between the companies' degree of corporate diversification and their actual value gain/loss.
- Investigate the valuation effect of related diversification vs. unrelated diversification.
- Identify the possible sources of the diversification premium or discount.

### **1.3 Propositions**

- The actual value of diversified companies is less than the weighted sum of the imputed value if the segments operate separately as a stand-alone company; diversification destroys value.
- Highly diversified companies (with a greater number of segments) have a larger value loss than those less diversified companies (fewer number of segments).
- Diversification in divisions that have activities related to the company's core business causes a lesser diversification discount than in unrelated business.

### **1.4 Rationale of the Study**

Studies conducted so far on whether corporate diversification destroys value or not are open to doubt. The argument that diversified firms are priced at substantial discount relative to focused firms is fairly compelling due to the large body of supporting evidence (Lang and Stulz, 1994, Berger and Ofek, 1995, Comment and Jarrell, 1995, and Servaes, 1996). However, some studies conducted recently also show that there is no value loss to corporate diversification.

To evaluate whether corporate diversification destroys value, the ideal experiment would be to sum up the market values of each separate division, and then compare this to the

actual market value of the combined firm. It is impossible to do this for conglomerate firms, however, because the individual divisions are not publicly traded to obtain the actual market value for divisions, therefore, one either needs to dismantle the conglomerate or observe the market value just before conglomeration. Given this is impractical for most firms; the logical approach is to benchmark the value of conglomerate divisions to the value of the average focused firm that operates in the same industry.

Many of the industrial companies listed on the JSE operate in multiple business segments. However, only limited research has been conducted so far to weigh up the performance of these companies against the performance of companies that operate as a single segment. The main reason for the researcher to conduct this research is the absence of sufficient literature in general, and absence of empirical studies in particular, about South African conglomerates. It is, therefore, believed that the study is important in the South African context for the following reasons:

- The result of the study will provide additional evidence to the already existing literature on the subject of corporate diversification.
- It forms a basis for the management of the conglomerate companies, as well as, investors to assess their view on the subject matter.
- The industry multiplier approach, which is the methodology used in this research, can give additional insight on the valuation effect of corporate diversification that other methods have overlooked.

## **1.5 Organization of the Study**

The remainder of the paper is organized as follows. Chapter two explores previous local and international studies about the topic. It includes literature relating the theories and empirical evidence regarding the impact of diversification on firm value. Chapter three describes the methodology and sample selection process for the data analysis. Chapter four presents the results and analysis of the empirical test. The summary and conclusions are included in chapter five.

## **2 THEORETICAL BACKGROUNDS**

### **2.1 Motives for Diversification**

There are three main theoretical perspectives that can be used to explain the motives for firms to diversify: the resource based view, agency theory, and market powers (Montgomery 1994). The resource based view for diversification is based on the proposition that diversified firms have more efficient internal capital markets that allocate resources better, alleviate information problems with external capital markets, and achieve a lower cost of external capital. These theories centre on the ideas such as greater managerial economies of scale, economies of scope in production, and financial synergies. For example, assets can be easily shifted from a division with poor future prospect to another as relative economic conditions change across industries. Similarly the firm may use the same marketing and distribution channel to market a variety of goods or services. The firm may also be able to utilise its corporate legal and financial staffs to support a variety of different industries.

Agency theory sees diversification as a means through which managers can pursue their own interests at the expense of shareholders (Jensen, 1986). Specifically, diversification may allow managers to: increase their compensation, power, and prestige (Jensen and Murphy, 1990) and reduce their personal risk, which they cannot do by diversifying their portfolios (Amihud and Lev, 1981). They can even make their positions with the firm more secure (i.e., entrench themselves) by making investments that require their particular skills via manager-specific investments (Shleifer and Vishny, 1990a, b).

The third and final theoretical perspective from which to view the motivation for corporate diversification is market power. Villalonga (2000d) explains in three ways how diversification can be used in anti-competitiveness. The first uses the profits generated by the firm in one industry to support predatory pricing in another. Secondly, a diversified company can collude with other firms that compete with the firm for the same target

customers. Finally, firms might use corporate diversification to engage in reciprocal buying with other large firms in order to drive out smaller competitors from the market.

## **2.2 Benefits and Costs of Diversification**

The above theories basically discuss the motives for the diversification. This part focuses on the characteristics of diversified firms once they are diversified, rather than addressing the motivation for diversifying in the first place.

### ***2.2.1 Benefits of Diversification***

The potential benefits of diversification can be broadly seen as: lower risk, greater debt capacity, and lower taxes as a result of combining businesses with imperfectly correlated cash flows (Lewellen, 1971). One of the financial implications of corporate diversification is that a diversified firm's cash flows may provide a superior means of funding an internal capital market. An internal capital market can potentially offer a number of possible sources of value to the firm's owners. First of all, internally raised equity capital is less costly than funds raised in the external capital market. The firm avoids the transaction costs associated with the sale of shares to the public, as well as, the costs of overcoming information asymmetry problems encountered when selling shares in the capital market. Furthermore, with an internal source of financing, the firm's managers can closely monitor decisions over project selection, rather than leaving the firm's investment decisions up to the less well-informed investors in the external capital market. Stein (1997) confirms this argument by suggesting that where managers have superior information, they can do a better job of project selection, thus enhance firm value. In other words, head office can redirect funds from divisions with limited opportunities to projects with good investment opportunities.

Another theory that Lewellen (1971) highlight is the coinsurance effect derived from combining businesses whose cash flows are less than perfectly correlated. Specifically, Lewellen argues that the reduction in the variance of future cash flows resulting from

diversification at the firm level serves to increase the diversified firm's debt capacity. To the extent that debt capacity adds value, diversification can be a source of added value.

### ***2.2.2 Costs of Diversification***

Corporate diversification also has disadvantages. The potential costs associated with operating a diversified business define the benefits of maintaining a focused company. Diversification creates inefficient internal capital markets through over-investment in low-performing businesses (Stulz, 1990); or because of internal power struggles that generate influence costs (Rajan, Servaes and Zingales, 2000). Likewise, Jensen (1986) argues that diversified firms invest more in negative cash flow projects than their segment would if operated independently. Meyer, Milgrom and Roberts (1992) reinforce this argument suggesting that stand-alone segments tend to produce lower losses than diversified firms due to the cross-subsidization of business segment with negative cash flows. This inefficiency could be a result of the information asymmetry problems between the firm's central management and the management of the operating divisions. Wulf (1998) links agency and efficiency problems in a moral hazard model in which the managers of large established divisions have an incentive to use their influence to skew capital budgeting in their favour. Regardless of whether capital allocation problems in the diversified firm arise out of a conflict of interest between owners and managers, or mismanagement within the organization, the end result is the same: an inefficient allocation of capital within the diversified firm when compared to the focused firm.

Another cost of diversification is that it somehow aggravates managerial agency problems. If managers tend to over invest when the firm has excess or free cash flow, then access to an internal market for capital in a diversified firm simply provides a greater opportunity to over invest. Scharstein and Stein (2000) underline the fact that rent-seeking behavior by divisional managers subverts internal capital markets and leads to inefficient investments. This group of theories is clearly consistent with the finding of a diversification discount.

### **2.3 Studies Documenting Evidence of Diversification Discount**

A stream of literature suggests that corporate diversification is associated with a substantial reduction in firm value. An underlying theme of this literature is that conglomerates tend to misallocate their investment funds by cross-subsidizing poorly performing divisions. One of the studies that support this view is research conducted by Lang and Stulz (1994). The study uses COMPUSTAT Industry Segment database to estimate Tobin's q (market to replacement cost ratio). They find that highly diversified firms have significantly lower average and median q ratios than single-segment firms. Lang and Stulz interpret their findings as evidence that diversified firms are consistently valued less than specialized firms. They are unable to explain this diversification discount, but they note that valuation differences are reduced when differences in size and R&D expenditures are considered. Their finding is supportive of the view that diversification is not a successful path to higher performance, but it is less definitive on the question of the extent to which diversification destroys value. One interesting finding is that sample firms perform poorly before becoming more diversified.

Berger and Ofek (1995) examined firms on the COMPUSTAT Industry Segment files that have total sales of at least \$20 million. Using a methodology based on mean and median industry multipliers, they impute separate values for the segments of a multi-segment entity. They find that the actual market value of many conglomerate firms is less than the weighted sum of the imputed divisional values. Overall, they estimate that multi-segment firms are worth 13% to 15% less than the sum of the imputed values of the firms' individual segments.

Berger and Ofek (1999) reinforced their view by examining the causes and effects of companies' refocusing programs. From their studies, they conclude that diversification is one of the causes that force companies to refocus. They also find that, after examining the market reaction to the restructuring, firms engaged in refocusing programs achieve a cumulative abnormal return of 7.3% on average.

Similarly, Comment and Jarrell (1995) find that firms that increase focus outperform firms that report no change, or decrease, in focus. They relate changes in focus to stock returns and variety of control variables. They find that increases in focus are associated with greater shareholder wealth. Moreover, they find that diversified firms were more active in the market for corporate control than focused firms.

Another study conducted by Servaes (1996) examines a sample of firms from 1961-1976 to assess how diversification was perceived by a capital market. Surprisingly, he finds that diversified firms were also valued at a discount compared to single-segment firms during the 1960s, when the diversification merger wave started.

## **2.4 Common Sources of value loss from Diversification**

Some of the main reasons theoretically claimed to be the sources of value-loss by diversified firms are described below.

### ***2.4.1 Inefficiencies in Internal Capital Markets***

In any firm, managers must allocate capital across different projects. Internal capital markets are a major channel of capital allocation in modern industrial economies. As described by Gertner, Scharfstein and Stein (1994), internal capital markets may differ from external capital markets due to differences in information, incentives, asset specificity, control rights, or transactions costs<sup>1</sup>. Consequently, one would expect a segment of a diversified firm to invest irrespective of its cash flow if it has valuable investment opportunities and the firm has sufficient resources. If the diversified firm is credit constrained, it can ensure that a segment's cash flow affects its investment only through its impact on firm cash flow. It is therefore not surprising that much of the literature on diversification argues that an efficient internal capital market creates value for shareholders.

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<sup>1</sup> Lamont (1997) clarifies that the internal capital markets of diversified firms enable them to fund profitable projects that, because of information asymmetries and agency costs, the external capital market would not finance.

Since the internal capital market affects the investment by segments, it is important to examine whether a firm loses value because it does not direct corporate resources to their best uses. If firms have limited funds available for investment because external funds are more expensive than internal funds, an efficient internal capital market allocates these funds to maximize shareholder wealth. One would expect that divisions with better investment opportunities would have priority in the allocation of funds and that their investment should be less affected by the performance of the firm as a whole than the investment of more marginal divisions. Divisional managers can expend substantial resources in rent-seeking and internal politics, thereby distorting the allocation of resources and creating deadweight costs. When resources are allocated within a firm in such a way that the most profitable projects do not have priority, the benefit of having an internal capital market disappears. In such cases, one would expect the value of the diversified firm to be lower than the value of a matching portfolio of specialized firms.

Internal capital markets could fail because each division is not treated as a stand-alone firm that relies mostly on its own cash flow to finance its projects. Lamont (1997) established that investment in non-oil divisions of petroleum companies fell when the cash flow of the oil divisions decreased dramatically because of the large drop in oil prices in the mid-1980s. Thus, his research shows that investment in a division of a diversified firm depends on the success of the firm's other divisions that are in unrelated industries in the context of the experience of an industry facing a sharp decline in cash flow.

A diversified firm should allocate more resources to segments that have better investment opportunities within the firm, and it should protect the investment budgets of these segments when the firm cuts back on investment. Shin and Stulz (1997) find that segments with better investment opportunities invest more, but they find no evidence that the internal capital market protects the investment budgets of a segment with better investment opportunities when the segment or the firm experience an adverse cash flow shock. Shin and Stulz (1997) further investigate the sources of cash flows for a segment's

investment. Here they find that investment by a segment depends more on its own cash flow than it does on firm cash flow. At the same time, however, a segment's investment is affected by the cash flow shortfall of other segments irrespective of the value of its investment opportunities, which is inconsistent with efficiency.

Berger and Ofek (1995) strengthen this argument by empirical evidence which shows that subsidization of poorly performing segments contributes to the value loss from diversification. In their study, Berger and Ofek examine whether the presence of negative cash flow in one or more segments has a more negative effect on diversified firm value than the presence of negative cash flow has on focused firm value. They conclude that diversified firms with negative cash flow segments have significantly lower excess values than diversified firms without such segments.

#### ***2.4.2 Agency Problem and Diversification***

Another issue related to the diversification discount is the role of insiders in diversified firms. If there is a diversification discount, why do firms remain diversified? One possible explanation is that firms are plagued with agency problems that allow managers to enter new business, from which they privately benefit, at the expense of shareholders. According to Matsusaka (2001), the agency view of diversification is based on the idea that because stocks are widely held across a large group of shareholders, individual shareholders have neither the incentive nor the ability to monitor and discipline managers. Hence managers use diversification as a means through which they pursue their own interests without regarding its effect on shareholders' value (Jensen, 1986).

There is some evidence that the diversification discount is at least partially determined by the limitations of the firm's corporate governance structure to curb manager-owner agency problems. Palia (1999) finds that the diversification discount is diminished by larger pay-performance sensitivity (measured by shares and options in management compensation packages) and by smaller board size. Also, Anderson et al. (1998) find that CEOs in large diversified firms have lower stock ownership, higher levels of pay and

lower sensitivity of pay to firm performance. Finally, May (1995) finds that CEOs with more of their personal wealth vested in the firm tend to follow diversification strategies. This is owing to the view that they will minimize their personal risk by diversifying their much concentrated wealth even if it is not in line with the strategy of achieving higher value for the company as a whole. Consequently, management tends to keep the firm diversified even if the firm is valued at a discount compared to stand-alone firms.

Recent work has argued that conglomerates may sell at a discount as a result of lower efficiency, and not necessarily agency problems. Maksimovic and Philips (2001) model how conglomerate firms allocate resources across divisions over the business cycle, and how their responses to industry shocks may differ from those of single-segment firms in the absence of agency problems. Then, they test their theory by examining the growth and efficiency of firms and their business segments using plant-level data for the period 1975–1992. They find that conglomerate firms are less productive than single-segment firms of similar size.

## **2.5 Studies Documenting Evidence That Diversification is Not Value Destroying**

Many empirical studies conducted in the 1990s concluded that diversification causes firms to trade at discount compared to stand-alone firms. However, some of the most recently conducted studies do not agree with the findings that diversification causes the poor performance of diversified firms. Most of these studies do not question the existence of a discount for diversified firms. Instead, they either argue that the discount is attributable to factors other than diversification or highlight the difficulties involved in attempting to precisely measure the valuation effect of diversification.

Most recent empirical studies by Villalonga (2003), Diltz Hyland (2003), Billett and Maur (2000), and Chevalier (1999), cast some doubt upon the hypothesis that diversification is value destroying. Diltz and Hyland (2003) examined the monthly returns from a sample of firms over 36 to 60 month intervals following an announcement to diversify. Based on the analysis of the ex-post monthly returns, they do not find

evidence of negative long-run abnormal returns following diversification. Similarly, Billet and Mauer (2000) gather from their study of tracing stock announcement that there are benefits to diversification. Hyland and Diltz (2003) document positive announcement impacts associated with the announcement of diversifying events.

Villalonga (2004) argues that assessing whether diversification creates or destroys value is a particular case of the “treatment effects” literature that seeks to establish causation from non-experimental data. He concludes that the simple average difference in outcomes between treatment and control groups is only an unbiased estimate of the treatment effect when units are randomly assigned to the treatment. However, in contexts such as diversification and managerial decision-making, where experimental data are unavailable, assignment is non-random. Using three different treatment effects estimators to address the diversification question, he finds different estimates of the effect of diversification on firm value. However, the effects are invariably insignificant across all estimates.

Campa and Kedia (1999) put forward that characteristics that cause firms to diversify might also cause firms’ values to be discounted by the market. Thus, they assert that diversification policy is endogenously determined by a firm’s management along with other policies and firm characteristics that, taken together, determine how investors value the firm. Ignoring this endogeneity may lead a researcher to conclude erroneously that diversification destroys value. They support their assertion that the diversification discount drops and sometimes disappears when they control for the endogeneity (size, growth, investment, and profitability) of the firm’s diversification policy.

Similarly, Graham et al (2002) analyze the performance of a sample of target and acquiring firms engaged in a diversifying merger. They learn that the companies had been discounted by the capital markets prior to the merger announcement. They then demonstrate how using industry-median market values from single-segment firms to impute the value of multi-segment firms may produce a spurious discount.

Consistent with the view that significant measurement problems exist, Bernard et al (2000) assert that valuation estimates for single-segment firms contain embedded real options to diversify and expand into other business segments. In contrast, multi-segment firms have exhausted some or all of these real options. This assertion implies that the use of single-segment firm data to construct estimates of firm value for multi-segment firms may create a spurious diversification discount. Moreover, to the extent that real options are created when firms diversify (i.e. options to refocus), these options will not find their way into multi-segment firm values constructed from single-segment firms' data. They find that multi-segment firms consist of segments that have smaller real options compared to the corresponding median single-segment firms by showing that diversified firms spend less on R&D, have a larger fraction of assets that are tangible, generate larger cash flows and are bigger in size compared to the equivalent synthesized firms.

## **2.7 Studies Documenting Evidence That Diversification Creates Value**

A very few studies show that diversified firms trade at premium and not at discount. The difference between these studies and the above results are attributed to the possibility of measurement errors in prior research. Villalonga (2000a) uses an establishment level database covering the entire U.S. economy to construct business units that are consistently defined across firms. She finds that diversified firms trade at a significant premium, not a discount, when compared to non-diversified firms from the same industry. In addition, she concludes that the source of the different results is because of inaccuracies in reported segment data and/or the bias due to managerial discretion in segment reporting.

## **2.8 Related vs. Unrelated Diversification**

The economic rationale of large diversified firms is to achieve synergy between business units in order to create more economic value than the individual business units in isolation. In order to achieve this objective, however, the nature of a firm's diversification strategy plays a greater role in the firm's performance than the overall degree or level of

diversification. Many writers argue that related diversification allows the corporate centre to exploit the inter-relationships among different business segments to achieve cost or differentiation advantages over rivals.

The valuation effect of related vs. unrelated diversification has long been a subject of debate. Many authors hold the view that related diversification affects firm value more positively than unrelated diversification because skills and resources can be used in related markets. Resource sharing and competency transfer enable the diversified firm either to reduce overall operating costs in one or more of its divisions, or to better differentiate the products of one or more divisions resulting in a price premium (Porter, 1987). Related diversifiers should outperform unrelated diversifiers, using this logic, since unrelated firms do not have access to such inter-business unit economies of scope or learning benefits. There are numerous studies that support the superiority of related over unrelated diversification strategies. Berger and Ofek (1995), in their study to determine the effect of diversification on firm value, find that the value loss in firms engaged in related business is less than that of unrelated. Similarly, studies conducted by Markides and Williamson (1996), and Bettis (1981) confirm these findings.

However, there are also many studies which have found no relationship between diversification strategy and performance after controlling for the industry effects, prior performance, or measuring relatedness differently. Ang et al (2003) studied the announcement period and the three-year post-merger abnormal returns. They documented that the unrelated mergers have significantly lower abnormal returns than the related mergers. Contrary to Berger and Ofek's finding, however, after they adjusted for merged firms' overvaluation (caused by firms' poor deal making ability) to control for differences in pre-merger conditions, there is no significant difference in post-merger abnormal returns between related and unrelated diversification. This implies that there is no diversification discount from more careful analysis of the acquisition process. Rather, the "diversification discount" may be attributed to the degree of overvaluation, which is caused by the acquirer's poor deal making ability. Ang et al (2003) show that differences in post-merger performance between related and unrelated mergers are attributable to pre-

merger conditions as well as the value creation or destruction at the acquisition phase due to the acquirer's deal making ability. Similar studies conducted by Palepu (1985) and Park (1997) do not reach a definitive conclusion regarding whether and how the type of diversification affects performance. Garry (1999) attributes these mixed results to the role of managerial policies in determining the success or failure of related diversification move.

## **2.6 Diversification as a Match-seeking Theory**

Some other researchers emphasize the idea that in some cases diversification can be understood as a dynamic value maximizing strategy revolving around the notion of organizational capabilities. According to this view, firms consist of organizational capabilities in particular, the skills and abilities of top and middle management, that are to some degree transferable across products and industries. Because the capabilities are valuable, it may not be optimal for a firm to go slowly out of business as sales of products decline. Rather it may be better to try to find a new product and industry. The process of searching for the business that is a good match for organizational capabilities is full of uncertainty, and in some cases the uncertainty can be resolved by experimentation, by entering an industry and observing the outcome (i.e. by diversifying).

Matsusaka (2001) developed a model to explore the view of diversification as a match-searching process. The model shows how diversification can be a value maximizing dynamic strategy even if there are specialization efficiencies. From his investigation, he finds that diversified firms trade at discount because they do not have a good match for their organizational capabilities. Thus, it is the poor performance (the lack of good use of organizational capabilities in existing businesses) that causes diversification, not the other way around.

## **2.9 Diversification, Credit Rating, and the Cost of Debt**

A credit rating is an independent assessment of the credit worthiness of a bond by a credit rating agency. It measures the probability of the timely repayment of the principal and interest of a bond. Generally, a higher credit rating would lead to a more favourable effect on the marketability of a bond. Ratings are based on an evaluation of several factors including the credit quality, diversification, and maturity of assets in the portfolio, as well as, management strength and operational capabilities (Fitch Ratings, 2001). Diversification is, therefore, one of the contributing factors for a firm's better credit ratings by the rating agencies.

Diversification contributes to a company's better credit rating in many ways. In general, cash flows from segmented market subsidiaries are expected to be less correlated to those from domestic and international subsidiaries operating in integrated markets. The earnings and cash flow from diversified companies' segments are usually not correlated. Consequently, cash flows from different segments may provide a greater level operational hedging to a firm's domestic and other foreign cash flows. This trend helps the diversified companies to have a stable earnings and lower shareholders' risk. Lower risk and stable earnings are some of the agencies' criteria for good credit rating. By diversifying their business, therefore, companies can achieve a better credit rating which enables companies to access cheaper debt finances.

Prior research by Mishra (2004) finds that diversified companies, geographically and industry wise, receive higher bond ratings. Such firms experience a significantly lower cost of new debt compared to their counterparts diversified only by developed markets or operating domestically. This saving in the cost of new debt accounts for a contribution of about 2.2% of bond value to shareholder value. Of this saving, about two thirds is attributed to the indirect impact of such diversification through the improvement in bond ratings, while another one third is attributed to the direct impact of such diversification.

## **2.10 Firm Characteristics and the Diversification Discount/Premium**

Many authors have stressed the importance of controlling for firm-specific characteristics that affect both the firm value and the decision to diversify for a proper evaluation of the effect of diversification on firm value. (Campa and Kedia, 1999, Matusaka, 2001, and Graham et al, 2002). According to these authors, the characteristics of firms that cause a company to diversify can also cause the loss in the firm's share value. Similarly, Villalonga (2000b) asserts that firms do not diversify at random, but choose to do so, based on their characteristics, on the characteristics of their original and potential target industries, and the relationship between the two. She further points to the problems in estimating the effect of diversification on firm value obtained from single-equation models which suffer from a sample selection bias. Failure to control for firm characteristics that lead firms to diversify may wrongly attribute the discount/premium to diversification instead of the underlying characteristics.

Campa and Kedia (1999) illustrate this by example. Consider a firm facing technological change which adversely affects its competitive advantage in its industry. This poorly performing firm will trade at a discount relative to the other firms in the industry. Such a firm will also have lower opportunity costs of assigning its scarce resources in other industries, and this might lead it to diversify. If poorly performing firms tend to diversify, then, not taking account of past performance and its effect on the decision to diversify will result in attributing the discount/premium to diversification activity, rather than to the poor performance of the firm.

Yet, identifying the characteristics that could affect a diversified company's performance, other than the diversification factor, is usually difficult. Some of the characteristics which can potentially affect the value of diversified companies are reviewed here.

### ***2.10.1 Firms' Pre-diversification Performance***

The value of firms which diversified through acquisition can be affected by the acquired companies' share performance prior to the acquisition. Studies by Graham et al (2002) and Lang and Stulz (1994) examined companies for which they can assign market values to the acquiring and acquired units both before and after merger. They tracked the performance of the diversifying companies' shares for two years. The companies' shares traded at a discount over the two-year period surrounding the acquisition, which could be evidence that diversification destroys value. However, the acquired units' value, in their last year of operation as stand-alone companies, showed a discount in value was equivalent to the loss observed in the two years after diversification. Simply by diversifying into a discounted unit, the diversifying company can lose value, even if the diversification itself does not destroy value. From their evaluation, the authors concluded that a fair portion of the diversification discount in firms occurs because the units that make up the conglomerate would be discounted even if they operated as stand-alone firms, and not because diversification destroys value.

Similarly Campa and Kedia (1999) and Villalonga (2003) provide evidence that diversifying firms are poor performers prior to conglomeration, indicating that the act of diversifying does not necessarily cause the entire discount observed in conglomerates. This suggests that observed diversification discounts for multi-segment firms might occur because the units would themselves be discounted even if they operated as stand-alone units. Hyland (1999) finds that conglomerate firms perform poorly and adopt a diversification strategy in an effort to acquire growth opportunities.

### ***2.10.2 Relative Size***

Previous studies have indicated that large enterprises are more diversified than small ones (Gollop and Monahan, 1991). In situations where diversification is achieved through acquisition of another company, the size of the two companies has an impact on their merged value. Benston, Hunter and Wall (1995) hypothesize that the greater the relative

size of the target to the acquirer, the greater the potential for merger-related gains in efficiency. They suggest that economies of scale are positively related to the ratio of target to acquirer size. However, the authors note that the potential gains from economies of scale may be offset by the fact that relatively large targets have fewer opportunities to introduce new and potentially more profitable products. In addition, acquisitions of relatively large firms may result in higher overall costs to the acquirer. The acquisition of a relatively large target also increases the complexity of the organization and the levels of managerial discretion, thereby further raising costs to the acquirer. Not controlling for the size factor, therefore, can mistakenly attribute the gains or losses observed in diversified firms.

### ***2.10.3 Growth***

The growth opportunity of a company depends on many features such as the company's investment in capital expenditure and R&D, its industry's market outlook, and other firm-specific characteristics that determine the company's growth prospect. The growth opportunities of the diversifying firm can impact several components of the acquirer's capital structure such as liquidity and leverage. Similarly growth opportunities can have a significant effect on the value of the firm. For these reasons, controlling for growth opportunities is important in assessing the diversified companies' value gain or loss due to diversification.

### ***2.10.4 Profitability***

It is apparent that markets are influenced by companies' profitability. A company with a good profitability record is preferred by investors as compared to less profitable ones. Similarly it is likely for the profitability factor to have an effect on the market value of diversified companies. Thus, it is important to evaluate the estimated diversification discount/premium in relation to companies' profitability. A previous study by Henri and Servaes (2003) shows that the profitability of firms, measured as operating profit divided by sales, affects the observed diversification discount. Their preliminary measure of the diversification discount is 7.7%. After controlling for the profitability factor, however,

the discount decreased to 5.9%. They found, from the analysis of the profitability trends of the diversified and focused firms, that diversified firms were less profitable than the focused firms.

Thus, by controlling for the profitability factor, the discount decreased by almost 2%. They further analysed the relationship between the diversification discount (excess value) and the profitability of each firm. They found a significant positive correlation between diversification premium and profitability. An increase in excess profitability by one percentage point increases excess value by approximately 1.6 percentage points.

## **2.11 Corporate Refocusing and Diversification**

Focus on a narrow set of activities matters within an industry if there are significant gains from specialization. If the typical firm within an industry has few substantial intangible assets, for example, in management skills, R&D, and marketing that may be used in a complementary way across product segments, it is likely that there will be significant gains from diversification (Morck and Yeung, 1997) Thus, focus matters when there are significant increasing returns to specialization. A more focused firm is also easier to analyze and value since it is more transparent<sup>2</sup>.

The trend towards corporate refocusing dates back to the 1980s. Decisions that lead to a reduction in the diversity of a firm's operations have been found to increase share value, improve the firm's prospects for future long-term performance, and increase its operating performance.

Berger and Ofek (1999), in their attempt to establish the causes and outcomes of refocusing, examined 107 diversified firms. They find that one cause of refocusing is the desire by diversified firms to enhance shareholder value. Diversified firms that refocus

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<sup>2</sup> Ferris and Sarin (2000) underline the fact that investors are likely to prefer focused firms since it is more convenient for them to achieve the desired level of risk diversification with pure-play firms.

have significantly greater value losses from diversification policies than multi-segment firms that do not refocus.

Daley et al. (1997) find that divestitures that increase corporate focus add more value than own-industry divestitures. Desai and Jain (1999) find that long-run abnormal returns spanning the three years after a divestiture that increases corporate focus are 47% greater than the returns to firms that engage in divestitures that do not increase focus. They also find that operating performance improvements are consistent with market performance of the two groups of firms. Similarly, John and Ofek (1995) find evidence of improved operating performance over the three years following asset sales that lead to increased corporate focus.

Even though corporate refocusing is a process of divestment from non-core domains and “reinforcement” of the core business, the strategic refocusing process is not always as a result of the realization by firms of the fact that diversified firms under-perform focused firms. According to Berger and Ofek (1999), another cause of refocusing is a reduction in agency costs. If agency problems play a role in creating sub-optimal diversification policies, such problems may have to be reduced before managers will undertake a divestiture program. Berger and Ofek find that 31% of refocusers have a change in management before their restructuring. As a result of refocusing, they find that the cumulative abnormal returns, overall, of the refocusing-related announcement of refocusing, average 7.3%, and that these abnormal returns are significantly related to the amount of value that was being destroyed by the refocuser’s diversification policy. The fact that the gain from refocusing is positively related to the amount of value that was being destroyed, indicates that divesting divisions from a diversified firm can reverse (at least partly) the value reduction arising from operating multiple lines of businesses within one firm.

Campa and Kedia (1999), on the other hand, argue that, much like the decision to diversify, the decision to refocus is also endogenous. Firms choose to refocus when the benefits outweigh the costs of refocusing. After controlling for firm characteristics, they

find evidence that the characteristics which force firms to refocus are positively correlated with firm value. Controlling for these characteristics increases the estimated diversification discount of refocusing firms.

## **2.12 Diversification in Emerging Markets**

### ***2.12.1 Potential Benefits of Diversification in Emerging Markets***

Research by Lang and Stulz (1994), Berger and Ofek (1995), Servaes (1996), and Lins and Servaes (1999) indicated that corporate diversification has not enhanced the value of firms in the developed markets. The evidence in these papers suggests that, for the average firm operating in developed capital markets, the costs of diversification outweigh the benefits.

In emerging markets, however, the relative costs and benefits may not necessarily be the same as in the developed countries, because market imperfections are more severe. There are several reasons to posit that diversification is potentially beneficial in an emerging market context. The transaction cost theory proposed by Williamson (1985) suggests that the optimal structure of a firm depends on its institutional context. Khanna and Palepu (1999) compare the context under which diversified companies work in the emerging and developed markets. They underline that in the U.S., the institutional context is characterized by well functioning capital, labour, and product markets. In contrast, in an emerging market such as India, China, or Brazil, there are a variety of market failures, caused by information and agency problems. For example, the financial markets are characterized by inadequate disclosure and weak corporate governance and control. Intermediaries such as financial analysts, mutual funds, investment bankers, venture capitalists, and the financial press are not fully evolved. Finally, securities regulations are generally weak and their enforcement is erratic.

Similar problems arise in product markets and labour markets, once again because of the absence of intermediaries. According to Khanna and Palepu (1999), the absence of intermediary institutions in emerging markets makes it costly for emerging market firms to acquire necessary inputs such as finance, technology, and management talent. Market imperfections also make it costly to establish a quality brand image in product markets and to establish contractual relationships with international joint venture partners.

Firms can take advantage of these imperfections by diversifying at the firm level or through membership in industrial groups that are common in many emerging and developed capital markets. Greater imperfections in the external capital markets of emerging economies should make internal capital markets relatively more attractive for firms. As described in Williamson (1975) and Stein (1997) information asymmetries increase the cost of external funds over internal funds. Diversification allows firms to bypass the external capital market in favour of an internal market where divisions that have high cash flows, but poor investment opportunities, finance the investment of divisions that have low cash flows but excellent investment opportunities. There is, however, evidence that suggests that in internal capital markets, funds may actually flow in the wrong direction. Studies by Lamont (1997), Scharfstein (1998), and Servaes and Zingales (2000) indicate that internal capital markets can lead to under-investment in profitable projects and over-investment in the unprofitable ones. Despite this, Henri and Servaes (2003) insist that when information gaps are severe, as is the case in emerging markets, the price differential between internal and external finance increases, which should make diversification more beneficial.

Another reason for expecting that industrial diversification by a developing country's firms would have a positive contribution to the firms' values is that a developing country's firms typically lack the firm-specific advantages that increase the benefits of focus strategies (Amsden, 1998, Amsden and Hikino, 1994). Their advantages are often in diversification, and the value of such advantages tends to increase with further diversification.

Finally, the government policies of many developing countries have created benefits for diversified firms, in the form of access to bank loans at attractive interest rates, foreign exchange and a multitude of rent-creating interventions (Amsden, 1998) that are likely to have a favourable impact on performance. In this context, an enterprise may be more profitably pursued as part of a large diversified business group which can act as an intermediary between individual entrepreneurs and imperfect markets. More generally, the scale and scope of groups could allow business groups to internally replicate the functions provided by stand-alone intermediary institutions in advanced economies (Jensen, 1986 and Stulz, 1990).

### ***2.12.2 Potential Costs of Diversification in Emerging Markets***

Despite the potential benefits of diversification in emerging markets, the severe market imperfections can also increase the potential agency costs associated with diversification. Membership in diversified groups can be associated with conflicts of interest between controlling family shareholders and minority shareholders. Common family ownership may result, for example, in misallocation of capital by investing cash flow, generated by profitable group firms, in unprofitable investments, even though this may not be in the interest of public shareholders. Further, diversified groups can pursue inefficient compensation schemes across group companies for internal equity reasons.

Finally, because of the difficulty of acquiring expertise in a variety of industries at the same time, the central office of a diversified group can also make sub-optimal decisions. The problems associated with affiliation with a diversified organization may be exacerbated in emerging markets because of weak disclosure requirements, ineffective governance mechanisms, and a poorly developed market for corporate control. Whether affiliation with a diversified business group creates or destroys value in emerging markets is, therefore, an open empirical question.

### ***2.12.3 Empirical Studies on Diversification and Emerging Countries***

#### ***Firms' Value***

Unlike in the developed markets, empirical tests on the costs and benefits of corporate diversification in emerging markets support the hypothesis that suggests diversification is beneficial in emerging markets. Khanna and Palepu (2000) examine the value and profitability of Indian firms that belong to industrial groups. They find that profitability first declines with group size and scope, but then increases beyond a threshold level. This evidence suggests that beyond a threshold level, there might be benefits to diversification at the group level.

Another study that supports the concept of the positive effect of diversification to the firms' value in emerging markets is research done by Fauver, Houston and Naranjo (2003). They use the Worldscope database to study firms in 35 countries over the period 1991-1995. Their aim is to determine whether the institutional environment of a country affects the costs and benefits of diversification. One of their conclusions is that in low-income and low-GDP countries, diversification is not harmful to shareholder wealth, and could be beneficial. Since the low-income countries are, by definition, emerging market countries, their conclusions suggest that diversification has no effect on firms' value.

Similarly Claessens et al. (1999) studied how corporate diversification policy interacts with the group affiliation and ultimate ownership structure of East Asian firms. They find that diversification is associated with a 5 percent discount of firm value in East Asia. However, the discounts are attributable to diversified firms in the more developed East Asian economies. This finding is consistent with the internal market hypothesis that argues that a lack of reliable financial reporting and limited analyst following in less developed markets, causes a substantial information gap between a firm's managers and its investors which should make diversification more beneficial in emerging markets.

## **2.13 Diversification and Firm Value in South Africa**

### ***2.13.1 Background***

The corporate history in South Africa was dominated by conglomerate firms until the late 1990s. In early 1994 the six largest of these pyramid groups of industrial, commercial, mining, and financial service companies constituted more than 70% of the total market capitalization of the JSE (Barr and Kantor, 1994). These pyramids were controlled by a few dominant shareholders who owned a fraction of the underlying equity. Pyramid holding companies allow dominant shareholders to retain a majority of voting rights while holding only a fraction of the equity.

According to Barr and Kantor (1994) the pyramid firms have two key features. First, the shareholders in the conglomerate pyramid company own a stake in a diversified portfolio of operating companies. Second, the dominant shareholders systematically control the pyramid and the operating companies even though they have a minority ownership. The minority control is applied by a tier of holding and strategic cross-holding that separates the parent company from the operating companies. In this way the controlling shareholders, typically a family that founded the enterprise, achieve their goal of diversifying their own wealth across different sectors of the economy and the world while maintaining control over their interest.

The relevance and efficiency of this type of structure is argued differently by different groups. Some argue that the structure is an efficient solution, in the South African context, to the problem of separation of ownership and control (Barr, Gerson and Kantor, 1995). Gerson (1993) argue that the performance of the major conglomerates was not discounted as a result of the unique structure that seemed to undermine the one-share-one-vote form of corporate governance. Similarly, studies by Barr and Kantor (1994) show that there is a benefit of maintaining the pyramid structure. They contend that, by keeping the pyramid structure, the controlling shareholders are able to diversify their

portfolios through the pyramid without losing control over the operating companies. At the same time, the operating companies can benefit from the efficient management that the controlling shareholders can contribute, as well as, obtain finance and credit guarantees should the need arise.

On the other hand, government policy has been to remove pyramids; unbundle unfocussed conglomerates and break up monopolies. By doing so, as described by the African National Congress (1992), it hopes to promote greater efficiency in the private sector. Two reasons were given by the government as a basis for the objection to pyramid holding. First, it was argued that the groups are said to represent an unhealthy concentration of economic power and that their existence is an inhibiting factor to competition in the market for goods and services. Secondly, it was argued that the pyramid holding reduces the value of shareholdings and it was maintained that such group structures would be valuable to their shareholders if split into their component parts, or unbundled. Subsequent empirical studies as to whether unbundling benefits shareholders or not, are summarized in the next section.

### ***2.13.2 Evidence on Effect of Diversification on Firm Value in the JSE Securities Exchange***

The definition of diversification in this study refers to product diversification where firms are engaged in more than one industrial segment. However, the term “diversified”, for the purpose of this study, does not include holding companies which have segments as listed subsidiaries. In this sense, there are no previous studies that evaluate the value of the multi-segment against single-segment firms. Although the nature of pyramids and mergers are different for the objectives of this study, the evidence gives a general idea of the performance of diversified companies in the South African context.

Blount and Davidson (1996) examine the market’s response to the announcement of unbundling on the returns of the parent companies and their subsidiaries. They performed two event studies, the first looking at the impact of the restructuring announcement on

parent companies, and the second looking at the impact on the subsidiaries. The study attempts to establish if any abnormal return occurred over the 120 days ( 60 days before announcement and 60 days after) surrounding the announcement of the unbundling. They report a positive average abnormal return of 33% for the parent company and a cumulative negative abnormal return of 18% for the subsidiaries. The possible explanation for the observed results, according to Blount and Davidson (1996) were: firstly, the motives for unbundling were not viewed as market related. Hence, there was a general perception in the corporate environment that the unbundling was a deviation from a more efficient structure. Secondly, from the capital market view point, they argued that the South African market may not be sufficiently sophisticated for unbundling to be a wealth-enhancing exercise.

Similarly, Barr and Kantor (1994) examined the existence of a discount in the Net Asset Value (NAV) of the pyramid companies. They evaluated the NAV of the six (Anglo, Gencor, JCI, Goldfields, Randgold and Anglovaal) Mining Finance houses to establish whether a discount exists in their NAV and to test the argument that unbundling would “unlock” value by eliminating the discount to NAV. Their findings suggest that shareholders who preserved their shares in the houses have benefited more than those who had shares in the listed companies that are controlled by the houses. Barr and Kantor argue that, by playing a monitoring and supervisory role on behalf of other shareholders, the pyramids can make a contribution to the efficient management of its group subsidiary companies. The pyramids can also support the operating companies with finance directly or with guarantees during periods of financial stress, which may add to the value of such companies. They further argue that unbundling can only reduce this role and other responsibilities of Mining Finance houses in the activities of its operating companies.

Consistent with the findings by Barr and Kantor (1994) and Blount and Davidson (1996), Davidson (1997) finds no evidence of a discount in value as a result of diversification. He, then, concludes that simply reallocating shares in listed subsidiaries to shareholders will not increase the value of the unbundled companies.

However, results from an event study by Affleck-Graves et al, (1989) on the long-term performance of conglomerates, conflicts with the above findings. They examined the long-term effect of corporate diversification. The performance of the conglomerate was compared to three benchmark portfolios, namely: a randomly selected portfolio, the market portfolio, and a pseudo-conglomerate portfolio. Using market and accounting (ROA and ROE) return measures; they found that conglomerates underperformed focused firms.

## **3 RESEARCH DESIGN**

### **3.1 Corporate Diversification**

Diversification can be defined in terms of product and geographical diversification. Product diversification is when a firm takes a step to extend business operations into other fields, whether related or unrelated, in order to increase sales, reduce costs, exploit more promising opportunities, or otherwise increases profitability and long term potential. Geographical diversification is when a company extends its operation in different geographical areas with different risk profiles.

The focus of this study is to evaluate the gain or loss in the value of the firms which have diversified their business activities across different industries. Many of the JSE Securities Exchange listed companies operate in more than one type of business activity. However, in the JSE Securities Exchange classification of firms across industries, only four companies are classified in the “diversified” category. This is mainly because the classification is based on the nature of the business in which the company dominantly operates even though the company has businesses in more than one industry. The websites of each of the JSE Securities Exchange’s top 200 companies were analysed in order to identify whether firms operated in a single market business segment or multiple business segments. The operation of the companies and their segment report were reviewed to study the nature of their business and ‘reclassify’ multi-segment companies as diversified.

### **3.2 Nature and Sources of Data**

This research basically involves an analysis of companies’ historical financial and market data. Hence it deals mainly with secondary data acquired from different sources. All the necessary financial and market data for the listed companies in the sample were obtained from McGregor’s BFA-net database. Similarly, the information regarding the names,

number of segments in a company, and nature of the business of the segments that constitute the conglomerate have been derived from McGregor's published encyclopaedia about South African companies and from the annual reports that the companies post on their websites. The literature review, which forms the theoretical background of the research, is an important part of the study. Journals, books, the Internet, and previous research conducted into the subject are the information sources for the literature study.

### **3.3 Sample Selection and Description**

The primary sample used in the analysis is derived from the BFA-Net (Bureau of Financial Analysis). The BFA-Net provides accounting and financial market data on over 413 JSE-listed companies in a standardised form. This includes information from the balance sheet, income statement, cash flow statement, financial footnotes, and market data going back 24 years. For the purpose of this research, however, the information provided by BFA-Net was not sufficient because it does not include segmental information which is important for the study. Companies include segment information in their financial statements as is required by GAAP<sup>3</sup>. It was, therefore, necessary for this study to investigate the financial statements of each of the companies in order to identify the diversified companies and other characteristics of the segments needed in the sample.

For a firm to be included in the primary sample, in addition to the basic requirement that the firm must be operating in a diversified business markets, data must be available on the market value of the equity of the company for the year 2003. Moreover, the companies must have data on sales, operating profit, and assets for each of their segments. In some cases a company can have more than one business segment even though the contribution of one or more of the segments to the overall company operation, in relation to the other segments, is insignificant. In such cases the effect of these small

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<sup>3</sup> GAAP, as prescribed in AC 115, requires companies to report financial information\_ revenue, result, assets, and liabilities- by segments about the different types of products or services, and the different geographical area in which they operate.

segments on the company's overall performance would be insignificant. Therefore it would be unfair to categorize them as a diversified company. Hence, the sales of a segment must constitute at least 5% of the company's total sales if the company is to be considered to be diversified. Companies having a pyramid-holding structure with a controlling interest, in any listed company, are not included in the sample as the subsidiary companies could also have diversified business.

The study is focused on the JSE Securities Exchange top-200 companies not only because smaller companies are unlikely to be diversified, because no segment information is available for them. Financial companies are excluded from the sample as the structure of the accounting items in their financial statements are different from the other companies and do not fit into the model used in this study. After investigating the annual reports of the top-200 companies, from the companies' websites, 38 companies were identified as having their nature of business diversified across more than one industry. Eight out of the 38 companies were excluded from the sample because they either did not provide segment information in their report or the information was incomplete in terms of the 3 accounting items (sales, operating profit, and assets) needed for the study. A further 4 companies were excluded from the sample because they lack data required from their corresponding industry sector. The refinement resulted in 26 companies with 111 business segments being included in the sample resulting in a total of 359<sup>4</sup> observations for the year 2003.

As an alternative means of measuring the value gain or loss from diversification, excess value for a sample of 57 focused companies is measured. The 57 focused companies represent all focused companies, after excluding the companies that lack the necessary data, within the top-200 JSE Securities Exchange listed companies. Focused companies, which are in the top-200 companies, but where sector is not one of the industries in which the segments of the sample diversified companies are engaged are excluded so that they

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<sup>4</sup> The 333 observations represent the total of the three accounting items (Sales, EBIT, Asset) for each of the 111 segments. The additional 26, to give a total of 359 observations, represent the actual value of the sample companies used to measure the excess value.

reflect the same background as the diversified companies. A total of 228 (three accounting items and the actual value for each company) observation from the 57 focused companies are analysed to measure excess value.

### **3.4 Research Methodology**

The study is based upon various theories that exist concerning corporate diversification and its effect on firm value. An empirical study that involves analysis of financial and market data of the JSE Securities Exchange listed companies is carried out to measure the gain or loss in companies' market value due to diversification.

#### ***3.4.1 Measuring Excess Value***

The central question in the diversification literature is whether the value of a diversified firm is less than its value if broken-up, traded, and operated as stand-alone entities. Ideally, the firm's actual value should equal the sum of the imputed values of the segments. But that is, usually, not the case. The difference between the firm's actual value and the sum of the imputed values for its segments as stand-alone entities is, therefore, measured to examine whether diversification enhances or decreases firm value. The gain/loss in value, described as excess value (EV), is measured using the following model<sup>5</sup>:

$$EV = \ln \left[ \frac{ACTUAL\ VALUE}{IMPUTED\ VALUE} \right] = \ln \left[ \frac{AV}{IV} \right]$$

Where:

EV = Excess Value,

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<sup>5</sup> Berger and Ofek (1995)

AV = The market value of the firm on the closing date at year-end.

IV = Sum of the imputed value of a firm's segments as a stand-alone firms.

The previous formula shows that the firm's excess value measure is the natural logarithm of the ratio of the firm's actual value to imputed value. The imputed value of a company is the sum of the imputed values of each segment in the company. The value of each business segment in a firm, as explained in the following section, is computed using the Industrial Multiplier Approach described in Berger and Ofek (1995).

### ***3.4.2 Measuring Company's Imputed Value***

The Industry Multiplier<sup>6</sup> method computes the imputed value of each business segment by multiplying the median ratio, for single-segment firms in the same industry, of the market value to one of three accounting items (assets, sales, or operating profit) by the segment's level of accounting item.

$$IV = \sum_{i=1}^n AI_i * (Ind_i(V / AI)_{mf})$$

Where:

IV = Imputed value of the sum of a company's segments as a stand-alone company,

AI<sub>i</sub> = Segment I's value of the accounting item (sales, assets, or EBIT) used in the valuation multiple,

Ind<sub>i</sub>(V/AI)<sub>mf</sub> = Multiple of the market value to the accounting item (sales, assets, or EBIT) for the median single-segment company in segment I's industry.

The sum of the imputed values of a company's segments estimates the value of the firm if all of its segments are operated as stand-alone businesses. The concept of the measurement is that the segment would have a ratio (market value to accounting item) that equals the average ratio of the undiversified firm in the industry.

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<sup>6</sup> Berger and Ofek (1995)

To compute the excess value using the sales multiplier, for example, the industry median multiple of market value-to-sales for the stand-alone firms in the segment's industry is multiplied by the segment's sales to obtain the imputed value of the equity of the segment. The same procedure is followed to get the imputed value using the other two accounting items (assets and EBIT). The process is repeated with each of the firm's segments and then summed to obtain the firm's imputed value. Finally, the firm's excess value is computed by taking the natural logarithm of the actual to imputed value.

The natural log of the ratio of a firm's actual value (AV) to its imputed value (IV) is the measure of excess value (EV), or the gain or loss in value from diversification. Positive excess value indicates that diversification enhances the value of segments beyond that of their stand-alone counterpart. Negative excess value indicates that diversification reduces value.

The excess value is further analysed in terms of the number of segments, relatedness between segments, size, and the company's extent of capital expenditure and its implication to the value of the firm. Analysis of the relationship between the number of segments and company value enables the establishment of whether there exists a relationship between the degree of diversification and the value of the firm or not. A subjective analysis will also be conducted to determine whether firm value is affected by the nature of the business in which it has diversified.

### ***3.4.3 Estimating Segment Value***

Estimating segment value is very fundamental in measuring the company's imputed value. The Industry Multiplier model is used to measure the value of each segment in a company. The first step in measuring segment value is examining the nature of the business of each segment so as to classify it into one of the sectors listed on the JSE Securities Exchange. Each segment was classified into a sector after carefully studying the nature of the business of each segment. But the method of classification is subjective. The data for each segment is derived from the company's annual report, as segment

reports are not available on the BFA-Net. The three accounting items (sales, assets, and operating profit) needed for this research is provided for each segment. In cases where there are unallocated accounting items, they are prorated across segments based on the relative size of the segment in terms of the corresponding item. For example, if a company's head office reports revenue that can not be attributed to any of its segments, the revenue is prorated to the segments according to their respective revenue size.

#### ***3.4.4 Measuring Industry Average***

As explained in the preceding sections, the imputed value of each segment in a diversified company is computed by multiplying the accounting item (sales, assets, or operating profit) of the segment for the year 2003 by a corresponding multiplier of the industry in which the segment is classified. The market value to an accounting item (sales, assets, and operating profit) ratio is calculated for each company in the 37 industries to which the 111 segments of the sample companies belong. Then the mean and median value of the ratios for each of the 37 industries was calculated. Due to the wide distribution of the ratios, the median value is used as a multiplier rather than mean. In calculating the median ratios, the values of the companies identified as diversified, were excluded so that it reflects the value of the representative focused companies. After excluding companies with no or incomplete and extreme results, the bench-mark industry averages included 37 industries with 188 companies and with a total of 752<sup>7</sup> observations.

#### ***3.4.5 Measuring the Degree of Relatedness in Diversification***

Berger and Ofek (1995) measured the degree of relatedness in one company as the difference between the number of segments reported by a company and its number of unrelated segments. Based on this calculation, the related segments variable varies

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<sup>7</sup> The 752 observations include the three accounting items (sales, EBIT, and asset) plus their actual value for each of the 188 companies (188x4 = 752).

between zero, when no segments are related, and the number of segments minus one, when no segments differ. Because of the smaller size of the diversified companies, however, applying the above method would not reflect the degree of diversification in a company's business. Hence, to determine whether a company has diversified its operation in related segments or not, each segment's industry is traced to see if it falls in the same Major sector with the other segment's industry. If all the company's segments' nature of business is traced to one Major sector, they are regarded as related and the company is deemed to have diversified in related businesses. Based on this method, the sample companies have been classified into two groups: Related-diversified and Unrelated-diversified companies. Then, the excess value is measured for each of the two groups.

### ***3.4.6 Controlling Factors***

The measure of excess value is not evidence per se that it is a gain or loss in value merely due to diversification. Many other factors might contribute to the difference in value between actual and imputed value. Although it is difficult to identify all these endogenous factors, and measure their effect in the measure of excess value, this study includes some fundamental variables that might explain companies' excess value. Here are some of the factors believed to have a potential impact on the excess value other than the diversification issue:

*Profitability:* one of the investors' criteria for investment in a company is its profitability. Evidently, the profitability history of the company has an impact on the market value of the company. The measure of excess value is, therefore, likely to be affected by profitability. To determine whether a highly profitable diversified company has a higher excess value than a less profitable one, the profitability ratios (EBIT/SALES) of the sample companies for the past 5 years are examined

*Investment:*, companies need to invest in long-term assets either for growth or sustainable earnings. Companies with relatively low capital expenditures can be perceived, by investors, as unsustainable companies. The capital expenditure to sales (CAPEX/SALES) and capital expenditure to total assets (CAPEX/ASSETS) ratio of the

last 5 years is examined for the sample companies to evaluate whether investment in long-term assets has any significant impact on the excess value.

*Size:* previous studies conducted on the size effect have suggested that larger companies are traded at a higher premium than the smaller ones (De Villiers et al. 1986). To see if size has any effect on the amount of excess value calculated, the variation excess value across different size (measured by asset size) is tested.

### ***3.4.7 Alternative Measures of the Value Effect of Diversification***

As a supplementary measure to this study's basic model of measuring diversification, the researcher has examined the excess value for a sample of focused companies and two ratios, which are believed to be good indicators of companies' performance, of the diversified and focused companies are compared. The Price/earnings ratio and Price/book value ratios for the past 5 years (1999-2003) are investigated for each of the companies included in the sample, as well as, the industries in which all the sample companies operate. In calculating the industries' average ratios, caution has been taken to exclude the identified diversified companies so that it reflects a true focused-companies' industry average.

### ***3.4.8 Causes of Excess Value in Diversification***

Although many theories are given as to why diversified companies are traded at a premium or discount, it is always difficult to identify the real causes of the excess value. In this research, the Debt/Assets ratio and Effective tax rate is investigated to establish whether the excess value can be explained by the difference in the two characteristics of the diversified and focused companies.

### **3.5 Rationale for the Industry Multiplier Approach**

Different methods have been used so far in the U.S to measure the value effect of corporate diversification. One of them is the event-study method where the specific takeover date is identified and the gain/loss in share price of the diversified firm is examined thereafter. However, the share price response to the takeover may reflect the terms of the offer, the probability of success, or information signalled about opportunities in the buyer's core line of business. Thus, it is difficult to clearly identify investors' attitudes about diversification by examining any post-announcement date stock price response (Berger & Ofek, 1995).

Another widely used approach is the Tobin's q-ratio method, which compares q (present value of future cash flows divided by the replacement cost of tangible assets) of diversified firms with those of a stand-alone firm. Calculation of q requires assumptions about rate of depreciation and inflation to estimate the firm's replacement value. By employing the Industry Multiplier approach, it is believed that the problems stated in the above two methods can be avoided.

The main advantage of the Industry Multiplier approach is the fact that it is neutral to the industry sector and time shocks that affect all firms in a similar way (Berger & Ofek 1995). The method not only provides a direct estimate of the excess value associated with diversification, but also enables further investigation at a segment level of the sources of any overall value effect.

The validity of measuring diversification discount/premium using the Multiplier approach depends on management disclosure policies. Theoretical models of managerial disclosure decisions suggest that managers may have incentives to misstate segment data to both providers of capital and product market competitors (Darrough and Stoughton, 1990). It is often easier to identify assets attributed to a specific segment. However, sales and expenses of the company may not be specifically identifiable to a specific segment. Thus management has the ability to misallocate segment sales and expenses, so segment

sales and earnings could be misstated. Hence, this study will use three multipliers (Sales, EBIT, and Asset) independently to compute the imputed value of the segments.

### **3.6 Limitations of the Study**

Most of the limitations of the study arise mainly as a result of the unavailability of certain data or of data for certain periods needed for this research. The following are some constraints which might limit the research in its scope and objectives:

- The absence of segment data in standardized form (BFA-Net) in general, and the unavailability of the segment data in companies' annual reports for more than 2 years has limited the period of this study to a single year; that is 2003. Examining the results across a longer period would enable us to evaluate the consistency of the value gain or loss and thereby enhance the validity of the methodology.
- In identifying and classifying the segments into different sectors, the researcher studied the nature of the business of segments subjectively.
- The exact contribution of factors, other than diversification, on the measure of excess value could not be measured because the sources of data do not fit with the model that can measure their effects.
- Although the literature gives a detailed list of potential causes of value loss or gain in diversified companies, this research is limited in its scope to identifying the possible causes, in a South African context, of the excess value.

## **4 DATA PRESENTATION AND ANALYSIS**

### **4.1 The Overall Effect of Diversification on Firm Value**

Measuring the value effect of diversification has been a difficult and controversial issue. Various studies have applied many different techniques. The results are accordingly conflicting and inconclusive. Some authors applied the event study method where the performance of merged companies is measured before and after each merger (Diltz and Hyland, 2003, Ang et al. 2003). Others applied Tobin's q ratio analysis which compares the future value of diversified and focused companies (Lang and Stulz, 1994 and Servaes 1996). Many others used the Berger and Ofek's (1995) industrial multiplier method to determine the gain or loss in the value of diversified companies (Campa and Kedia, 2003, Graham et al. 2002)

Most of the studies done during the 1990's suggest that diversification has a negative effect on shareholder value. Many of them reported a significant diversification discount<sup>8</sup>. Most recent studies, however, report a lesser or zero diversification discount (Graham et al. 2002, Mansi and Reeb 2002), and a diversification premium by a few (Villalonga, 2003, Campa and Kedia, 2003)

In this paper the value effect of diversification is examined using Berger and Ofek's Industrial Multiplier approach. The method basically tries to show the percentage that a diversified company gains or loses by choosing the diversification strategy as compared to the focused firms. It hypothesizes that a segment of a diversified company is ideally expected to perform comparably to the average performance of the other companies in the industry. However, since the segment is under another listed company, its value can not be separately determined in the market. The value of the listed company of which the segment is a part, meanwhile, reflects the overall value of the segments which belong to

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<sup>8</sup> Berger and Ofek (1995) report a diversification discount of 13-15%. Lang and Stulz (1994) found a higher Tobin's q in focused than in diversified companies.

different industries. This method, therefore, tries to impute the value of each segment in a diversified company had the segment operated independently.

As described in the previous chapter, the value effect of diversification, using the Berger and Ofek (1995) method of measuring excess value is the natural logarithm of the ratio of the firm's actual value to imputed value. Table 1 provides descriptive statistics of the excess value measures computed using each of the three median industry multipliers. The median, as opposed to mean, value is used for the industry multipliers so as to avoid the distortion in mean value due to extreme figures. The sample consists of 359 observations of 111 segments from 26 companies.

**Table 1 Descriptive statistics of the Excess Value using the three (Sales, EBIT, and Asset) median industry multipliers for diversified companies .**

<b>Excess Value (EV) Using:</b>	<b>Mean</b>	<b>Median</b>	<b>STD</b>
Sales multiplier	0.33 <sup>a</sup>	0.41 <sup>a</sup>	0.58
EBIT multiplier	0.38 <sup>b</sup>	0.45 <sup>b</sup>	0.58
Asset multiplier	0.39 <sup>c</sup>	0.41 <sup>c</sup>	0.65

<sup>a</sup> *EV using sales multiplier:* The natural logs of actual value/imputed value where: actual value is the average value of the company for the year 2003, and the imputed value is the sum of the imputed value of the company's segments. The value of each segment is the segment's sales value multiplied by its industry's median capital-to-sales ratio.

<sup>b</sup> *EV using EBIT multiplier:* The natural logs of actual value/imputed value with each segment's value equal to the segment's EBIT multiplied by its industry's median capital-to-EBIT ratio.

<sup>c</sup> *EV using Assets multiplier:* The natural logs of actual value/imputed value with each segment's value equal to the segment's total assets multiplied by its industry's median capital-to-assets ratio.  
(Refer to Appendix-1&2)

Contrary to Berger and Ofek's (1995) findings, which reported that multi-segment companies in the US have a diversification discount of 13-15% compared to single-segment companies, Table 1 shows that diversified companies in South Africa are traded,

on average, at 39-57<sup>9</sup> percent ( above the focused companies' value. It is shown that the mean excess value is 0.33 (median 0.41) using the sales multiplier, 0.38 (median 0.45) using the EBIT multiplier, and 0.39 (median 0.41) using the assets multiplier.

Alternatively, excess value is calculated using a different imputed value that reflects the size of each company in the industry. The market capitalization of each company is used to weight each company's ratios of actual value to the three accounting items. The weighted average industry multiplier is, then, used to calculate the sample companies' imputed value. Table 2 summarizes the mean and median excess values for the three accounting multipliers.

**Table 2- Descriptive statistics of the Excess Value using the three (Sales, EBIT, and Asset) weighted average industry multipliers for diversified companies.**

<b>Excess Value (EV ) Using:</b>	<b>Mean</b>	<b>Median</b>	<b>STD</b>
Sales multiplier	0.09	0.14	0.78
EBIT multiplier	0.11	0.22	0.73
Asset multiplier	0.27	0.35	0.73

Confirming the existence of positive excess value, Table 2 shows that diversified companies are traded at an average EV of 0.09 (0.14median) using sales multiplier, 0.11 (0.22 median) using EBIT multiplier, and 0.27 (0.35median) using Asset multiplier above the focused companies. The range in the EV, 0.09-0.35, in the above table is large as compared to Table 1. This is due to the extreme values in the companies' ratios. The industry ratios used to calculate the excess value in Table 2 take into account the weight of each focused company in its industry. This helps to avert any bias that could be raised with regard to the significance of a company in any industry.

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<sup>9</sup>Since the EV is natural logarithm form, the values 0.33 and 0.45 are equivalent to 39% and 57%, respectively, when converted to percentages.

Although there is a significant difference (Sales = 0.09, EBIT = 0.11, and Asset = 0.27) between the excess values as computed by the sales multiplier and the other two multipliers, what is important for this study is that the three methods report a positive excess value. The positive excess value indicates that a diversification premium exists. In other words, a diversification premium entails that the different segments would not benefit should they be traded as a stand-alone company. The result also implies that merging with other segments, rather than being traded as a stand-alone company, enhances the value of the different segments.

This is consistent with the evidence from studies on the benefits of diversification in emerging markets which South Africa is a part (Khanna and Palepu, 2000, Favuer et al. 2001, and Claessens et al., 1999). It also supports the evidence from similar studies on the effect of unbundling on companies' value in South Africa (Barr and Kantor, 1994, Blount and Davidson, 1996, and Davidson, 1997). The diversification premiums (the positive excess value) reported in Table 1 and 2 are very significant. This suggests that the value gain from diversification is substantial even though the value cannot merely be attributed to diversification.

However, it is important to point to the fact that many previously diversified companies had unbundled their business in the late 1990's. Since this study covers only diversified firms which were operating in the year 2003, the performance of the firms that had already unbundled before then is not included. Therefore, it is possible that their poor performance as diversified firms could be the reason for unbundling in the first place. Hence, the results in this study reflect only the performance of the successful diversified companies. The significance of the impact of other factors (size, growth, profitability etc) will be examined in the subsequent sections of this chapter.

#### ***4.1.1 Relatedness and the Diversification Premium***

The major rationale for the existence of related-diversified companies and the pursuit of related-diversification by management is based on the concept of synergy between the

different businesses of a diversified company. Synergy usually arises when two related-business companies are merged. Relatedness of different segments of a company, therefore, plays an important role in attaining the value sought by the merger. Most of the previous studies conducted maintain the view that related-diversification is value enhancing. Berger and Ofek (1995), Lang and Stulz (1994) find, despite their conclusion that diversified companies are traded at discount, that the diversification discount is lower in related-diversified companies. Similarly, Villalonga (2004), who found a diversification premium in diversified companies, observed that the premium is higher in related-diversification.

Consistent with the above view, the results in this study suggest that related-diversification is value enhancing. Table 3 shows the excess value seen in relation to the companies' segments' degree of relatedness.

Table 3- Excess Value analysed in relation to companies' segments relatedness.

Diversification Type <sup>d</sup>	No. of Companies	Median <sup>e</sup>	Excess Value using:			Weighted Average <sup>f</sup>		
			Sales	EBIT	Asset	Sales	EBIT	Asset
RELATED	11	Mean	0.40	0.56	0.47	0.17	0.25	0.37
		Median	0.61	0.66	0.45	0.51	0.44	0.50
UNRELATED	15	Mean	0.27	0.26	0.34	0.03	0.04	0.19
		Median	0.38	0.31	0.40	0.07	0.19	0.18

<sup>d</sup> The degree of relatedness is measured by analysing each segment's Major Sector category in the JSE. If all segments of a company fall within one Major Sector, the company is categorised as a "Related" diversified company. If only some of the segments in the company fall within one Major Sector, the company is categorised as "Related" or "Unrelated" depending on the number of segments within and out of the Major Sector. If none of the segments in the company fall within one Major sector, the company is categorised as an "Unrelated" diversified company.

<sup>e</sup> Median Industry Multiplier refers to the calculation of imputed value using median industry ratios.

<sup>f</sup> Median Industry Multiplier refers to the calculation of imputed value using weighted average industry ratios.

As shown in Table 3 above, the average Excess Value (EV) is much higher in the related-diversified companies than in the unrelated-diversified companies. In the Median Industry Multiplier method, the difference in the average EV of the related and unrelated-

diversified companies ranges from 0.05 to 0.35<sup>10</sup>. Similarly, using the Weighted Average Industry Multiplier method, the average EV in related-diversified companies exceeds the average EV of the unrelated-diversified companies by 0.18 to 0.44. Both methods show that companies which have diversified in related segments perform better than those which diversify in unrelated segments. The result suggests that related diversification is beneficial to companies. This is consistent with the evidences from other previous studies by Lang and Stulz (1994), Berger and Ofek (1995), and Villalonga (2003).

#### 4.1.2 Excess Value in Focused Companies

To evaluate whether reported excess value in diversified companies is a proper and good indicator that diversified companies are traded at a premium, a similar assessment was carried out on a sample of focused companies in the top-200 JSE listed companies. The focused companies are selected only from sectors where the segments of the diversified companies operate. This is to ensure that both sample groups have a similar background that makes comparison of Excess Value between the two sample groups reasonable. Table 4 summarizes the measure of EV of the sample focused companies using the three multipliers.

**Table 4 Descriptive statistics of the Excess Value of focused companies using the three (Sales, EBIT, and Asset) median and weighted average industry multipliers.**

Excess Value <sup>g</sup>	MEDIAN			WEIGHTED		
	Mean	Median	STD	Mean	Median	STD
(EV)Using:						
<b>Sales</b>	0.15	0.03	0.68	-0.15	-0.01	0.64
<b>EBIT</b>	0.19	0.00	0.61	0.01	-0.06	0.95
<b>Asset</b>	0.21	0.19	0.49	-0.07	-0.00	0.53

<sup>g</sup> Excess Value for focused companies is the natural logs of actual value/imputed value where: actual value is the average value of the company for the year 2003, and the imputed value is the imputed value of the company as estimated by using industry ratios multiplied by the companies' accounting item (Refer to Appendix 5&6).

<sup>10</sup> Subtracting the highest of the median values for Unrelated (0.40) from the lowest of the median values for Related (0.45), we get the lowest range (0.05). Similarly, we get the highest range (0.35) by subtracting the lowest median value of the unrelated (0.31) from the highest median value of the Related (0.66).

The Excess Value for the focused companies, using the median industry ratio, for all three of the multipliers shows positive values. The weighted average industry ratio method reports mostly negative EV. The importance of analysing the EV for focused companies is to compare them with the EV for the diversified companies. Using the median industry ratios, the EV for diversified companies (0.33-0.45) is higher than the EV for focused companies (0-0.19). Similarly, with the weighted average industry ratio method, the EV for diversified companies is much higher (0.09-35) compared to EV for focused (-0.15 - 0.01). The portion of the EV (equivalent to the amount of excess value observed in the focused companies) for the diversified companies can be attributed to other factors. However, even after allowing for other factors, there is a significant percentage that suggests that diversification is value enhancing.

#### **4.2 Company Characteristics and the Diversification Premium**

Previous studies have shown that diversified companies significantly differ from focused companies in their characteristics (Campa and Kedia, 1999). The two groups have difference in size, leverage, investment, growth rate etc. Thus, it is argued that, in addition to the diversification factor, the difference in these factors can contribute to the gain in value observed in the diversified companies.

To determine whether the estimated diversification premium (39-57%) can be attributed to these differences in characteristics or not, the researcher examined the following variables in relation to the estimated premium: profitability, capital expenditure, and number of segments. The observed diversification premium was regressed against the above variables of the sample companies. Table 5 summarizes the results. The relationship with firm size is evaluated later.

Table 5 Summary of the regression results of Excess Value as explained by firm characteristics.

Excess Value (EV) using:	Stat. Item	No. of Segments <sup>i</sup>	Profitability <sup>ii</sup>	CAPEX/SALES <sup>iii</sup>	CAPEX/ASSET <sup>iv</sup>
Sales Multiplier	R <sup>2</sup>	0.0020	0.2220	0.0011	0.0018
	T stat.	0.0359	0.9416	0.5620	0.5644
EBIT Multiplier	R <sup>2</sup>	0.0228	0.0054	0.0071	0.0007
	T stat.	0.9882	0.7075	0.3252	0.6180
Asset Multiplier	R <sup>2</sup>	0.0002	0.0168	0.0009	0.0001
	T stat.	0.6875	1.5540	1.3687	1.2694

<sup>i</sup> The Number of Segments represents the number of business divisions as for each of the diversified companies in the sample.

<sup>ii</sup> Profitability is the average operating profit margin for the sample companies for the years 1999-2003

<sup>iii</sup> CAPEX/SALES represents the ratio of capital expenditure to sales for all the sample companies for the years 1999-2003. The CAPEX amount for a specific year is calculated, by taking the Fixed Assets amount for the year less the Fixed Asset amount for the previous year plus the depreciation on fixed assets for the year.

<sup>iv</sup> CAPEX/ASSET represents the ratio of capital expenditure to assets for all the sample companies for the years 1999-2003. The calculation of CAPEX is the same as above.

With R<sup>2</sup> values no more than 1% and T- stat not more than 1.4, the results in Table 5 show that no significant correlation exists, for all variables, between the diversification premium (excess value) and company characteristics. The following selected scatter plots below show clearly that the characteristics are not in any way correlated to the observed EV.

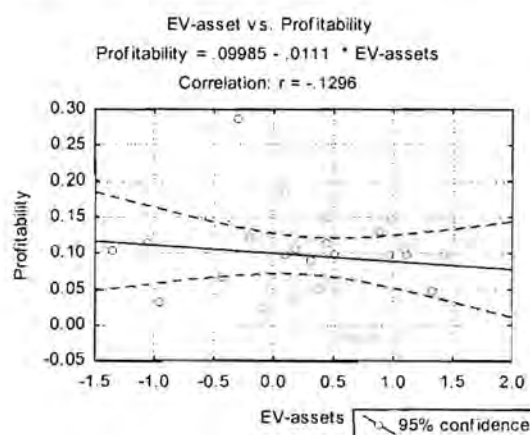


Fig 1 Analysis of EV (asset) in relation to Company's profitability.

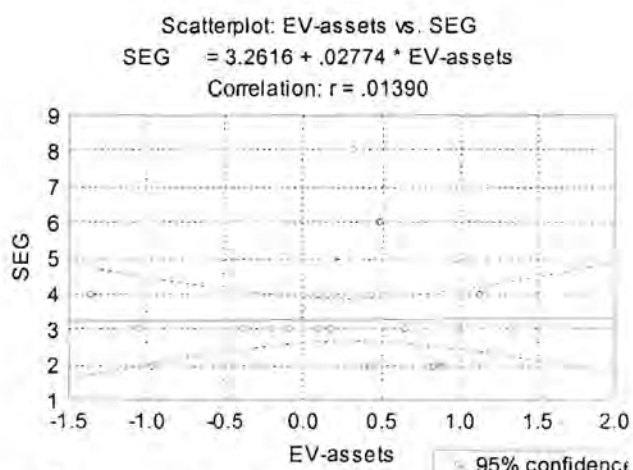


Fig 2 Analysis of EV (asset) in relation to number of segments.

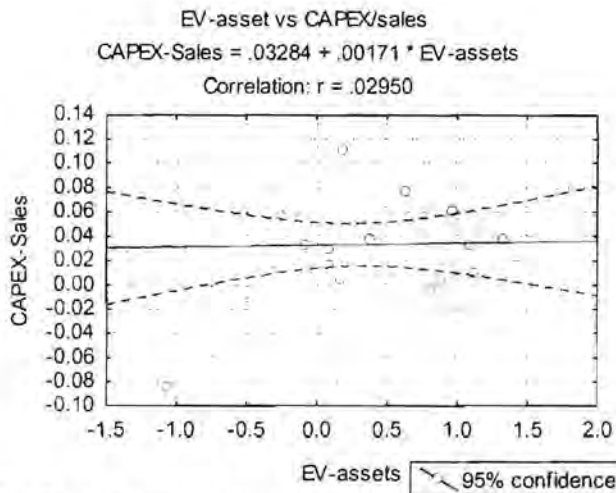


Fig 3 Analysis of EV (asset) in relation to company's capital expenditure-sales ratio

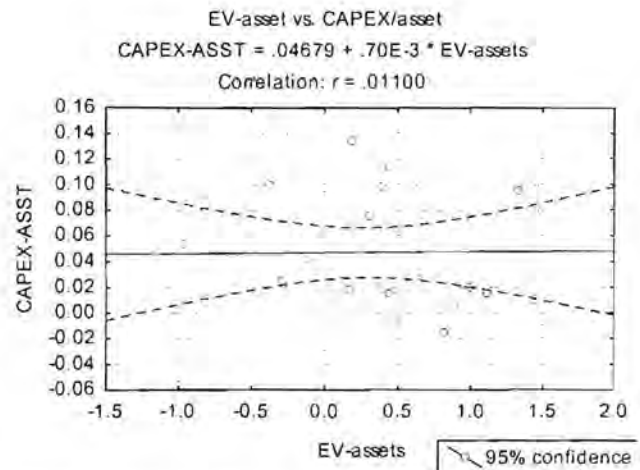


Fig 4 Analysis of EV (asset) in relation to company's capital expenditure-asset ratio

The above plots clearly show that there is not a significant relationship between observed EV and the three (profitability, number of segments, and capital expenditure) companies' characteristics. Similar results (not reported here) are also found with regard to the other EV's (sales and EBIT) relation with the four characteristics. In addition to the above test, the sample companies have been ranked and assigned into three group-ranges (not reported here). The average premium was calculated for each of the groups in all of the variables. No significant trend is observed in the amount of premium across the groups in all the variables except in size.

Size is measured by the companies' amount of total assets. Companies which are categorised by size, into three groups show the following trend in the amount of premium.

Table 6 Analysis of EV in relation to the companies' size.

Company Size <sup>h</sup>	No. of Companies	Median <sup>i</sup>	Excess Value using:			Weighted Average <sup>j</sup>		
			Sales	EBIT	Asset	Sales	EBIT	Asset
≥5 bn	11	Mean	0.14	0.12	0.24	0.03	-0.15	0.17
		Median	0.33	0.16	0.43	0.14	0.04	0.35
<5 bn	15	Mean	0.38	0.55	0.42	0.13	0.27	0.34
		Median	0.40	0.64	0.31	0.25	0.34	0.41

<sup>h</sup> Company size is measured by the companies' amount of total assets in billions of Rands.

<sup>i</sup> Median Industry Multiplier refers to the calculation of imputed value using median industry ratios.

<sup>j</sup> Median Industry Multiplier refers to the calculation of imputed value using weighted average industry ratios.

One distinct characteristic observed in the selection of the diversified companies is that they all fall in the top-200 category of the JSE Securities Exchange listed companies. This suggests that they are relatively big in size. Diversification, most often, arises as a result of a company's need to expand. Thus it is natural for most of the diversified companies to be among the biggest on the JSE Securities Exchange. Table 6 shows that the average premium, EV (calculated using the Median Industry Multiplier), for the smaller diversified companies is higher than the bigger companies' by 0.26, 0.43, and 0.18 as estimated using median Sales, EBIT, and Asset industry multipliers respectively. Likewise, the average EV for the smaller diversified companies is higher than the bigger companies' by 0.10, 0.42, and 0.17 as estimated using median Sales, EBIT, and Asset weighted average industry multipliers respectively. The result suggests that smaller diversified companies perform better than the bigger companies. It is possible that the average-sized diversified companies have higher premiums because they have growth options. As described by Bernardo and Chowdry, (1999), the medium sized companies may trade at a higher premium because the market value of the companies reflects the value of growth options, whereas the largest companies have perhaps exhausted their options to diversify or expand.

### 4.3 Alternative Measures of the Value Effect of Diversification

In the previous section it is shown, using the three industrial multipliers, that diversified companies on the JSE are trading at a premium. In this section, as complementary to the assessment of the value effect of diversification, other indicators of the value gain in diversified companies are investigated.

#### 4.2.1 Price-Earning Ratio

The price-earning (PE) ratio is a good indicator to many investors on how well a company is performing in the market. Usually a company's PE ratio is compared against its industry's PE ratio to measure the performance of that specific company. Since the diversified companies operate in more than one industry, their PE ratios cannot be compared to any specific industry. Hence, the company's PE ratio is measured against the average PE ratios of the sample focused companies from all the industries in which the company is involved. Table 7 shows the sample diversified companies' average PE ratio for each of the past 5 years as compared to sample focused companies in their respective industries.

Table 7 Mean and median PE ratios for diversified and focused companies' for the years 1999-2003.

Year	Diversified		PE Ratio <sup>k</sup>		Difference	
	Mean	Median	Focused	Mean	Median	Mean
1999	10.39	6.18	16.42	7.37	-6.02	-1.19
2000	10.49	8.39	25.58	9.39	-15.09	-1.00
2001	10.00	7.84	12.90	7.77	-2.91	-0.07
2002	9.01	7.54	11.98	6.74	-2.96	-0.80
2003	6.37	7.20	6.40	7.23	-0.03	-0.03

<sup>k</sup> The mean and median PE ratio for the diversified companies represents the average PE ratio for the sample diversified companies for the past 5 years. The PE ratios for focused firms are the average PE ratio of the sample focused companies from industries in which the sample diversified companies operate. The positive difference indicates that diversified companies, on average, have a greater PE ratio than focused companies whereas negative value indicates the opposite.

Table 7 indicates that diversified companies are traded at lower PE ratios than the other focused companies on the JSE. On average, the focused companies are trading at 5.4 (median 2.96) times higher than the diversified companies. The result suggests that, inconsistent with the positive EV estimated, focused companies are traded at a premium. Whether PE ratio explains company value properly, however, remains questionable. Prior research by Barr and Kantor (1999) on whether PE is a good value guide in the JSE suggested that it is not. Further, the EV approach was limited to 2003 and the relative PE ratios for 2003 indicate that the PE ratios between focused and diversified firms were very similar as the median PE was 7.23 for focused firms and 7.20 for diversified firms.

#### ***4.2.2 Market to Book Value ratio***

The ratio of a market share price to its book value (PB) gives another indication of how investors regard the company. Companies with relatively high rates of return on equity generally sell their shares at higher multiples of book values than those with lower returns. Book values reported on balance sheets usually do not show the assets' real value since they fail to reflect either inflation or goodwill. Hence, the market-to-book value ratio might not be a good measure in valuing a company. However, many investors still use it as a basis for their assessment. Table 8 summarizes the mean and median market-to-book value ratio for the sample diversified and focused companies listed on the JSE listed companies for the years 1999-2003.

**Table 8 Mean and median Price/Book value ratio for diversified and focused companies for the years 1999-2003.**

Year	Diversified		Price/ Book value ratio <sup>1</sup>		Difference	
	Mean	Median	Mean	Median	Mean	Median
1999	2.14	1.12	4.60	1.91	-2.46	-0.79
2000	3.27	1.38	9.00	1.87	-5.73	-0.49
2001	2.76	1.65	7.53	2.04	-4.77	-0.39
2002	2.48	1.61	9.40	2.02	-6.92	-0.41
2003	2.28	1.73	5.99	2.12	-3.71	-0.39

<sup>1</sup> The mean and median PB ratio for the diversified companies represents the average PB ratio for the sample diversified companies for the past 5 years. The PB ratios for focused firms are the average PB ratio of the sample focused companies from industries in which the sample diversified companies operate. Positive difference indicates that diversified companies, on average, have a greater PB ratio than focused companies whereas a negative value indicates the opposite.

Table 8 shows that diversified companies have lower P/B ratios than their corresponding focused companies. On average, in the past 5 years, focused companies' shares have been trading at 4.72 (median 4.77) times above the diversified companies. Comparison of PB ratios of diversified and focused companies for five years indicate that focused companies had higher price to book ratios. The result may be inconsistent with this study's overall conclusion that diversified companies perform better than focused companies on JSE. However, the fact is that most companies diversify as they grow in size. The samples in the diversified companies are selected from the top 200 companies. Hence, the diversified companies are relatively bigger in size. Because of the nature of their business, it is also likely that they are more capital intensive than the focused ones. Therefore, the high human capital which is not shown in the book value of the focused companies can help these companies have high PB ratios. In 2003, the median PB ratio for diversified companies was 1.73, as compared to 2.12 for focused companies.

## 4.4 Explaining the Diversification Premium

### 4.4.1 Leverage and Diversification Premium

It has been argued that combining businesses with imperfectly correlated cash flow streams provides a co-insurance effect that creates more capacity for debt. The increased capacity would enable the diversified companies to have a higher level of leverage than the focused companies', thereby gaining greater tax shields. The increased capacity for debt, however, may or may not result in increased debt usage, depending on management strategy on leverage. Table 9 shows the difference between the average D/A ratios for the diversified companies and the focused companies.

**Table 9 Mean and median Debt-assets (D/A) ratio for diversified and focused companies for the years 1999-2003.**

Year	Diversified		D/A Ratio <sup>m</sup>		Difference	
	Mean	Median	Mean	Median	Mean	Median
1999	0.52	0.48	0.65	0.56	-0.13	-0.08
2000	0.55	0.52	0.66	0.57	-0.10	-0.05
2001	0.60	0.58	0.75	0.64	-0.15	-0.07
2002	0.60	0.55	0.74	0.65	-0.14	-0.10
2003	0.60	0.58	0.73	0.61	-0.13	-0.04

<sup>m</sup> The mean and median D/A ratio for the diversified companies represents the average D/A ratio for the sample diversified companies for the past 5 years. The D/A ratios for focused firms are the average D/A ratio of the sample focused companies from industries in which the sample diversified companies operate. Positive difference indicates that diversified companies, on average, have a greater D/A ratio than focused companies where as a negative value indicates the opposite

The nature of business of diversified companies offers debtors with less risk than focused firms do. This helps diversified companies to use more debt in their financing structure at lower cost than focused companies. Hence, it is generally assumed that diversified companies have higher leverage. Despite this general view results in Table 9 suggest that the trend in South Africa is different. It shows that diversified companies have, on average, 13 % (median 13%) D/A ratios lower than those of the focused companies.

These lower D/A ratio suggest that the diversified companies have been relying more on equity financing. Considering the stability of cash earning from different businesses in diversified companies, it is possible that the companies have been using internal capital for re-investment.

Nevertheless, to answer the question of which of the two, internal capital or external financing, enhances shareholders' wealth, one has to look at the efficiency of the internal capital. Internal capital markets can be efficient under the following two conditions:

- If management in headquarters managed to allocate funds to the divisions with the best investment opportunities, or
- If there exists information asymmetry which offers management an information advantage over external capital markets.

A previous study indicates that the South African capital market, unlike that in the U.S, is less flexible, has a high cost of issuing new bonds, and is a highly regulated environment (Blount and Davidson, 1996). Hence, it is unlikely that the external capital market is able to monitor and evaluate division managers as efficiently as top management. This gives the well-informed internal market, an information advantage over the external capital market. Therefore, until the above mentioned obstacles in the external capital market are resolved, the internal capital market remains a more efficient alternative for managers in the diversified companies.

#### ***4.4.2 Tax Advantage and Diversification Premium***

Diversified companies can benefit from the lower tax paid as a result of combining businesses with imperfectly correlated cash flows (Lewellen, 1971). To determine whether the diversified companies have benefited from a lower tax, the average effective tax rate for the diversified companies for the past five years has been compared against the different industries' averages in which the companies are involved. Table 10

summarizes the differences between average Effective tax rates for both diversified and focussed companies.

**Table 10 Mean and median Effective tax rate for diversified and focused companies' for the years 1999-2003.**

Year	Effective Tax Rate <sup>n</sup>					
	Diversified		Focused		Difference	
	Mean	Median	Mean	Median	Mean	Median
1999	22.06	23.75	32.96	25.30	-10.90	-1.55
2000	24.60	25.25	26.18	25.40	-1.58	-0.15
2001	25.81	26.45	27.24	27.50	-1.43	-1.05
2002	28.06	27.80	29.65	28.00	-1.59	-0.20
2003	22.71	27.90	27.87	31.45	-5.17	-3.55

<sup>n</sup> The mean and median Effective Tax Rate ratio for the diversified companies represents the average Effective Tax Rate for the sample diversified companies for the past 5 years. The Effective Tax Rate for focused firms is the average Effective Tax Rate of the sample focused companies from industries in which the sample diversified companies operate. A positive difference indicates that diversified companies, on average, have a greater Effective Tax Rate than focused companies whereas negative value indicates the opposite.

Table 10 shows that diversified companies pay lower tax than focused ones. On average, the diversified companies paid 4.13% (median 1.59%) lower tax than the focused companies for the past five years. The result appears to support the view that diversified companies gain a tax benefit from their imperfectly correlated earnings. The result is also consistent with the observed diversification premium although it is not significant enough to explain the high positive excess value. It can be argued that the diversification premium is partly as due to the tax advantage arising from attributed to the imperfectly correlated taxable earning.

#### **4.4.3 Other Potential Sources of a Diversification Premium.**

There has been a debate on whether there is a need for companies to diversify so as to stabilise earnings or reduce shareholders' risks. Modigliani and Miller (1958) argued that shareholders can easily build a private portfolio of shares in specialised firms with

different risk-return characteristics. This is in an ideal world there are no transaction costs and other barriers. In reality, however, transaction costs are high which makes it difficult for individual investors to create a private portfolio of shares. In situations like this individuals would prefer to invest in diversified companies which could increase demand for diversified shares. Hence, the high demand would increase the company value.

Khana and Palepu (1999) point to the fact that intermediaries such as financial analysts, mutual funds, investment bankers, venture capitalists, and the financial press are not fully evolved in emerging markets. In such cases it would also make difficult for smaller investors to properly assess the risk of a specific company. Investing in diversified companies would be an ideal way of diversifying risk for investors in these markets.

## 5 SUMMARY AND CONCLUSION

### 5.1 Summary

The value impact of diversification has been the topic of continuing debate in the academic world. Many theories have been developed explaining why firms choose to diversify. Advocates of diversification argue that diversified companies can benefit from an efficient internal capital markets, greater financial synergies, economies of scale, and lesser information asymmetry. On the other hand, opponents of diversification argue that diversified companies have underperformed focused companies because of misallocation of funds among the segments. The general trend in the corporate world regarding diversification strategy has been different in different periods. The 1960s and 70s was marked by a wave of corporate diversification activities. During the 1980s and 90s, however, corporate refocusing became the theme of most companies.

Likewise, the evidence regarding diversification's impact on firm value does not give a definite answer. Studies by Lang and Stulz (1994), Berger and Ofek (1995), Comment and Jarrell (1995), and Servaes (1996) suggest that diversification destroys shareholders' value. The main source of the loss in value is attributed, by most of them, to the inefficiency in the internal capital markets which do not give priority to divisions with better investment opportunities in the allocation of funds. However, studies by Campa and Kedia (1999), Billet and Mauer (2000), Diltz and Hyland (2003), and Villalonga (2003) argue that the observed discount is not a diversification discount per se. They contend that the discount could be caused by the difference in characteristics such size, profitability, growth, etc. between the diversified and the focused firms.

The evidence regarding the effect of diversification on firm value in emerging market tends to be more positive. The evidence from the studies by Khana and Palepu (2000), Fauver et al. (2001) and Claessens et al. (1999) suggest that diversification has a positive effect on firm value in emerging markets.

The limited studies available which are related to diversification in South Africa concern the unbundling of conglomerates that happened in 90s. Although the nature of the unbundled conglomerates and the diversified companies being examined in this study are different, studies by Barr and Kantor (1994), Blount and Davidson (1996), and Davidson (1997) suggest that diversification has a positive effect on firm value.

This paper examines the effect of corporate diversification on firm value for the JSE. It tries to measure the value gain or loss due to diversification in percentage points. In doing so, a sample of 26 diversified companies have been selected from the JSE listed top-200 companies. The 26 companies have 111 segments in total which operate in 37 industries. The study uses Berger and Ofek's (1995) model to assess the effect of diversification on the firms' share price. The model basically attempts to evaluate a firm's actual value against the sum of its segments imputed value. The imputed value for a segment is derived by multiplying the segment's accounting item ( sales, EBIT, or total assets) by that segment's industry's average ratio of actual value to an accounting item (sales, EBIT, or total assets).

Consistent with the prior literature on the effect of diversification on firm value in emerging markets, this paper finds that corporate diversification in South Africa is value enhancing. In other words, it suggests that diversified companies in 2003 are trading at a premium due to diversification. The median industry averages of sales, EBIT, and total assets are used in estimating the imputed value. By comparing the imputed and actual value, this paper reports, on average, Excess Value (diversification premium) of 0.33, 0.38, and 0.39 respectively for sales, EBIT and asset multipliers (0.09, 0.11, and 0.27 respectively using the weighted average industry ratios).

The EV is higher (0.42, 0.51, 0.47) in those companies which diversified in related businesses as compared to those which diversified in unrelated businesses sectors (0.25, 0.27, 0.32). It is also reported that the diversification premium is, on average, higher

(0.38, 0.55, 0.42) in the medium size diversified companies as compared to the big companies (0.14, 0.12, 0.24).

However, the observed excess value cannot be merely attributed to diversification. Other factors may also contribute to the premium. Identifying these potentially contributing factors is beyond the scope of this study. A similar assessment of a sample of 57 focused companies from the top-200 companies showed a much lower excess value 0.15, 0.19, and 0.21 respectively using median industry (sales, EBIT, asset) multipliers and -0.15, 0.01, and -0.07 using weighted average industry multipliers. A comparison of PE and PB ratios for the sample diversified and focused companies suggests, in contradiction with the above results, that focused companies perform better than diversified companies.

## **5.2 Conclusion**

Evidence from the U.S and other developed markets on whether diversification destroys or creates value, so far, are inconclusive and sometimes indicates conflicting results. Studies in emerging markets, however, tend to support the view that diversification positively contributes to firm's value. This paper tries to address the question of whether diversification enhances or destroys firm value in the JSE. The evidence suggests diversification enhances firm value. In other words, diversified companies' shares are traded at a premium on the JSE in 2003. The finding is consistent with the evidence that indicated unbundling negatively affected firms' value in the JSE. It also supports, the finding that diversification is beneficial in emerging markets such as South Africa.

In reaching this conclusion, the value effect of diversification is examined by estimating the value of diversified companies segments as if they were operating as separate companies. Three of the methods used (sales, EBIT, and assets) showed a positive Excess Value that indicates a value gain from diversification of 33-39% on average. The value gain is higher in related diversification companies than in unrelated ones. The low Excess Value observed in a sample of focused companies supports the conclusion that diversification is value enhancing. However, focused companies showed, on average, higher price-earning and price-to-book ratios. The difference in PE for 2003 is, however, not material.

An analysis of the relationship between Excess Value and other firm characteristics (number of segments, profitability, and capital expenditure) shows no correlation. It is, however, observed that the Excess Value is higher for the relatively smaller (less than R5 billion asset size) diversified companies compared to the bigger (more than R5 billion asset size) diversified companies.

To explore some of the potential sources of the diversification premium, the debt-assets ratio and Effective tax rate for the diversified and focused companies for the past five years were compared. Diversified companies on average have a 13% lower D/A ratio and

pay, on average, 4.13% lower tax than the focused companies. Although not significant enough to explain the high diversification premium, diversified companies seem to benefit from an efficient internal capital market and lower taxes which contributes to a higher value.

Finally, it should be noted that the results presented in this study provide only initial assessment of the diversified companies listed on the JSE. It examines sample of 26 diversified companies and only for the year 2003. Hence, much additional research is needed before many of the questions raised above can be answered. It's obvious that the methodology used in this study does have an effect on the results. Therefore it may be useful to explore some of the issues raised here using other methods. One potential for further research on diversification is evaluating the value of those previously diversified companies and have, later, refocused on a core businesses. Similarly, the long-term performance of diversified (through merger) companies can be assessed using the South African merger and acquisition database.

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Appendix 1 Calculation of Excess Value for the sample diversified companies using Median Industry Ratios.

CO. NAME	A			B			C			D		
	IMPUTED VALUE (R millions) *	SALES	EBIT	ACTUAL **	SALES	EBIT	ACTUAL VALUE/IMPUTED VALUE	SALES	EBIT	EXCESS VALUE-ln (AV/IV)	EBIT	Assets
			T/Assets	VALUE/RM)								
A E C I	1886	3842	1611	2939	1.56	0.76	1.82	0.44	-0.27	0.60		
AFGR1	1755	946	1525	2013	1.15	2.13	1.32	0.14	0.75	0.28		
AFROX	4459	3140	3224	4971	1.11	1.58	1.54	0.11	0.46	0.43		
ALTECH	2436	1303	961	2510	1.03	1.93	2.61	0.03	0.66	0.96		
ALTRON	4833	2826	3643	850	0.18	0.30	0.23	-1.74	-1.20	-1.46		
ARGENT	256	413	198	221	0.86	0.53	1.12	-0.15	-0.63	0.11		
ASSORE	1680	1648	2641	2240	1.33	1.36	0.85	0.29	0.31	-0.16		
AVENG	3399	3330	3399	3767	1.11	1.13	1.11	0.10	0.12	0.10		
A-V-1	1455	3288	1216	5089	3.50	1.55	4.19	1.25	0.44	1.43		
BARLOWORLD	7566	13253	7870	13249	1.75	1.00	1.68	0.56	-0.00	0.52		
BIDVEST	13233	4923	6378	14114	1.07	2.87	2.21	0.06	1.05	0.79		
CMH	164	207	221	241	1.47	1.16	1.09	0.38	0.15	0.08		
COMPAREX	856	379	2036	1576	1.84	4.16	0.77	0.61	1.42	-0.26		
CSHOLDING	103	62	168	221	2.15	3.57	1.32	0.76	1.27	0.28		
ELLERINE	936	840	1012	1411	1.51	1.68	1.39	0.41	0.52	0.33		
GROUP-5	959	665	825	548	0.57	0.82	0.66	-0.56	-0.19	-0.41		
HUDACO	280	262	169	544	1.94	2.08	3.21	0.67	0.73	1.17		
IMPERIAL	7519	9802	7992	11871	1.58	1.21	1.49	0.46	0.19	0.40		
KOLOSUS	330	133	147	336	1.02	2.53	2.29	0.02	0.93	0.63		
MT-EAGLE	95	106	188	97	1.02	0.91	0.52	0.02	-0.09	-0.66		
OCEANA	658	731	454	1591	2.42	2.18	3.50	0.88	0.78	1.25		
REUNERT	2070	1611	1777	4129	1.99	2.56	2.32	0.69	0.94	0.84		
SUPRGRP	945	1257	770	2210	2.34	1.76	2.87	0.85	0.56	1.05		
TIGER BRANDS	6043	10548	7643	12034	1.99	1.14	1.57	0.69	0.13	0.45		
TONGAAT	3138	3520	4310	4770	1.52	1.36	1.11	0.42	0.30	0.10		
UNITRAN	590	899	490	1696	2.87	1.89	3.46	1.06	0.63	1.24		
MEAN								0.33	0.38	0.39		
MEDIAN								0.41	0.45	0.41		
STD								0.58	0.58	0.65		

\* The Imputed Value for a company is the sum of the company's segments imputed values as estimated by industry averages (Refer to Appendix 2)

\*\* The Actual Value is equal to the company's average share price for the year 2003 multiplied by the number of shares on closing date.  $D = \ln(B/A)$

Appendix 2 Estimation of Imputed Value for a segment and a company using Median Industry Ratios.

			OPERATING		INDUSTRY RATIOS (MEDIAN)			IMPUTED VALUE		ACTUAL	
			A <sup>1</sup>		B <sup>2</sup>		C <sup>3</sup>		D <sup>4</sup>		
CO. NAME	INDUSTRY	SALES(RM)	PROFIT(RM)	ASSETS(RM)	Sales	O/profit	T/assets	Sales	O/profit	T/Assets	VALUE(RM)
<b>A E C I</b>	<b>DIVERSIFIED</b>	<b>7855</b>	<b>726</b>	<b>3855</b>				<b>1886</b>	<b>3842</b>	<b>1611</b>	<b>2,939</b>
Mining solutions	Chemicals Specialty	2076	241	817	0.14	5.50	0.41	291	1326	335	
Specialty chemicals	Chemicals Specialty	3197	372	1490	0.14	5.50	0.41	448	2046	611	
Specialty fibers	Chemicals Specialty	1714	22	761	0.14	5.50	0.41	240	121	312	
Decorative	Builders Merchants	661	52	116	0.39	4.37	0.67	258	227	78	
Property	Real Estate	207	39	671	3.14	3.14	0.41	650	122	275	
<b>AFGR I</b>	<b>DIVERSIFIED</b>	<b>6158</b>	<b>368</b>	<b>3406</b>				<b>1755</b>	<b>946</b>	<b>1525</b>	<b>2,013</b>
Products	Farming and Fishing	3184	195	1636	0.25	2.87	0.47	796	560	769	
Requisites	Retailers -- Hardlines	2728	82	713	0.28	2.58	0.46	764	212	328	
Capital	Consumer Finance	227	73	842	0.83	1.90	0.37	188	139	312	
Services and other	Business Support Services	19	18	215	0.35	2.03	0.54	7	37	116	
<b>AFROX</b>	<b>DIVERSIFIED</b>	<b>7326</b>	<b>1116</b>	<b>4744</b>				<b>4459</b>	<b>3140</b>	<b>3224</b>	<b>4,971</b>
Gas products	Chemicals -- Commodity	2851	545	2187	0.23	1.56	0.41	656	850	897	
Health care	Hospital Management	4475	571	2557	0.85	4.01	0.91	3804	2290	2327	
<b>ALTECH</b>	<b>DIVERSIFIED</b>	<b>4182</b>	<b>367</b>	<b>1468</b>				<b>2436</b>	<b>1303</b>	<b>961</b>	<b>2,510</b>
Telecoms	Telecommunication Services	2878	189	725	0.72	4.18	0.79	2072	790	573	
Multi-media	Electronic Equipment	1019	145	615	0.29	2.89	0.49	296	419	301	
Information technology	Computer Services	285	33	128	0.24	2.85	0.68	68	94	87	
<b>ALTRON</b>	<b>DIVERSIFIED</b>	<b>11397</b>	<b>912</b>	<b>6128</b>				<b>4833</b>	<b>2826</b>	<b>3643</b>	<b>850</b>
Telecommunications	Telecommunication Services	3859	227	1351	0.72	4.18	0.79	2778	949	1067	
Electronics	Electronic Equipment	4155	374	2424	0.29	2.89	0.49	1205	1081	1188	
Information technology	Computer Services	3320	216	1668	0.24	2.85	0.68	797	616	1134	
Financial services	Consumer Finance	63	95	685	0.83	1.90	0.37	52	181	253	
<b>ARGENT</b>	<b>DIVERSIFIED</b>	<b>843</b>	<b>64</b>	<b>273</b>				<b>256</b>	<b>413</b>	<b>198</b>	<b>221</b>
Steel&steel related	Building and Construction		61	172	0.42	6.43	0.86	158	392	148	
Projet management	Business support	244	4	66	0.35	2.03	0.54	85	8	36	
Property	Real Estate Holding t	4	-1	35	3.14	3.14	0.41	13	13	14	

<sup>1</sup> The Sales, EBIT, and Total Assets figures for each segment are obtained from the companies' income statement for the year ended 2003. EBIT represents the Operating Profit for the year. Amounts that are not attributed to any particular segment are prorated according to the segments relative size in terms of sales, EBIT, and Assets.

<sup>2</sup> The Industry Ratios for each industry is the median of the ratios of the company's market value to its accounting item for a specific industry.

<sup>3</sup> The Imputed Value using sales, EBIT, and T/assets, represents the corresponding accounting item multiplied by its respective Industry Multiplier ratio. However, the imputed value for segments with a negative EBIT is replaced by their sales value as a segment cannot have a negative value.

<sup>4</sup> Actual Value of a company is the average share price for the year multiplied by the number of shares at the end of the year.

$$C = B \times A$$

<b>ASSORE</b>	<b>DIVERSIFIED</b>	<b>1909</b>	<b>225</b>	<b>2315</b>				<b>1680</b>	<b>1648</b>	<b>2641</b>	<b>2,240</b>
Mining	Other Mineral Extractors	1331	146	1656	1.11	10.19	1.38	1477	1488	2285	
Others	Business support	578	79	659	0.35	2.03	0.54	202	160	356	
<b>AVENG</b>	<b>DIVERSIFIED</b>	<b>13244</b>	<b>672</b>	<b>7126</b>				<b>3399</b>	<b>3330</b>	<b>3399</b>	<b>3,767</b>
Construction	Other Construction	9832	343	4962	0.20	3.54	0.31	1966	1214	1538	
Steel and allied	Building and Construction	3412	329	2164	0.42	6.43	0.86	1433	2115	1861	
<b>A-V-I</b>	<b>DIVERSIFIED</b>	<b>4214</b>	<b>433</b>	<b>2918</b>				<b>1455</b>	<b>3288</b>	<b>1216</b>	<b>5,089</b>
Consumer products	Food Processors	3840	393	2716	0.37	8.19	0.43	1425	3220	1180	
Cosmetics	Medical Equipment	374	40	202	0.08	1.69	0.18	30	68	36	
<b>BARLOWORLD</b>	<b>DIVERSIFIED</b>	<b>34603</b>	<b>2122</b>	<b>17023</b>				<b>7566</b>	<b>13253</b>	<b>7870</b>	<b>13,249</b>
Equipment	Commercial veh. & equip	10908	792	4835	0.25	8.90	0.50	2727	7049	2418	
Industrial distribution	Commercial veh. & equip	5644	159	3713	0.25	8.90	0.50	1411	1415	1857	
Motor	Vehicle distribution	8422	128	1464	0.04	1.61	0.13	337	206	190	
Cement and lime	Other construction	3016	866	3007	0.20	3.54	0.31	603	3066	932	
Scientific	Electronic equipment	1768	34	1254	0.29	2.89	0.49	513	98	614	
Coatings	Building and Construction	2253	164	654	0.42	6.43	0.86	946	1055	562	
Steel tube	Building and Construction	1736	10	514	0.42	6.43	0.86	729	64	442	
Corporate operations	Business support	856	-31	1582	0.35	2.03	0.54	300	300	854	
<b>BIDVEST</b>	<b>DIVERSIFIED</b>	<b>47073</b>	<b>2244</b>	<b>14571</b>				<b>13233</b>	<b>4923</b>	<b>6378</b>	<b>14,114</b>
Freight division	Railroad and freight	15439	427	4808	0.14	2.89	0.23	2161	1234	1106	
Services division	Business support	31634	1817	9763	0.35	2.03	0.54	11072	3689	5272	
<b>CMH</b>	<b>DIVERSIFIED</b>	<b>2569</b>	<b>104</b>	<b>598</b>				<b>164</b>	<b>207</b>	<b>221</b>	<b>241</b>
Retail motor	Vehicle Distribution	2480	91	382	0.04	1.61	0.13	99	147	50	
Car hire	Leisure Facilities	69	8	180	0.70	6.38	0.88	48	51	158	
Financial services	Consumer Finance	20	5	36	0.83	1.90	0.37	17	10	13	
<b>COMPAREX</b>	<b>DIVERSIFIED</b>	<b>2750</b>	<b>138</b>	<b>3124</b>				<b>856</b>	<b>379</b>	<b>2036</b>	<b>1,576</b>
Technology	Computer Services	750	30	246	0.24	2.85	0.68	180	86	167	
Services and other	Business support	1782	119	628	0.35	2.03	0.54	624	242	339	
Business application	Computer Services	218	-11	2250	0.24	2.85	0.68	52	52	1530	
<b>CSHOLDING</b>	<b>DIVERSIFIED</b>	<b>431</b>	<b>-13</b>	<b>254</b>				<b>103</b>	<b>62</b>	<b>168</b>	<b>221</b>
Processes	Computer Services	116	-20	113	0.24	2.85	0.68	28	28	77	
People	Education Business	61	0	20	0.23	7.61	0.43	14	14	9	
Technology	Computer Services	254	7	121	0.24	2.85	0.68	61	20	82	
<b>ELLERINE</b>	<b>DIVERSIFIED</b>	<b>2184</b>	<b>344</b>	<b>2302</b>				<b>936</b>	<b>840</b>	<b>1012</b>	<b>1,411</b>
Furniture	Retailers -- Hardlines	1708	238	1744	0.28	2.58	0.46	478	614	802	
Financial services	Consumer Finance	476	86	468	0.83	1.90	0.37	395	163	173	
Property	Real Estate Holding	0	20	90	3.14	3.14	0.41	63	63	37	



Hullet Aluminium	Building and Construction	1600	22	2590	0.42	6.43	0.86	672	141	2227	
Moreland	Real Estate Holding	226	92	428	3.14	3.14	0.41	710	289	175	
<b>UNITRAN</b>	<b>DIVERSIFIED</b>	<b>7392</b>	<b>385</b>	<b>2499</b>				<b>590</b>	<b>899</b>	<b>490</b>	<b>1,696</b>
Transport and logistics	Rail Road and Freight	1831	212	1434	0.14	2.89	0.23	256	613	330	
Motor	Vehicle Distribution	5420	145	974	0.04	1.61	0.13	217	233	127	
Financials	Consumer Finance	141	28	91	0.83	1.90	0.37	117	53	34	

Appendix 3 Calculation of Excess Value for the sample diversified companies using Weighted Average Industry Ratios.

CO. NAME	A			B			C			D		
	IMPUTED VALUE <sup>5</sup>	ACTUAL <sup>6</sup>	AV/IV	IMPUTED VALUE <sup>5</sup>	ACTUAL <sup>6</sup>	AV/IV	IMPUTED VALUE <sup>5</sup>	ACTUAL <sup>6</sup>	AV/IV	IMPUTED VALUE <sup>5</sup>	ACTUAL <sup>6</sup>	AV/IV
	Sales	O/profit	T/Assets	Sales	O/profit	T/Assets	Sales	O/profit	T/Assets	Sales	O/profit	Assets
A E C I	2431	3917	1787	2939	1.21	0.75	1.64	0.19	-0.29	0.50		
AFGRI	2629	1129	1828	2013	0.77	1.78	1.10	-0.27	0.58	0.10		
AFROX	4102	3190	3208	4971	1.21	1.56	1.55	0.19	0.44	0.44		
ALTECH	2509	1586	937	2510	1.00	1.58	2.68	0.00	0.46	0.98		
ALTRON	4845	3245	3289	850	0.18	0.26	0.26	-1.74	-1.34	-1.35		
ARGENT	913	387	322	221	0.24	0.57	0.69	-1.42	-0.56	-0.38		
ASSORE	2155	1799	3007	2240	1.04	1.25	0.74	0.04	0.22	-0.29		
AVENG	8587	7195	5836	3767	0.44	0.52	0.65	-0.82	-0.65	-0.44		
A-V-I	1458	3291	1218	5089	3.49	1.55	4.18	1.25	0.44	1.43		
BARLOWORLD	12363	23572	9708	13249	1.07	0.56	1.36	0.07	-0.58	0.31		
BIDVEST	12908	12122	9647	14114	1.09	1.16	1.46	0.09	0.15	0.38		
CMH	153	189	203	241	1.57	1.28	1.19	0.45	0.24	0.17		
COMPAREX	800	812	1709	1576	1.97	1.94	0.92	0.68	0.66	-0.08		
CSHOLDING	84	27	117	221	2.62	8.30	1.89	0.96	2.12	0.64		
ELLERINE	1592	1302	1283	1411	0.89	1.08	1.10	-0.12	0.08	0.10		
GROUP-5	2148	2151	1425	548	0.26	0.25	0.38	-1.37	-1.37	-0.96		
HUDACO	316	350	178	544	1.72	1.55	3.06	0.54	0.44	1.12		
IMPERIAL	7165	12494	9880	11871	1.66	0.95	1.20	0.50	-0.05	0.18		
KOLOSUS	322	683	148	336	1.04	0.49	2.27	0.04	-0.71	0.82		
MT-EAGLE	206	128	279	97	0.47	0.76	0.35	-0.75	-0.28	-1.06		
OCEANA	651	849	531	1591	2.44	1.87	2.99	0.89	0.63	1.10		
REUNERT	2483	2550	1712	4129	1.66	1.62	2.41	0.51	0.48	0.88		
SUPRGRP	992	1772	840	2210	2.23	1.25	2.63	0.80	0.22	0.97		
TIGER BRANDS	6067	10528	7805	12034	1.98	1.14	1.54	0.68	0.13	0.43		
TONGAAT	5122	3589	5815	4770	0.93	1.33	0.82	-0.07	0.28	-0.20		
UNITRAN	593	588	451	1696	2.86	2.89	3.76	1.05	1.06	1.32		
MEAN								0.09	0.11	0.27		
MEDIAN								0.14	0.22	0.35		
STD								0.78	0.73	0.73		

<sup>5</sup> The Imputed Value for a company is the sum of the company's segments imputed values as estimated by Weighted Average Industry Ratios. (Refer to Appendix 4)

<sup>6</sup> The Actual Value is equal to company's average share price for the year 2003 multiplied by number of shares on closing date.  $D = \ln(C) = \ln(B/A)$

Appendix 4 Estimation of Imputed Value for a segment and a company using Weighted Average Industry Ratios.

C0. NAME	INDUSTRY	SALES(RM)	OPERATING PROFIT(RM)	INDUSTRY ASSETS(RM)	INDUSTRY RATIOS (WEIGHTED)			IMPUTED VALUE			ACTUAL VALUE(RM)
					Sales	O/profit	T/assets	Sales	O/profit	T/Assets	
A E C I	DIVERSIFIED	7855	726	3855				2431	3917	1787	2,939
Mining solutions	Chemicals Speciality	2076	241	817	0.14	5.50	0.41	292	1326	333	
Specialty chemicals	Chemicals Speciality	3197	372	1490	0.14	5.50	0.41	449	2047	608	
Specialty fibers	Chemicals Speciality	1714	22	761	0.14	5.50	0.41	241	121	310	
Decorative	Builders Merchants	661	52	116	0.94	5.09	1.21	623	264	141	
Property	Real Estate Holding	207	39	671	4.00	4.08	0.59	827	159	395	
<b>AFGR1</b>	<b>DIVERSIFIED</b>	<b>6158</b>	<b>368</b>	<b>3406</b>				<b>2629</b>	<b>1129</b>	<b>1828</b>	<b>2,013</b>
Products	Farming and Fishing	3184	195	1636	0.25	2.59	0.51	787	506	831	
Requisites	Retailers -- Hardlines	2728	82	713	0.56	4.38	0.58	1535	359	414	
Capital	Consumer Finance	227	73	842	1.33	2.06	0.47	301	150	393	
Services and other	Business Support	19	18	215	0.35	6.32	0.89	7	114	190	
<b>AFROX</b>	<b>DIVERSIFIED</b>	<b>7326</b>	<b>1116</b>	<b>4744</b>				<b>4102</b>	<b>3190</b>	<b>3208</b>	<b>4,971</b>
Gas products	Chemicals -- Com	2851	545	2187	0.23	1.56	0.41	650	848	888	
Health care	Hospital Management	4475	571	2557	0.77	4.10	0.91	3451	2342	2320	
<b>ALTECH</b>	<b>DIVERSIFIED</b>	<b>4182</b>	<b>367</b>	<b>1468</b>				<b>2509</b>	<b>1586</b>	<b>937</b>	<b>2,510</b>
Telcoms	Telecommunication	2878	189	725	0.75	4.34	0.84	2148	820	608	
Multimedia	Electronic Equipment	1019	145	615	0.30	5.14	0.44	308	745	271	
Information tech	Computer Services	285	33	128	0.19	0.66	0.46	54	22	59	
<b>ALTRON</b>	<b>DIVERSIFIED</b>	<b>11397</b>	<b>912</b>	<b>6128</b>				<b>4845</b>	<b>3245</b>	<b>3289</b>	<b>850</b>
Telecommunications	Telecommunication	3859	227	1351	0.75	4.34	0.84	2880	984	1133	
Electronics	Electronic Equipment	4155	374	2424	0.30	5.14	0.44	1254	1922	1066	
Information Tech	Computer Services	3320	216	1668	0.19	0.66	0.46	628	143	770	
Financial services	Consumer Finance	63	95	685	1.33	2.06	0.47	84	196	320	

<sup>7</sup> The Sales, EBIT, and Total Assets figures for each segment are obtained from the companies' income statement for the year ended 2003. EBIT represents the Operating Profit for the year. Amounts that are not attributed to any particular segment are prorated according to the segment's relative size in terms of sales, EBIT, and Assets.

<sup>8</sup> The Industry Ratios for each industry is the weighted average of the ratios of the company's market value to its accounting item for a specific industry.

<sup>9</sup> The Imputed Value using sales, EBIT, and T/assets, represents the corresponding accounting item multiplied by its respective Industry Multiplier ratio. However, the imputed value for segments with a negative EBIT is replaced by their sales value as a segment cannot have a negative value

<sup>10</sup> Actual Value of a company is the average share price for the year multiplied by the number of shares at the end of the year.

C = B x A

<b>ARGENT</b>	<b>DIVERSIFIED</b>	<b>843</b>	<b>64</b>	<b>273</b>					<b>913</b>	<b>387</b>	<b>322</b>	<b>221</b>
Steel&steel related	Building and Construction		61	172	1.54	5.66	1.41	782	345	243		
Projet management	Business support	331	4	66	0.35	6.32	0.89	115	25	58		
Property	Real Estate Holding	4	-1	35	4.00	4.08	0.59	16	16	21		
<b>ASSORE</b>	<b>DIVERSIFIED</b>	<b>1909</b>	<b>225</b>	<b>2315</b>				<b>2155</b>	<b>1799</b>	<b>3007</b>	<b>2,240</b>	
Mining	Other Mineral Extractors	1331	146	1656	1.47	8.90	1.46	1955	1300	2423		
Others	Business support	578	79	659	0.35	6.32	0.89	200	499	584		
<b>AVENG</b>	<b>DIVERSIFIED</b>	<b>13244</b>	<b>672</b>	<b>7126</b>				<b>8587</b>	<b>7195</b>	<b>5836</b>	<b>3,767</b>	
Construction	Other Construction	9832	343	4962	0.34	15.55	0.56	3335	5332	2782		
Steel and allied	Building and Construction	3412	329	2164	1.54	5.66	1.41	5253	1863	3055		
<b>A-V-1</b>	<b>DIVERSIFIED</b>	<b>4214</b>	<b>433</b>	<b>2918</b>				<b>1458</b>	<b>3291</b>	<b>1218</b>	<b>5,089</b>	
Consumer products	Food Processors	3840	393	2716	0.37	8.19	0.43	1425	3220	1180		
Cosmetics	Medical Equipment and	374	40	202	0.09	1.76	0.19	33	70	39		
<b>BARLOWORLD</b>	<b>DIVERSIFIED</b>	<b>34603</b>	<b>2122</b>	<b>17023</b>				<b>12363</b>	<b>23572</b>	<b>9708</b>	<b>13,249</b>	
Equipment	Commercial veh.&equip	10908	792	4835	0.25	8.90	0.50	2701	7052	2406		
Industrial distribution	Commercial veh.&equip	5644	159	3713	0.25	8.90	0.50	1397	1416	1848		
Motor	Vehicle dctrubution	8422	128	1464	0.03	1.45	0.11	271	185	166		
Cement and lime	Other construction	3016	866	3007	0.34	15.55	0.56	1023	13462	1686		
Scientific	Electronic equipment	1768	34	1284	0.30	5.14	0.44	534	175	552		
Coatings	Building and Construction	2253	164	654	1.54	5.66	1.41	3468	929	923		
Steel tube	Building and Construction	1736	10	514	1.54	5.66	1.41	2673	57	726		
Corporate operations	Business support	856	-31	1582	0.35	6.32	0.89	297	297	1401		
<b>BIDVEST</b>	<b>DIVERSIFIED</b>	<b>47073</b>	<b>2244</b>	<b>14571</b>				<b>12908</b>	<b>12122</b>	<b>9647</b>	<b>14,114</b>	
Freight division	Railroad and freight	15439	427	4808	0.13	1.51	0.21	1948	645	999		
Services division	Business support	31634	1817	9763	0.35	6.32	0.89	10960	11477	8649		
<b>CMH</b>	<b>DIVERSIFIED</b>	<b>2569</b>	<b>104</b>	<b>598</b>				<b>153</b>	<b>189</b>	<b>203</b>	<b>241</b>	
Retail motor	Vehicle Distribution	2480	91	382	0.03	1.45	0.11	80	132	43		
Car hire	Leisure Facilities	69	8	180	0.68	5.86	0.79	47	47	142		
Financial services	Consumer Finance	20	5	36	1.33	2.06	0.47	27	10	17		
<b>COMPAREX</b>	<b>DIVERSIFIED</b>	<b>2750</b>	<b>138</b>	<b>3124</b>				<b>800</b>	<b>812</b>	<b>1709</b>	<b>1,576</b>	
Technology	Computer Services	750	30	246	0.19	0.66	0.46	142	20	114		
Services and other	Business support	1782	119	628	0.35	6.32	0.89	617	752	556		
Business application	Computer Services	218	-11	2250	0.19	0.66	0.46	41	41	1039		
<b>CSHOLDING</b>	<b>DIVERSIFIED</b>	<b>431</b>	<b>-13</b>	<b>254</b>				<b>84</b>	<b>27</b>	<b>117</b>	<b>221</b>	
Processes	Computer Services	116	-20	113	0.19	0.66	0.46	22	22	52		
People	Education Business	61	0	20	0.23	7.61	0.43	14	0	9		
Technology	Computer Services	254	7	121	0.19	0.66	0.46	48	5	56		
<b>ELLERINE</b>	<b>DIVERSIFIED</b>	<b>2184</b>	<b>344</b>	<b>2302</b>				<b>1592</b>	<b>1302</b>	<b>1283</b>	<b>1,411</b>	

Furniture	Retailers -- Hardlines	1708	238	1744	0.56	4.38	0.58	961	1043	1012	
Financial services	Consumer Finance	476	86	468	1.33	2.06	0.47	631	177	218	
Property	Real Estate Holding	0	20	90	4.00	4.08	0.59	0	82	53	
<b>GROUP-5</b>	<b>DIVERSIFIED</b>	<b>4100</b>	<b>160</b>	<b>1830</b>				<b>2148</b>	<b>2151</b>	<b>1425</b>	<b>548</b>
Construction	Other Construction	3469	126	1361	0.34	15.55	0.56	1177	1959	763	
Manufacturing	Building and Construction	631	34	469	1.54	5.66	1.41	971	193	662	
<b>HUDACO</b>	<b>DIVERSIFIED</b>	<b>1483</b>	<b>168</b>	<b>438</b>				<b>316</b>	<b>350</b>	<b>178</b>	<b>544</b>
Bearing	Engineering General	771	90	219	0.18	1.40	0.37	139	126	80	
Powered products	Engineering General	325	48	69	0.18	1.40	0.37	59	67	25	
Security equipment	Electronic Equipment	233	22	89	0.30	5.14	0.44	70	113	39	
Automotive parts	Auto Parts	154	8	61	0.31	5.50	0.54	48	44	33	
<b>IMPERIAL</b>	<b>DIVERSIFIED</b>	<b>34335</b>	<b>2568</b>	<b>20118</b>				<b>7165</b>	<b>12494</b>	<b>9880</b>	<b>11,871</b>
Logistics and transport	Rail Road and Freight	11855	618	5972	0.13	1.51	0.21	1496	934	1240	
Leasing and fleet mgt	Business Support Services	4106	910	6509	0.35	6.32	0.89	1423	5748	5766	
Car rental	Leisure Facilities	3328	509	1806	0.68	5.86	0.79	2259	2981	1429	
Motor distribution	Vehicle Distribution	13587	551	4267	0.03	1.45	0.11	438	797	485	
Insurance	Life Assurance	1459	-20	1564	6.77	12.02	0.43	1549	2034	960	
<b>KOLOSUS</b>	<b>DIVERSIFIED</b>	<b>1159</b>	<b>1159</b>	<b>404</b>				<b>322</b>	<b>683</b>	<b>148</b>	<b>336</b>
Food	Food Processors	535	535	191	0.37	0.19	0.43	199	102	83	
Leather	Textile and Leather	624	149	213	0.20	3.90	0.31	123	581	65	
<b>MT-EAGLE</b>	<b>DIVERSIFIED</b>	<b>228</b>	<b>30</b>	<b>433</b>				<b>206</b>	<b>128</b>	<b>279</b>	<b>97</b>
Import/distribution	Retailers Soft Goods	210	18	145	0.67	4.15	0.91	141	75	132	
Property	Real Estate Holding	16	11	145	4.00	4.08	0.59	64	45	85	
Food production	Food Processors	2	1	143	0.37	8.19	0.43	1	8	62	
<b>OCEANA</b>	<b>DIVERSIFIED</b>	<b>2582</b>	<b>267</b>	<b>947</b>				<b>651</b>	<b>849</b>	<b>531</b>	<b>1,591</b>
Fishing	Farming and Fishing	2453	225	814	0.25	2.59	0.51	606	584	414	
Cold storage	Business support	129	42	133	0.35	6.32	0.89	45	265	118	
<b>REUNERT</b>	<b>DIVERSIFIED</b>	<b>6105</b>	<b>505</b>	<b>3120</b>				<b>2483</b>	<b>2550</b>	<b>1712</b>	<b>4,129</b>
Electrical engineering	Electrical Equipment	1109	170	486	0.88	4.88	1.14	975	829	553	
Electronics	Electronic Equipment	4996	335	2634	0.30	5.14	0.44	1508	1721	1159	
<b>SUPRRP</b>	<b>DIVERSIFIED</b>	<b>6013</b>	<b>493</b>	<b>2758</b>				<b>992</b>	<b>1772</b>	<b>840</b>	<b>2,210</b>
Supply chain	Business support	577	172	254	0.35	6.32	0.89	200	1086	225	
Fleet solution	Rail Road and Freight	1350	167	1294	0.13	1.51	0.21	170	252	269	
Dealership	Vehicle Distribution	2714	80	698	0.03	1.45	0.11	87	116	79	
Automotive parts	Auto Parts	1266	48	390	0.31	5.50	0.54	394	264	210	
Services	Consumer Finance	106	26	122	1.33	2.06	0.47	141	54	57	
<b>TIGER BRANDS</b>	<b>DIVERSIFIED</b>	<b>23039</b>	<b>1998</b>	<b>11197</b>				<b>6067</b>	<b>10528</b>	<b>7805</b>	<b>12,034</b>
Domestic food	Food Processors	8565	649	4163	0.37	8.19	0.43	3178	5318	1808	

Health care products	Medical Equipment	2649	784	1287	0.09	1.76	0.19	231	1376	247	
Spar	Food and Drug Retailers	10121	346	4919	0.22	9.44	1.08	2236	3266	5329	
Fishing	Farming and Fishing	1704	219	828	0.25	2.59	0.51	421	568	421	
<b>TONGAAT</b>	<b>DIVERSIFIED</b>	<b>6559</b>	<b>491</b>	<b>7409</b>				<b>5122</b>	<b>3589</b>	<b>5815</b>	<b>4,770</b>
Sugar and African	Food Processors	4733	377	4391	0.37	8.19	0.43	1756	3089	1907	
Hullet Aluminium	Building and Construction	1600	22	2590	1.54	5.66	1.41	2463	125	3656	
Moreland	Real Estate Holding	226	92	428	4.00	4.08	0.59	903	375	252	
<b>UNITRAN</b>	<b>DIVERSIFIED</b>	<b>7392</b>	<b>385</b>	<b>2499</b>				<b>593</b>	<b>588</b>	<b>451</b>	<b>1,696</b>
Transport and logistics	Rail Road and Freight	1831	212	1434	0.13	1.51	0.21	231	320	298	
Motor	Vehicle Distribution	5420	145	974	0.03	1.45	0.11	175	210	111	
Financials	Consumer Finance	141	28	91	1.33	2.06	0.47	187	58	42	

Appendix 5 Calculation of Excess Value for the sample focused companies using Median Industry Ratios.

	A <sup>11</sup>			B <sup>12</sup>	C			D			
	IMPUTED VALUE (RM)				AV/IV			ln(AV/IV)			
	Sales	O/Profit	T/Assets	Actual value	Sales	O/Profit	T/Assets	Sales	O/Profit	T/Assets	
METAIR	Auto Parts	584	1114	564	671	1.15	0.60	1.19	0.14	-0.51	0.17
AGI	Building and Construction	233	267	249	524	2.25	1.96	2.10	0.81	0.67	0.74
CERAMIC	Building and Construction	164	836	413	1285	7.85	1.54	3.11	1.06	0.43	1.14
DORBYL	Building and Construction	766	1771	734	734	0.96	0.41	1.00	-0.04	-0.88	0.00
PPC	Building and Construction	789	5191	1924	5191	6.58	1.00	2.70	1.88	0.00	0.99
M&R-HLD	Other Construction	2012	1038	1918	3734	1.86	3.60	1.95	0.62	1.28	0.67
WBHO	Other Construction	479	390	427	519	1.08	1.33	1.21	0.08	0.28	0.19
DELTA	Electrical Equipment	1180	1303	1245	2022	1.71	1.55	1.62	0.54	0.44	0.48
OMNIA	Chemicals -- Commodity	528	528	528	528	1.00	1.00	1.00	0.00	0.00	0.00
CASHBIL	Builders Merchants	539	322	321	200	0.37	0.62	0.62	-0.99	-0.48	-0.47
ASTRAPAK	Business Support Services	385	278	414	286	0.74	1.03	0.69	-0.30	0.03	-0.37
NAMPAK	Business Support Services	5183	2749	4805	8283	1.60	3.01	1.72	0.47	1.10	0.54
REBSERV	Business Support Services	910	706	731	1115	1.23	1.58	1.53	0.20	0.46	0.42
AST GROUP	Computer Services	364	364	404	175	0.48	0.48	0.43	-0.73	-0.73	-0.84
DCENTRIX	Computer Services	127	175	158	218	1.72	1.25	1.38	0.54	0.22	0.32
DIDATA	Computer Services	332	991	636	4201	12.65	4.24	6.60	2.54	1.44	1.89
PARACON	Computer Services	57	58	79	188	3.30	3.25	2.38	1.19	1.18	0.87
BTG	Computer Services	501	610	610	610	1.22	1.00	1.00	0.20	-0.00	-0.00
INVICTA	Engineering General	291	273	302	366	1.26	1.34	1.21	0.23	0.29	0.19
IST	Electronic Equipment	88	120	101	130	1.47	1.08	1.29	0.39	0.08	0.26
BELL	Commercial Vehicles	688	688	688	688	1.00	1.00	1.00	0.00	0.00	0.00
PICKNPAY	Food and Drug Retailers	5753	6348	4766	6130	1.07	0.97	1.29	0.06	-0.03	0.25
SHOPRIT	Food and Drug Retailers	5452	4925	7139	5095	0.93	1.03	0.71	-0.07	0.03	-0.34
MEDCLIN	Hospital Management	2472	2148	2355	2535	1.03	1.18	1.08	0.03	0.17	0.07
NETCARE	Hospital Management	5082	5082	5082	5082	1.00	1.00	1.00	0.00	0.00	0.00
AHEALTH	Hospital Management	3782	2454	2403	2183	0.58	0.89	0.91	-0.55	-0.12	-0.10
ASTRAL	Farming and Fishing	822	807	430	753	0.92	0.93	1.75	-0.09	-0.07	0.56
RAINBOW	Farming and Fishing	780	670	545	780	1.00	1.16	1.43	0.00	0.15	0.36
ILLOVO	Fodd processing	2607	2607	2607	2607	1.00	1.00	1.00	0.00	0.00	0.00

<sup>11</sup> Since focused companies do not have multiple segments, the imputed value for the focused company is calculated as the product of the company's accounting item multiplied by the corresponding Median Industry Ratio.

<sup>12</sup> The Actual Value is equal to the company's average share price for the year 2003 multiplied by the number of shares on closing date.

$$D = \ln(C) = \ln(B/A)$$

A-PROP	Real Estate Holding	485	485	302	264	0.55	0.55	0.88	-0.61	-0.61	-1.13
ACUCAP	Real Estate Holding	408	528	390	384	0.94	0.73	0.99	-0.06	-0.32	-0.01
RESILIENT	Real Estate Holding	462	518	405	503	1.09	0.97	1.24	0.09	-0.03	0.22
ATLAS	Real Estate Holding	591	492	359	457	0.77	0.93	1.27	-0.26	-0.77	0.24
APEXHI A	Real Estate Holding	1874	1015	926	1628	0.87	1.60	1.76	-0.14	0.47	0.56
CAPITAL	Real Estate Holding	207	267	195	384	1.85	1.44	1.97	0.62	0.36	0.68
GROWPNT	Real Estate Holding	1421	1631	2235	1785	1.26	1.09	0.80	0.23	0.09	-0.22
GRAYPROP	Real Estate Holding	1386	1600	1142	2364	1.71	1.48	2.07	0.53	0.39	0.73
IFOUR	Real Estate Holding	439	337	318	258	0.59	0.77	0.81	-0.53	-0.27	-0.21
METPROL	Real Estate Holding	528	440	473	535	1.01	1.21	1.13	0.01	0.19	0.12
OCTODEC	Real Estate Holding	332	250	286	196	0.59	0.78	0.68	-0.53	-0.24	-0.38
PARAPROP	Real Estate Holding	349	292	385	199	0.57	0.68	0.52	-0.56	-0.38	-0.66
PANPROP	Real Estate Holding	748	646	660	1042	1.39	1.61	1.58	0.33	0.48	0.46
PREMIUM	Real Estate Holding	304	297	232	168	0.55	0.57	0.73	-0.59	-0.57	-0.32
REDEFINE	Real Estate Holding	621	1041	1041	1041	1.68	1.00	1.00	0.52	0.00	0.00
SPEARHD	Real Estate Holding	184	214	179	184	1.00	0.86	1.03	0.00	-0.15	0.03
SA RETAIL	Real Estate Holding	410	307	372	760	1.85	2.47	2.04	0.62	0.91	0.71
ASSMANG	Other Mineral Extractors	1589	449	2471	4466	2.81	9.95	1.81	1.03	2.30	0.59
KUMBA	Other Mineral Extractors	4085	11288	9919	9919	2.43	0.88	1.00	0.89	-0.13	-0.00
METOREX	Other Mineral Extractors	4085	54	220	485	0.12	8.98	2.20	-2.13	2.19	0.79
Z-C-1	Other Mineral Extractors	195	195	233	188	0.96	0.96	0.81	-0.04	-0.04	-0.21
KERSAF	Leisure Facilities	2938	2029	5778	2367	0.81	1.17	0.41	-0.22	0.15	-0.89
SAIL	Leisure Facilities	129	129	118	96	0.74	0.74	0.81	-0.30	-0.30	-0.21
TOURVST	Leisure Facilities	1161	1664	814	1387	1.19	0.83	1.70	0.18	-0.18	0.53
BRANDCO	Retailers -- Hardlines	162	162	125	162	1.00	1.00	1.29	0.00	0.00	0.26
BEARMAN	Retailers -- Hardlines	233	338	219	457	1.97	1.35	2.09	0.68	0.30	0.74
JDGROUP	Retailers -- Hardlines	1386	1869	2570	3877	2.80	2.07	1.51	1.03	0.73	0.41
MTN GROUP	Wireless Tele	19577	19577	19577	19577	1.00	1.00	1.00	0.00	0.00	0.00
MEAN									0.15	0.19	0.21
MEDIAN									0.03	0.00	0.19
STD									0.68	0.61	0.49

Appendix 6 Calculation of Excess Value for the sample focused companies using Weighted Average Industry Ratios.

	A <sup>13</sup>			B <sup>14</sup>	C			D			
	IMPUTED VALUE (RM)				AV/IV			ln(AV/IV)			
	Sales	O/Profit	T/Assets	Actual value	Sales	O/Profit	T/Assets	Sales	O/Profit	T/Assets	
METAIR	Auto Parts	577	1150	556	671	1.16	0.58	1.21	0.15	-0.54	0.19
AGI	Building and Construction	1371	291	632	524	0.38	1.80	0.83	-0.96	0.59	-0.19
CERAMIC	Building and Construction	963	911	1048	1285	1.33	1.41	1.23	0.29	0.34	0.20
DORBYL	Building and Construction	4507	1930	1864	734	0.16	0.38	0.39	-1.81	-0.97	-0.93
PPC	Building and Construction	4643	5656	4882	5191	1.12	0.92	1.06	0.11	-0.09	0.06
M&R-HLD	Other Construction	3429	3300	3442	3734	1.09	1.13	1.08	0.09	0.12	0.08
WBHO	Other Construction	817	1240	767	519	0.64	0.42	0.68	-0.45	-0.87	-0.39
DELTA	Electrical Equipment	1236	1448	1654	2022	1.64	1.40	1.22	0.49	0.33	0.20
OMNIA	Chemicals -- Commodity	528	528	528	528	1.00	1.00	1.00	-0.00	-0.00	-0.00
CASHBL	Builders Merchants	1314	375	577	200	0.15	0.53	0.35	-1.89	-0.63	-1.06
ASTRAPAK	Business Support Services	467	890	762	286	0.61	0.32	0.38	-0.49	-1.14	-0.98
NAMPAK	Business Support Services	6296	8787	8843	8283	1.32	0.94	0.94	0.27	-0.06	-0.07
REBSERV	Business Support Services	1105	2258	1346	1115	1.01	0.49	0.83	0.01	-0.71	-0.19
AST GROUP	Computer Services	417	417	330	175	0.42	0.42	0.53	-0.87	-0.87	-0.63
DCENTRIX	Computer Services	146	41	129	218	1.50	5.33	1.69	0.40	1.67	0.52
DIDATA	Computer Services	381	23	520	4201	11.02	181.27	8.07	2.40	5.20	2.09
PARACON	Computer Services	65	14	65	188	2.89	13.92	2.90	1.06	2.63	1.06
BTG	Computer Services	574	143	499	610	1.06	4.28	1.22	0.06	1.45	0.20
INVICTA	Engineering General	344	339	348	366	1.06	1.08	1.05	0.06	0.08	0.05
IST	Electronic Equipment	91	197	91	130	1.44	0.66	1.44	0.36	-0.41	0.36
BELL	Commercial Vehicles	688	688	688	688	1.00	1.00	1.00	0.00	0.00	0.00
PICKNPAY	Food and Drug Retailers	5788	6328	4891	6130	1.06	0.97	1.25	0.06	-0.03	0.23
SHOPRIT	Food and Drug Retailers	5485	4910	7327	5095	0.93	1.04	0.70	-0.07	0.04	-0.36
MEDCLIN	Hospital Management	2255	2195	2353	2635	1.12	1.15	1.08	0.12	0.14	0.07
NETCARE	Hospital Management	4637	5194	5079	5082	1.10	0.98	1.00	0.09	-0.02	0.00
AHEALTH	Hospital Management	3451	2508	2402	2183	0.63	0.87	0.91	-0.46	-0.14	-0.10
ASTRAL	Farming and Fishing	976	847	659	753	0.77	0.89	1.14	-0.26	-0.12	0.13
RAINBOW	Farming and Fishing	927	704	835	780	0.84	1.11	0.93	-0.17	0.10	-0.07

<sup>13</sup> Since focused companies do not have multiple segments, the imputed value for the focused company is the calculated as the product of the company's accounting item multiplied by corresponding Weighted Average Industry Ratio

<sup>14</sup> The Actual Value is equal to company's average share price for the year 2003 multiplied by number of shares on closing date.  
 $D = \ln(C) = \ln(B/A)$

ILLOVO	Food processing	2607	2607	2607	2607	2607	2607	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
A-PROP	Real Estate Holding	617	617	431	264	0.43	0.43	0.61	-0.85	-0.85	-0.37	0.00	-0.49		
ACUCAP	Real Estate Holding	519	685	556	384	0.74	0.56	0.69	-0.30	-0.58	-0.14	0.00	-0.37		
RESILIENT	Real Estate Holding	589	672	579	503	0.86	0.75	0.87	-0.16	-0.29	-0.14	0.00	-0.14		
ATLAS	Real Estate Holding	753	639	512	457	0.61	0.72	0.89	-0.50	-0.33	-0.11	0.00	-0.11		
APEXHI A	Real Estate Holding	2386	1318	1321	1628	0.68	1.24	1.23	-0.38	0.21	0.21	0.00	0.21		
CAPITAL	Real Estate Holding	264	347	278	384	1.45	1.11	1.38	0.37	0.10	0.32	0.00	0.32		
GROWPNT	Real Estate Holding	1810	2116	3189	1785	0.99	0.84	0.56	-0.01	-0.17	-0.58	0.00	-0.58		
GRAYPROP	Real Estate Holding	1766	2077	1629	2364	1.34	1.14	1.45	0.29	0.13	0.37	0.00	0.37		
IFOUR	Real Estate Holding	559	437	454	258	0.46	0.59	0.57	-0.77	-0.53	-0.56	0.00	-0.56		
METPROL	Real Estate Holding	672	571	675	535	0.80	0.94	0.79	-0.23	-0.07	-0.23	0.00	-0.23		
OCTODEC	Real Estate Holding	423	324	408	196	0.46	0.60	0.48	-0.77	-0.51	-0.74	0.00	-0.74		
PARAPROP	Real Estate Holding	444	379	550	199	0.45	0.52	0.36	-0.80	-0.64	-1.02	0.00	-1.02		
PANPROP	Real Estate Holding	953	838	942	1042	1.09	1.24	1.11	0.09	0.22	0.10	0.00	0.10		
PREMIUM	Real Estate Holding	387	385	331	168	0.44	0.44	0.51	-0.83	-0.83	-0.67	0.00	-0.67		
REDEFINE	Real Estate Holding	791	1351	1485	1041	1.32	0.77	0.70	0.27	-0.26	-0.36	0.00	-0.36		
SPEARHD	Real Estate Holding	234	278	255	184	0.79	0.66	0.72	-0.24	-0.41	-0.33	0.00	-0.33		
SA RETAIL	Real Estate Holding	523	399	531	760	1.45	1.91	1.43	0.37	0.65	0.36	0.00	0.36		
ASSMANG	Other Mineral Extractors	4267	3478	3909	4466	1.05	1.28	1.14	0.05	0.25	0.13	0.00	0.13		
KUMBA	Other Mineral Extractors	10972	8753	15687	9919	0.90	1.13	0.63	-0.10	0.12	-0.46	0.00	-0.46		
METOREX	Other Mineral Extractors	1302	420	347	485	0.37	1.16	1.40	-0.99	0.14	0.33	0.00	0.33		
Z-C-I	Other Mineral Extractors	523	523	368	188	0.36	0.36	0.51	-1.02	-1.02	-0.67	0.00	-0.67		
KERSAF	Leisure Facilities	2861	1862	5197	2367	0.83	1.27	0.46	-0.19	0.24	-0.79	0.00	-0.79		
SAIL	Leisure Facilities	126	126	106	96	0.76	0.76	0.91	-0.27	-0.27	-0.10	0.00	-0.10		
TOURVST	Leisure Facilities	1130	1526	732	1387	1.23	0.91	1.89	0.20	-0.10	0.64	0.00	0.64		
BRANDCO	Retailers – Hardlines	392	323	182	162	0.41	0.50	0.89	-0.88	-0.69	-0.12	0.00	-0.12		
BEARMAN	Retailers – Hardlines	564	675	319	457	0.81	0.68	1.43	-0.21	-0.39	0.36	0.00	0.36		
JDGROUP	Retailers – Hardlines	3356	3726	3743	3877	1.16	1.04	1.04	0.14	0.04	0.04	0.00	0.04		
MTN GROUP	Wireless Tele	14480	14894	12926	19577	1.35	1.31	1.51	0.30	0.27	0.42	0.00	0.42		
MEAN									-0.15	0.01	-0.07		-0.07		
MEDIAN									-0.01	-0.06	-0.00		-0.00		
STD									0.64	0.95	0.53		0.53		



VEHICLE DISTRIBUTION										
VALCAR	234497	5211	66259	16500	0.51	8415	0.04	1.61	0.13	
VALAUTO	234497	5247	67060	16500	0.39	6435	0.03	1.23	0.10	
MEAN							0.03	1.42	0.11	
MEDIAN							0.03	1.42	0.11	
WEIGHTED AVERAGE							0.03	1.45	0.11	
ELECTRICAL EQUIPMENT										
DELTA	1406061	296844	1453120	49166	41.12	2021706	1.44	6.81	1.39	
PASDEC	240250	29255	178605	55964	1.03	57642.92	0.24	1.97	0.32	
MEAN							0.84	4.39	0.86	
MEDIAN							0.84	4.39	0.86	
WEIGHTED AVERAGE							0.88	4.88	1.14	
CHEMICAL COMMODITY										
OMNIA	2315078	339416	1300636	40722	12.97	528164.3	0.23	1.56	0.41	
CHEMICAL SPECIALITY										
SPANJAARD	72244	1844	24874	5700	1.78	10146	0.14	5.50	0.41	
BUILDERS MERCHANTS										
CASHBIL	1394783	73711	475409	23225	8.59	199502.8	0.14	2.71	0.42	
LLAD	1140019	100720	653325	139841	3.15	440499.2	0.39	4.37	0.67	
ITLTILE	749150	171502	626100	18677	53.9	1006690	1.34	5.87	1.61	
MEAN							0.62	4.32	0.90	
MEDIAN							0.39	4.37	0.67	
WEIGHTED AVERAGE							0.94	5.09	1.21	



<b>CONSUMER FINANCE</b>										
CAPITEC	323049	55390	365982	63190	1.51	95416.9	0.30	1.72	0.26	
ABIL	2258425	1481603	6485067	497156	6.17	3067453	1.36	2.07	0.47	
MEAN							0.83	1.90	0.37	
MEDIAN							0.83	1.90	0.37	
WEIGHTED AVERAGE							1.33	2.06	0.47	
<b>ELECTRONIC EQUIPMENT</b>										
CONTROL	355970	23209	166847	76978	1.04	80057.12	0.22	3.45	0.48	
DIGICOR	172161	28466	115570	226212	0.24	54290.88	0.32	1.91	0.47	
GRINTEK	1467854	58437	1207060	271582	1.56	423667.9	0.29	7.25	0.35	
IST	300323	38261	206122	123990	1.05	130189.5	0.43	3.40	0.63	
JASCO	296852	36675	117295	48512	1.23	59669.76	0.20	1.63	0.51	
SETHOLD	219293	22804	132282	235376	0.28	65905.28	0.30	2.89	0.50	
MEAN							0.29	3.42	0.49	
MEDIAN							0.29	3.15	0.49	
WEIGTED AVERAGE							0.30	5.14	0.44	
<b>COMMERCIAL VEHICLE</b>										
BELL	2778279	77250	1382152	94224	7.3	687835.2	0.25	8.90	0.50	
<b>ENGINEERING GENERAL</b>										
HOWDEN	554925	84158	248399	65729	0.95	62442.55	0.11	0.74	0.25	
INVICTA	1907317	242119	946821	72843	5.03	366400.3	0.19	1.51	0.39	
MEAN							0.15	1.13	0.32	
MEDIAN							0.15	1.13	0.32	
WEIGHTED AVERAGE							0.18	1.40	0.37	

<b>RAIL ROAD AND FREIGHT</b>									
CARGO	364041	14796	252063	20000	2.14	42800	0.12	2.89	0.17
PUTCO	894067	89101	482008	26425	4.14	109399.5	0.12	1.23	0.23
VALUE	514039	63537	351403	207599	0.34	70583.66	0.14	1.11	0.20
MEAN							0.13	1.74	0.20
MEDIAN							0.12	1.23	0.20
WEIGHTED AVERAGE							0.13	1.51	0.21
<b>SHIPPING AND PORTS</b>									
GRINDROD	1976000	280000	2092498	35032	9.5	332804	0.17	1.19	0.16
TRENCOR	1586300	35400	7249100	153640	9.23	1418097	0.89	40.06	0.20
MEAN							0.53	20.62	0.18
MEDIAN							0.53	20.62	0.18
WEIGHTED AVERAGE							0.76	32.67	0.19
<b>FOOD AND DRUG RETAILERS</b>									
PICKNPAY	26194200	670400	4515200	483444	12.68	6130070	0.23	9.14	1.36
SHOPRIT	24824516	520135	6763765	785034	6.49	5094871	0.21	9.80	0.75
MEAN							0.22	9.47	1.06
MEDIAN							0.22	9.47	1.06
WEIGHTED AVERAGE							0.22	9.44	1.08
<b>HOSPITAL MANAGEMENT</b>									
MEDCLIN	2924229	535235	2593837	340719	7.44	2534949	0.87	4.74	0.98
NETCARE	6012600	1266200	5598400	1530724	3.32	5082004	0.85	4.01	0.91
AHEALTH	4474829	611439	2647202	224117	9.74	2182900	0.49	3.57	0.82
MEAN							0.73	4.11	0.90
MEDIAN							0.85	4.01	0.91
WEIGHTED AVERAGE							0.77	4.10	0.91

<b>MEDICAL EQUIPMENT</b>									
ALLIANCE	211541	10142	89663	95677	0.22	21048.94	0.10	2.08	0.23
FORM	213880	11490	113244	50000	0.3	15000	0.07	1.31	0.13
MEAN							0.08	1.69	0.18
MEDIA							0.08	1.69	0.18
WEIGHTED AVERAGE							0.09	1.76	0.19
<b>OTHER TEXTILE AND LEATHER</b>									
GLODINA	166704	7401	146537	26603	1.47	39106.41	0.23	5.28	0.27
BUSBY	413988	23247	226216	60876	1.21	73659.96	0.18	3.17	0.33
Mean							0.21	4.23	0.30
Median							0.21	4.23	0.30
WEIGHTED AVERAGE							0.20	3.90	0.31
<b>FARMING AND FISHING</b>									
ASTRAL	3947030	326733	1297703	42261	17.81	752668.4	0.19	2.30	0.58
CROOKES	179957	46628	290286	12000	12.09	145080	0.81	3.11	0.50
INTRADING	637298	12974	95675	50000	0.58	29000	0.05	2.24	0.30
NAMSEA	86704	-8324	66639	116236	0.19	22084.84	0.25	-2.65	0.33
RAINBOW	3748520	271412	1643194	262709	2.97	780245.7	0.21	2.87	0.47
SOVFOOD	286216	19441	207110	29104	1.65	48021.6	0.17	2.47	0.23
WBHOLD	41260	2182	59922	9400	1.51	14194	0.34	6.51	0.24
Mean							0.29	2.41	0.38
Median							0.21	2.47	0.33
WEIGHTED AVERAGE							0.25	2.59	0.51
<b>FOOD PROCESSOR</b>									
ILLOVO	7025000	318100	6002200	332912	7.83	2606701	0.37	8.19	0.43

OTHER MINERALS AND MINES									
ARI	4896000	450000	4299000	112602	41.38	4659471	0.95	10.35	1.08
ASSMANG	2904483	390610	2670987	3548	1258.79	4466187	1.54	11.43	1.67
KELGRAN	343935	-63092	246993	94034	0.59	55480.06	0.16	-0.88	0.22
KUMBA	7469000	983000	10720000	296963	33.4	9918564	1.33	10.09	0.93
METOREX	886317	47116	237456	175019	2.77	484802.6	0.55	10.29	2.04
SACHROME	183782	-69709	138965	1014957	1.02	1035256	5.63	-14.85	7.45
SALLIES	83288	-13293	36950	92294	0.31	28611.14	0.34	-2.15	0.77
SCHAMIN	370584	53600	444834	128225	0.48	61548	0.17	1.15	0.14
Z-C-I	356308	-12302	251662	126247	1.49	188108	0.53	-15.29	0.75
MEAN							1.24	1.13	1.67
MEDIAN							0.55	1.15	0.93
WEIGHTED AVERAGE							1.47	8.90	1.46
<b>LEISURE FACILITIES</b>									
CULINAN	160075	20458	171929	717189	0.25	179297.3	1.12	8.76	1.04
KERSAF	4213556	317932	6667830	90050	26.28	2366514	0.56	7.44	0.36
SAIL	185596	-3090	133750	273854	0.35	95848.9	0.52	-31.02	0.72
TOURVST	1665072	260635	925179	788169	1.76	1387177	0.83	5.32	1.50
MEAN							0.76	-2.37	0.90
MEDIAN							0.70	6.38	0.88
WEIGHTED AVERAGE							0.68	5.86	0.79

RETAIL-HARDLINES									
BRANDCO	696832	73644	314234	77830	2.08	161886.4	0.23	2.20	0.52
BEARMAN	1001787	153944	549997	105641	4.33	457425.5	0.46	2.97	0.83
CONNECT	1012112	33723	205757	38697	1.07	41405.79	0.04	1.23	0.20
INMINS	461947	23904	141385	33427	1.1	36769.7	0.08	1.54	0.26
JDGROUP	5966000	850100	6454000	166830	23.24	3877129	0.65	4.56	0.60
RELYANT	2298950	145256	1927398	959278	0.8	767422.4	0.33	5.28	0.40
WINHOLD	720188	41532	258854	94197	0.46	43330.62	0.06	1.04	0.17
MEAN							0.26	2.69	0.42
MEDIAN							0.23	2.20	0.40
WEIGHTED AVERAGE							0.56	4.38	0.58
WIRELESS COMMUNICATIONS									
MTN GROUP	19405000	3435000	15419000	1652058	11.85	19576887	1.01	5.70	1.27

## TOP-200 COMPANIES PROFILE

Co. NAME	SUB SECTOR	MARKET		SAMPLE		
		CAPITAL(R'000)	DIVERSIFIED <sup>a</sup>	DIVERSIFIED <sup>b</sup>	FOCUSED <sup>c</sup>	OTHERS <sup>d</sup>
ANGLO	Other Mineral Extractors & Mines	189098051				X
HPBILL	Other Mineral Extractors & Mines	113065814				X
CHEMONT	Household Appliances	85608000	X			X
ASOL	Oil and Gas	69748965			X	
ANGLOPLAT	Platinum	68602718				X
ANGGOLD	Gold Mining	67871843				X
FIELDS	Gold Mining	62894310				X
AB	Beverages Brewers	62014351			X	
LDMUTUAL	Life Assurance	47689451				X
ARMONY	Gold Mining	40502199				X
TANBANK	Banks	40259522				X
RSTRAND	Banks	39587327				X
MPLATS	Platinum	36774890				X
EDCOR	Banks	30988700				X
EMGRO	Investment Companies Eligible	30016658				X
APPI	Paper	27856657			X	
BINT	Real Estate Holding	25323952			X	
BSA	Banks	21484817				X
ANLAM	Life Assurance	21033537				X
ITN GROUP	Wireless Tele Services	19922216			X	
ONMIN	Platinum	17049004				X
ENCOR	Other Financial	15512266				
LIBERTY	Life Assurance	15102663				X
IDVEST	Business Support Services	14113533	X	X		
ARWORLD	Diversified Industrials	13249004	X	X		
MBH	Banks	12115647				X
IGBRANDS	Food Processors	12033826	X	X		
MPERIAL	Diversified Industrials	11871292	X	X		
TUMBA	Other Mineral Extractors & Mines	9659335			X	
SCOR	Steel	9360795			X	
HAMPAK	Business Support Services	9146439			X	
DBN-DEEP	Gold Mining	8698543				X
NVPLC	Investment Banks	8579149				X
VENFIN	Investment Companies Eligible	8513639				X

Continues

<sup>a</sup> Companies classified, based on the nature of their segments operation, as having diversified business. It includes companies classified as "diversified" in the JSE as well as other companies which the researcher, by review the nature of each segment, reclassified as diversified.

<sup>b</sup> The sample diversified companies selected from the reclassified diversified companies. It excluded some diversified companies because the because they lacked the required segment information or data for their corresponding industry.

<sup>c</sup> Focused companies include all the single-segment companies as well as multi-segment companies which with all their segments belong to one sub sector.

<sup>d</sup> Companies included in "Others" are companies, diversified and focused, which the nature of their business or the structure of their financial statement does not fir with the model used in this study. It includes holding companies whose subsidiaries are also listed, financial, investment, insurance, and gold companies.

Continued

TOP-200 COMPANIES PROFILE						
Co. NAME	SUB SECTOR	MARKET		SAMPLE		
		CAPITAL(R'000)	DIVERSIFIED	DIVERSIFIED	FOCUSED	OTHER
STEINHOFF	Furnishings and Floor Coverings	7840286			X	
JOHNNIC	Publishing and Printing	7680750			X	
NASPERS	Subscription Entertainment	7658919			X	
LIB-HOLD	Life Assurance	7401188				X
ABI	Soft Drinks	7328400			X	
AVGOLD	Gold Mining	7324504				X
PICKNPAY	Food and Drug Retailers	6429804			X	
PPC	Building and Construction	5481841			X	
NETCARE	Hospital Management	5116815			X	
DIDATA	Computer Services	5101134			X	
A-V-I	Food Processors	5088678	X	X		
WES-AREAS	Gold Mining	5036989				X
INVLTD	Investment Banks	4971947				X
AFROX	Chemicals -- Commodity	4971370	X	X		
WOOLIES	Retailers Multi Department	4948205			X	
ALEXFBS	Insurance Brokers	4887650				X
TONGAAT	Food Processors	4770389	X	X		
AVMIN	Other Mineral Extractors & Mines	4633629			X	
ENERGY	Oil and Gas Exploration	4447164			X	
ASSMANG	Other Mineral Extractors & Mines	4328811			X	
MVELA RES	Platinum	4326482				X
NORTHAM	Platinum	4306709				X
METCASH	Discount and Super Stores	4233096			X	
M&R-HLD	Other Construction	4148658			X	
REUNERT	Electrical Equipment	4128993	X	X		
DISCOVERY	Other Insurance	3939876				
MET LTD	Life Assurance	3918418				X
SHOPRIT	Food and Drug Retailers	3836965			X	
AVENG	Other Construction	3767348	X	X		
MASSMART	Discount and Super Stores	3645190			X	
M-&F	Insurance Non Life	3617938				X
SANTAM	Insurance Non Life	3530913				X
JDGROUP	Retailers -- Hardlines	3489850			X	
GROWPNT	Real Estate Holding	3277216			X	
TRUWTHS	Retailers Soft Goods	3128159			X	
PIKWIK	Food and Drug Retailers	2947322			X	
A E C I	Chemicals Speciality	2938643	X	X		
MEDCLIN	Hospital Management	2870541			X	
ASPEN	Pharmaceuticals	2842420			X	
ABIL	Consumer Finance	2833787			X	
EDCON	Retailers Soft Goods	2799895			X	
FOSCHNI	Retailers Soft Goods	2741680			X	
ILLOVO	Food Processors	2703705				
CAXTON	Publishing and Printing	2671306			X	

Continued

TOP-200 COMPANIES PROFILE						
Co. NAME	SUB SECTOR	MARKET			SAMPLE	
		CAPITAL(R'000)	DIVERSIFIED	DIVERSIFIED	FOCUSED	OTHERS
DISTELL	Beverages Distillers and Vintners	2650815			X	
DELTA	Electrical Equipment	2536943			X	
NUCLICKS	Retailers Soft Goods	2521489	X			
ALTECH	Electronic Equipment	2509581	X	X		
GRAYPROP	Real Estate Holding	2400464			X	
KERSAF	Leisure Facilities	2386333			X	
COPI	Paper	2373047			X	
SISA	Hotels	2280244			X	
ASSORE	Other Mineral Extractors & Mines	2240000	X	X		
AHEALTH	Hospital Management	2216968			X	
SUPRGRP	Rail Road and Freight	2209811	X	X		
AFGRI	Farming and Fishing	2013284	X	X		
PALAMIN	Other Mineral Extractors & Mines	1981802			X	
CAPTALL	Life Assurance	1912327				X
MESSINA	Platinum	1906617				X
TRNSHEX	Diamond	1741971			X	
UNITRAN	Rail Road and Freight	1695638	X	X		
RA-HOLD	Investment Companies Eligible	1691497				X
HIVELD	Steel	1667591	X			
MNET-SS	Delisted Shares	1626018				X
SYCOM	Real Estate Holding	1604367			X	
AFLIFE	Life Assurance	1597416				X
OCEANA	Farming and Fishing	1591417	X	X		
TOURVST	Leisure Facilities	1577666			X	
COMPAREX	Computer Services	1575816	X	X		
JOHNCOM	Publishing and Printing	1521164			X	
REBSERV	Business Support Services	1491718			X	
UNISERV	Business Support Services	1473735			X	
CERAMIC	Building and Construction	1424556			X	
ELLERINE	Retailers -- Hardlines	1411276	X	X		
MR PRICE	Retailers Soft Goods	1387904			X	
RANGOLD	Gold Mining	1381411				X
AFR-LEASE	Gold Mining	1364434				X
TRENCOR	Shipping and Ports	1321300			X	
MARTPROP	Real Estate Holding	1305331			X	
REDEFINE	Real Estate Holding	1266905			X	
JCI	Mining Finance	1253702			X	
ITLTILE	Builders Merchants	1157992	X			
SACHROME	Other Mineral Extractors & Mines	1149782			X	
APEXHI A	Real Estate Holding	1114009	X			
PANPROP	Real Estate Holding	1073271			X	
SA-EAGLE	Insurance Non Life	1071796				X

Continues

Continued

TOP-200 COMPANIES PROFILE						
Co. NAME	SUB SECTOR	MARKET	DIVERSIFIED	SAMPLE		OTHER:
		CAPITAL(R'000)		DIVERSIFIED	FOCUSED	
TRADEH	Discount and Super Stores	1041991			X	
HYPROP	Real Estate Holding	1023606			X	
BARPLAT	Platinum	1001432				X
DORBYL	Building and Construction	969923			X	
DATATEC	Computer Services	966009	X			
SA RETAIL	Real Estate Holding	935543			X	
BELL	Commercial Vehicles & Trucks	895129			X	
BRAIT	Investment Banks	894738				X
APEXHI B	Real Estate Holding	883633			X	
SMC	Other Mineral Extractors & Mines	871556			X	
RAINBOW	Farming and Fishing	862028			X	
ALTRON	Electronic Equipment	850274	X	X		
TIWHEEL	Auto Parts	833851	X			
KWV BEL	Beverages Distillers and Vintners	783300			X	
RELYANT	Retailers -- Hardlines	782758	X			
OMNIA	Chemicals -- Commodity	778729			X	
APLITEC	Computer Hardware	746478	X			
METAIR	Auto Parts	743614			X	
CITYLDG	Hotels	715653			X	
ASTRAL	Farming and Fishing	668722			X	
WESCOB	Automobiles	657616			X	
SAGEGRP	Life Assurance	653413				X
BTG	Computer Services	632946			X	
METPROL	Real Estate Holding	629995			X	
GRINDROD	Shipping and Ports	619649	X			
PERGRIN	Investment Banks	612789				X
GOLDREEF	Gambling	599115			X	
WBHO	Other Construction	579876			X	
METOREX	Other Mineral Extractors & Mines	579135			X	
BEARMAN	Retailers -- Hardlines	565777			X	
CORPCAP	Investment Banks	563748				X
GROUP-5	Other Construction	548119	X	X		
HUDACO	Engineering General	544116	X	X		
IFOUR	Real Estate Holding	536234			X	
GRINTEK	Electronic Equipment	535313	X			
AST GROUP	Computer Services	534443			X	
GLENMIB	Insurance Brokers	530300				X
AGI	Building and Construction	527791			X	
MUSTEK	Computer Hardware	518843			X	
RESILIENT	Real Estate Holding	482310			X	
ACUCAP	Real Estate Holding	476622			X	
SAAMBOU	Banks	467529				X

Continues

Continued

TOP-200 COMPANIES PROFILE						
Co. NAME	SUB SECTOR	MARKET	DIVERSIFIED	SAMPLE		OTHER
		CAPITAL(R'000)		DIVERSIFIED	FOCUSED	
ATLAS	Real Estate Holding	430548			X	
ILIAD	Builders Merchants	411070			X	
ASTRAPAK	Business Support Services	410799			X	
KG MEDIA	Television Radio	410267			X	
CLIENTELE	Life Assurance	407610				X
TIGON	Other Financial	404837			X	
A-PROP	Real Estate Holding	394633			X	
COMAIR	Airlines and Airports	390600			X	
SAIL	Leisure Facilities	374765			X	
CENPROP	Real Estate Holding	367854			X	
CAPITAL	Real Estate Holding	360002			X	
CADIZ	Investment Banks	359714				X
INVICTA	Engineering General	350834			X	
KOLOSUS	Food Processors	336240	X	X		
PRIMA	Real Estate Holding	332995			X	
GLOTEC	Computer Services	309066	X			
PARAPROP	Real Estate Holding	300466			X	
SPURCORP	Restaurants and Pubs	297780			X	
AFGEM	Diamond	286437			X	
BJM	Investment Banks	275987				X
BRIDGESTN	Tyres and Rubber	268940			X	
DCENTRIX	Computer Services	261820			X	
NUWORLD	Consumer Electronics	258176			X	
HCI	Investment Companies	255893				X
FRONTRNGE	Software	254030			X	
ADCORP	Education Business Train	253886			X	
PSG	Investment Banks	249550				X
CMH	Vehicle Distribution	240784	X	X		
Z-C-I	Other Mineral Extractors & Mines	237251			X	
PRIME	Media Agencies	232929			X	
AQUILA	Investment Companies	224158				X
ENSERVE	Environmental Control	222825			X	
PARACON	Computer Services	222374			X	
ARGENT	Diversified Industrials	221397	X	X		
CSHOLDING	Computer Services	220899	X	X		
AMAPS	Consumer Electronics	218555			X	
BOWCALF	Business Support Services	217320			X	
DECILLION	Investment Banks	213884				X
DNA SUP	Business Support Services	212572			X	
CASHBIL	Builders Merchants	209071			X	
MGX	Software	207417			X	
LONAFRIC	Venture Capital	204844				X

Continues

Continued

TOP-200 COMPANIES PROFILE						
Co. NAME	SUB SECTOR	MARKET		SAMPLE		
		CAPITAL(R'000)	DIVERSIFIED	DIVERSIFIED	FOCUSED	OTHER
CAPITEC	Consumer Finance	186549			X	
CAPITEC	Consumer Finance	186549			X	
OCTODEC	Real Estate Holding	179925			X	
IST	Electronic Equipment	179362			X	
SPEARHD	Real Estate Holding	175216			X	
PREMIUM	Real Estate Holding	174344			X	
BRANDCO	Retailers -- Hardlines	172730			X	
MOBILE	Shipping and Ports	172048			X	
MT-EAGLE	Diversified Industrials	72597	X	X		