An investigation into the use of derivatives by the 3rd tier South African companies

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I certify that, unless otherwise specified, this is my own work. All references are accurately reported in the text.

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Introduction

The use of derivatives by non-financial companies has been the subject of numerous studies. Previously, authors have relied on surveys, using mailing, phone calls and interviews to collect information. The results of these investigations have given a good overview pertaining to the prevalence of derivatives and the reasons for their use.

With the movement towards standardised financial statements, and the introduction of IFRS 2, IFRS 7, IAS 32 and IAS 39, companies in South Africa have had no choice but to report their use of derivatives.

It was decided that a review of the use of derivatives, and the reporting thereon, take place focussing on African companies. Since this would be too large a study for a single person to undertake, different countries were allocated to different people.

The South African market is one of the largest and most sophisticated in Africa. The listed companies were broken down into four separate groups according to their market capitalisation as at 31st December 2009, the top 100, the second 100, the medium or third-tier companies and the small capitalisation companies listed on the AltEx.

This investigation focuses on the use of derivatives by third-tier South African companies. The market capitalisation of these companies ranges from R65 million to R600 million.

It was decided that a review of the financial statements for all companies falling into this group should take place. The JSE has 120 companies listed that fall into this category. Of these 120, 9 are index funds. The remaining 111 would be the population investigated. The period of review is for financial statements filed between May of 2009 and May of 2010.

Chapter 1: Previous studies and relevant literature

In his study, *1995 Derivatives Practices and Instrument Survey*, **Phillips, A.L., (1995)** gave the results of his survey. In this study 3 480 companies were selected from among the members of the Treasury Management Association. 657 responses were received (18.9%). Of these, 415 (63.2%) recorded using at least one derivative instrument. Unlike many of the studies that follow this one, Phillips included both financial and non-financial companies in the survey.

The respondents were asked to give their reasons for using derivatives (it was possible to choose each option more than once). 70.8% of the respondents reported using derivatives for financial risk management. 66.7% reported use derivatives to obtain funding and 21.4% reported that the derivatives were used for investments.

In their paper, *Wharton Survey of Derivatives Usage by US Nonfinancial Firms*, **Bodnar, Hayt, Marston and Smithson (1995)**, Bodnar et al. mailed surveys to 2000 US non-financial firms. They received 530 useable responses (26.5% response rate). Of the respondents, 35% indicated that they used derivatives. Within this group, 65% of the large capitalisation firms (greater than $250m) admitted to using derivatives, compared to 30% of the medium capitalisation firms ($50-250m) and only 12% of the small market capitalisation firms (less than $50m). There were also large differences in derivative usage across sectors, with the commodity industries (agriculture and mining) displaying the highest usage (49%).

Bodnar *et al.*'s survey also questioned the firms' reasons for using derivatives. 80% of the firms admitted to using derivatives to hedge firm commitment, while only 44% of the firms used derivatives to hedge the balance sheet (Section III, page 106).

The overall conclusions that the authors reached were that the use of derivatives was not yet widespread and that the majority of firms using derivatives did so to reduce the volatility of their firm's cash flows.

In **Bodnar, Hayt and Marston's (1996)** *1995 Wharton Survey of Derivative Usage by US Non-Financial Firms*[1], their 1994[2] study was repeated. This second survey was more detailed than the first and included questions regarding the non-use of derivatives. The same 2000 firms used in their first survey were once again mailed. Any Fortune 500 companies not previously included were also mailed. 350 usable responses were received. Of the firms responding, 41% of them reported using derivatives.

Within this group, 59% of the large capitalisation firms (greater than $250m) admitted to using derivatives, compared to 48% of the medium capitalisation firms ($50-250m) and only 13% of the small market capitalisation firms (less than $50m).

In the per sector breakdown, 48% of the Primary Products sector reporting using derivatives, compared to 44% in the Manufacturing sector and 29% in the Services sector.

[1] *Financial Management, Vol 25, No 4, Winter 1996, pages 113-133*
[2] Financial Management, Vol. 24, No. 2, Silver Anniversary Commemoration (Summer, 1995), pp. 104-114

As the inclusion of the Fortune 500 companies meant that more of the larger companies were represented, Bodnar *et al.* admitted that derivative usage was expected to have increased for the respondents, compared to the previous study. For a fairer reflection of the increase in usage, the authors examined the 162 companies that responded in both the 1994 and 1995 study. For these companies, derivative usage increased from 37% to 38%.

The most popular reason (49%) for the use of derivatives was to manage cash flows. A close second was the management of accounting earnings (42%). Managing the market value of the firm was the third most popular reason (8%). Few firms (1%) indicated that they used derivatives to manage balance sheet ratios.

The survey also questioned the firms about their reporting to their respective boards on the use of derivatives. Bodnar *et al.*'s results were as follows: 51% reported as needed or had no set policy; 20% reported annually; 25% reported quarterly; and 4% reported monthly.

An important finding regarding the non-use of derivatives was that the second most frequently given reason (the first being that firms do not have exposure that warrants the use), was a lack of knowledge.

In **Grant, K. and Marshall, A.P., (1997),** *Large UK Companies and Derivatives*, Record Treasure Management, a consulting firm, surveyed the top 250 UK companies (FTSE 250). The results of two separate surveys were presented. Their 1994 survey had 91 responses. Their 1995 survey had 51 responses. In both surveys, the vast majority of the respondents (greater than 85%) recorded using derivatives. As all of the firms responding were large firms, some of them financial firms, the prevalence of usage was high, but not impossible.

Grant *et al*. also concluded from their survey that the use of derivatives to hedge interest rate and foreign exchange risk was high, but that commodity risk and equity risk were not commonly hedged through the use of derivatives (pg 206).

In their paper, *An International Comparison of Derivative Use*, **Berkman, Bradbury and Magan**[3] **(1997)**, based on Bodnar *et al*. (1995), showed that 100% of Large (>$250m) New Zealand companies that responded, used derivatives. 70% of Medium (NZ $50m-$250m) New Zealand companies reported using derivatives. 36% of Small companies (<$50m) reported derivative usage. Their study also showed that for companies the same size in the US, usage was reported as 65%, 30% and 12% respectively. However, unlike the 1995 Wharton survey, this study did not discriminate between financial and non-financial companies. In this study, the authors sent questionnaires to 124 companies listed on the New Zealand Stock Exchange (NZSE). They received 79 usable responses, which equates to a response rate of 63.7%. As part of their investigation, they compared the reporting frequency of derivative positions to the board. Their study showed that:

> *Over 61% of NZ firms reported monthly, compared to only 7% in the US. In the US, quarterly reporting is more prevalent (26%), compared to only 6% in NZ. Both countries have a large percentage of firms with no set reporting schedule, 27% in NZ and 53% in the US.*

[3] *Financial Management, Vol 26, No 4, Winter 1997, pages 69-73*

In **Bodnar, Hayt and Marston, (1998)**, *1998 Wharton Survey of Derivative Usage by US Non-Financial Firms*, the authors conducted the third in their series of surveys and published the results. Surveys were mailed to the same sample set used before. Due to mergers, buy-outs and bankruptcies, the number of firms had decreased to 1 928. Of these, 399 (20.7%) responded. Of the respondents, 50% reported using derivatives.

Within this group, 83% of the large capitalisation firms (greater than $250m) admitted to using derivatives, opposed to 45% of the medium capitalisation firms ($50-250m) and only 12% of the small market capitalisation firms (less than $50m). Compared to the previous studies, the usage within the group of small firms had barely changed. The medium firms usage compared to the 1995 study was also largely unchanged (down 3% from 48% to 45%). The use of derivatives among the large firms, however, increased dramatically, moving from 65% in the initial survey, to 59% in the 1995 survey and finally to 83% in the 1998 survey.

The survey also split the responses by sector, with 68% of the Primary Products sector reporting the use of derivatives, compared to 48% in the Manufacturing sector and 42% in the Services sector.

When questioning firms as to whether they had used derivatives in the previous years, 42% responded that they had increased their use and only 13% had reduced their use (pg 71)[4].

Bodnar, G.M. and Gerbhardt, G., (1999) - *Derivatives Usage in Risk Management by US and German Non-Financial Firms: A Comparative Survey*, involved a comparison of the 1995 Wharton Survey of US nonfinancial firms to a similar survey conducted in Germany. The German survey was based on the Wharton one, in order to allow easy comparison. The German questionnaire was sent to a total of 368 firms in 1997. Both large private firms and quoted companies with annual turnover in excess of DM 200m were surveyed. Utilities, brewers and local public transport companies were excluded. There were 126 responses (34.25%).

Of the respondents, 98 (77.8%) recorded using derivatives compared to 56.9% of US firms. Like the US study, the use of derivatives was more common the larger the company (pg 7). The results of the German survey also indicated that the majority of German companies used derivatives to manage both foreign exchange risk and interest rate risk (pg 8).

With regard to the importance of the hedging strategy, 55% of the German respondents ranked minimising variability in accounting earnings as their most important objective. Second to this, at 34%, was managing the volatility of cash flows. Hedging firm value (11.7%) and hedging balance sheet accounts (7.4%) made up the rest. This is very much at odds with the US finding which ranked the management of the volatility of cash flows as the most important objective.

Alkeback, P. and Hagelin, N. (1999), *Derivatives Usage by Non-financial Firms in Sweden with an International Comparison*, was also based on the 1995 Wharton Survey of US nonfinancial firms. Alkeback and Hagelin mailed surveys to all (213) non-financial firms listed on the Stockholm Stock Exchange and headquartered in Sweden (according to Nordbankens Stock Market Handbook, Summer, 1996). 163 companies responded (76.6%). Of the firms that responded, 51.5% recorded using derivatives, 47.9% recorded not using derivatives and 0.6% did not answer the question. Using

[4] 1998 Wharton Survey of Derivative Usage by US Non-Financial Firms, Bodnar, Hayt, Marston, *Financial Management, Vol 27, No 4, Winter 1998, pages 70-91*

the same firm-size categories as Bodnar *et al.*, Alkeback and Hagelin found that 86% of large firms used derivatives. This figure decreased to 43% in the case of medium firms and 18% in the case of small firms.

As in the German study (and in contrast to the US), Alkeback and Hagelin found that the primary hedging activity related to foreign exchange (93%) and interest rate risk (50%), but not to commodity price exposure (12%).

Regarding the reporting of derivative activity to the board of directors, the Swedish study found that 39% of firms reported quarterly, 19% reported monthly and 7% reported annually. Somewhat worryingly, 30% reported having no scheme at all and 5% reported not knowing (what?).

Prevost, A.K., Rose, L.C., and Miller, G (2000), *Derivatives Usage and Financial Risk Management in Large and Small Economies: A Comparative Analysis*, discusses Prevost *et al.*'s survey, examining the New Zealand market. Their survey was mailed to 334 firms, a combination of all companies listed on the New Zealand stock exchange as well as the top 200 public and private companies according to total sales (1997). 155 (46.4%) companies responded.

Of the 155 respondents, 104 (67.1%) indicated that they use derivatives. Prevost *et al*. also classified the companies according to size, using total sales for 1997. More than 90% of the firms with sales greater than NZ$750m used derivatives. This dropped to just over 80% for firms with sales between NZ$251m and NZ$750m. For firms with sales between NZ$51m and NZ$250m, the percentage of firms using derivatives was just over 50%; for those companies with sales under NZ$50m, it was just under 50% (pg 737).

As in the Wharton study, firms were asked what they viewed to be the most important reason for hedging. The answer given most frequently (47.1%) was hedging to minimise fluctuations in real cash flows. The second most popular answer (35.65) was to minimise fluctuations in accounting earnings. Protecting the appearance of the balance was the final answer, picking up the remaining votes.

In their paper*, A survey into the use of derivates by large non-financial firms operating in Belgium*, **De Ceuster, M.J.K., Durinck, E., Lavern, E. and Lodewyckx, J., (2000)**, De Ceuster *et al*. mailed questionnaires to 334 large corporations. This figure consisted of the 123 largest companies ranked by turnover (in 1995) in the country, as well as 211 Co-ordination Centres. Their response rate was 21.9%. Of the respondents, 48 (65.8%) reported using derivatives. 16 of the respondents reported never having used derivatives and 9% reported having discontinued the use of them. The most frequent reason given for the non-use of derivatives was policy restrictions imposed on the treasurer by the board (pg 307). The main reason (45.71%) given for the use of derivative instruments in Belgium was the hedging of earnings volatility. The second most popular (26.47%) reason was the hedging of cash flow volatility.

Their paper, *Derivative usage in UK non-financial listed companies*[5] by **Mallin, Ow-Yong and Reynolds (2001)**, also based on Bodnar *et al*. (1995), highlighted the results of the study conducted in 1997. A sample of 800 firms, randomly selected from Hemmington Scott's Corporate Register, were sent a survey. 231 of these UK non-financial companies responded (28.9% response rate).

[5] *European Journal of Finance 7, ISSN 1351-847X, 2001 Taylor and Francis Ltd, pages 63-91*

Their findings were as follows:

- Firms with a turnover in excess of £1000m, 100% reported using derivatives
- Firms with a turnover between £241-1000m, 80.6% reported using derivatives
- Firms with a turnover between £91-240m, 63.0% reported using derivatives
- Firms with a turnover between £51-90m,65.9% reported using derivatives
- Firms with a turnover between £11-50m,36.4% reported using derivatives
- Firms with a turnover between £0-10m, 29.3% reported using derivatives

In their study, Mallin *et al*. reported that, when it came to reporting to the board '*48% of the firms have no preset schedule, while 47% report to the board of directors either monthly or quarterly.*'

Bodnar, G.M., de Jong, A and Macrae, V., (2003) *The Impact of Institutional Differences on Derivatives Usage: A Comparative Survey of American and Dutch Firms*, detailed the authors survey of Dutch companies. This survey was based on the 1998 Wharton survey, in an attempt to generate information that could be contrasted with that of the US study. The Dutch survey was sent out to 167 firms (all listed Dutch non-financial firms) and 84 useable responses were received (50.3%).

Firms were sorted by size according to total sales for the year of the survey. 42% of the small firms, with sales less than DFL500m (circa US$250m), indicated using derivatives. 57% of the medium firms, with sales between DFL500m and DFL15 billion (circa US$250m-US$800m). 88% of large firms, with sales greater than DFL15 billion (circa US$800m), indicated using derivates.

60% of the Dutch firms indicated that hedging volatility in cash flows was the most important reason for hedging. 33% indicated hedging of the volatility in accounting earnings as most important use, with the hedging of balance sheet accounts/ratios taking the remainder of the votes.

Sheedy, E., (2006)'s *Corporate risk management in Hong Kong and Singapore*, detailed the results of a survey of 131 companies in Hong Kong and Singapore. Rather than mailing the survey, Sheedy used locally based post-graduate finance students to conduct interviews with members of the treasury staff at the target companies.

The Asian study found that 75% of Singapore companies and 81% of Hong Kong companies used derivates, compared to 50% in the 1998 Wharton study. Of these, 91% of the large companies in Singapore and 81% of the large companies in Hong Kong used derivates compared to 50% in the Wharton study. The results for medium companies were 77% in Singapore and 88% in Hong Kong, compared to 45% in the US. For small companies 55% in Singapore and 68% in Hong Kong used derivates, compared to the 12% in the US for similar sized firms.

In the survey discussed in his paper, *Derivatives use and risk management practices by UK nonfinancial companies*, **El-Masry, A.A., (2006)**, mailed questionnaires to 401 UK companies, chosen at random from the Fame database. The total number of respondents was 173 (43.14%). The number of companies that reported using derivatives was 116 (67%). The percentage of small (market capitalisation of less than £50m) companies using derivatives was 10%. This increased to 33% for medium sized firms (£50m to £250m) and to 56.25% for large firms (greater than £250m).

The firms were also asked whether or not they had used derivatives in the previous years. 37.5% indicated an increase in their use of derivatives. 12.5% indicated a decrease.

Hedging the volatility of cash flows was considered the most important reason for using derivatives (37%) out of four possible reasons. The market value of the firm was the second most important reason (29%). Third (25%) was managing volatility in accounting earnings and last (19%) was managing balance sheet accounts/ratios.

In their working paper, *The Effects of Derivatives on Firm Risk and Value*[6], **Bartram, Brown and Conrad (2008)**, used a sample of 6 888 non-financial firms across 47 countries. Overall they found that the effect on a firm's value was positive, but small. In contrast to this, there was strong evidence that derivatives reduced both total and systematic risk. In their study Bartram et al classified firms as 'users or non-users of derivatives' based on a search of their annual reports. They evaluated the annual reports by an automated search.

Bartram *et al*. found that 60.5% of the firms in their sample used at least one type of derivative instrument. The most commonly used derivatives were foreign exchange derivatives (45.5%), interest rate derivatives (33.1%) and commodity price derivatives (pg 9).

Bartram, S.M., Brown, G.W., and Fehle, F., (2009), *International Evidence on Financial Derivative Usage*, was a study that investigated the motives behind the use of derivates by non-financial firms. Their sample included 7319 companies across 50 countries, including the US. The sample was chosen from firms that were IAS 39 compliant, that had annual reports in English for either 2000 or 2001 on the Global Reports database and that were non-financial firms in terms of their business. This sample size represented 62.5% of overall global market capitalisation and 82.2% of the global market capitalisation of non-financial firms.

The study found that 60.3% of the firms recorded using derivates. The most commonly used derivative instruments were the Foreign Exchange derivatives (45.2%), followed by Interest Rate derivatives (33.1%) and Commodity Price derivatives (10%).

Some of the results were surprising. In the Africa/Middle East group, although only 127 companies were represented, had a derivative use rate of 78.0%. Europe, with 2530 companies, had a derivative use rate of 61.4%.

Bartram *et al.* concluded that companies that have less liquid derivatives markets are less likely to hedge. Their other main finding was that derivate use was significantly related to other financial characteristics (leverage, debt maturity etc) (pg 204).

The report of **Brunzel, T., Hansson M. and Liljeblom, E. , (2009)**, *The Use of Derivatives in Nordic Firms*, was an investigation into the determinants for profit seeking as opposed to hedging in their sample from four Nordic countries (Denmark, Finland, Iceland and Sweden). Their investigation used a mail survey which was sent to the CFOs of all 592 firms listed at the Nordic OMX Exchanges. The response rate was 18.92%.

When questioned as to whether or not they used derivatives, of 112 firms, 69 (61.6%) responded in the affirmative. The second question asked whether the firms used derivates for hedging, or profit. From the responses, Brunzel *et al*. concluded that, although the hedging motive was the dominant

[6] Online at http://mpra.ub.uni-muenchen.de/9831/
MPRA Paper No. 9831, posted 04. August 2008 / 21:53

purpose of hedging (68 responses), the motive of profit was not far behind (54 responses). It is important to note that this study did include financial firms.

1.1 Conclusion

What is clear from these previous studies is that derivative use has been on the increase for the past twenty years. Generally the use of derivatives is higher among the larger market capitalisation companies within a country, as opposed to smaller market capitalisation companies.

Readily available details on the reporting of the use of derivatives, is another matter. In many cases there seemed to be no formal reporting structure in place. With the introduction of IFRS into South Africa and the Johannesburg Securities Exchange (JSE)'s adoption of their standards, the reporting of derivative instruments became compulsory for South African listed companies. IFRS 2, IFRS 7, IAS 32 and IAS 39 govern the reporting of financial instruments and share-based payments. This investigation will attempt to determine the levels of the reporting of derivative use and record any pertinent conclusions.

Chapter 2: Derivatives and the South African study

2.1 The South African study

This study focuses on third tier South African companies which are large enough to be listed on the main board of the JSE, rather than the Alt-Ex. They do not, however, form part of the top 100 companies by market capitalisation. The companies selected were large enough to have sophisticated risk management practices and require the use of derivatives. Relevant details about the companies within the study are provided in Appendix 1.

Of these 120 companies, all those that operated index funds were excluded. The reason for this was to focus on companies in which the use of derivatives was strictly for hedging purposes, rather than speculative purposes. During the process, one of the companies in the sample delisted, leaving a final sample of 111 companies.

The annual financial reports for all 111 companies were downloaded and reviewed. Notes on their reporting procedures for the use of derivatives and employee share option plans were made. Summaries of these follow later in this paper.

2.2 Financial derivatives

Derivatives are a type of financial instrument. They are a contract between two parties based on the current and future price of an asset. The contract itself usually has no value; the value is derived from movement in the price of the underlying asset, hence the name 'derivative'. The majority of derivative instruments involve the exchange of assets at a future date. These assets can be, for example, commodities, currencies, cash flows or shares. The purpose behind such an asset (the derivative) is the hedging by one party of the uncertainty (volatility) involved in the future price of an asset. Some derivative instruments are traded on exchanges as though they themselves were assets.

Although derivative instruments are based on underlying assets, it is uncommon for the actual assets to be traded. In general, cash flows are offset against each other and the difference between them is paid. Similarly, in commodity contracts, the difference between the strike price in the contract (the price set for the maturity date) and the prevailing market price is used to determine the value of the cash flows. The commodity itself is seldom delivered.

In general, the salient characteristics of a derivative are the following:

- The type of asset underlying the contract, for example: foreign exchange derivatives, commodity derivatives, equity derivatives, interest rate derivatives, credit derivatives.
- The market in which the contract is traded; the contract can be over-the-counter (OTC), or exchange-traded.
- The relationship between the derivative contract and the underlying asset, whether the contract is a forward contract, an option, or a swap contract, for example.
- The pay-off profile of the contract.

2.3 Derivatives used in this study

The focus of this investigation was the reporting of the following instruments: Swaps (Interest, Commodity and Currency), Forwards (Currency and Commodity), Options (Commodity, Currency and Share), Futures (Commodity) and Employee Share Option Plans (ESOP).

2.4 A brief background on derivatives

There are two main types of derivatives – Over the Counter (OTC) derivative contracts and Exchange-Traded Derivative Contracts (ETD). ETDs are defined by an exchange, and traded at specialised derivative exchanges. This investigation is more concerned with OTC derivative contracts. These contracts are traded between two parties and do not require an intermediary. The most common OTC derivative contracts are forward contracts, options, swaps and futures contracts.

A forward is a contract between two parties to purchase or sell an asset at a specific date in the future. The price of the asset at the future date is determined at the time of the contract. Two common types of forward contracts are currency forwards and commodity forwards. These are used by parties to hedge themselves against possible future losses. By fixing the future price of a currency or commodity, a firm is able to ensure that they will be unaffected by fluctuations in the price of the underlying currency or commodity. The counterparty to the contract prefers to expose themselves to the fluctuations in price, in the hope of realising profits if the future price is in excess of the contract price. It is important to note that, unlike options, the parties in a forward contract are bound to fulfil the terms of the contract, whether they want to or not.

A futures contract is a very similar in form to that of a forward. The difference lies in the fact that futures contracts are generally written by Exchanges and the underlying assets of the contract are standardised. Common examples are white-maize futures in South Africa or pork-belly futures in the USA.

An option, like a forward, gives the owner of the contract the right to buy or sell an asset at a future date. Unlike the forward, the owner of the contract is not obliged to buy or sell the asset. An option to buy an asset is known as a call option. An option to sell an asset is known as a put option. The price at which the asset will be sold is fixed at the date of the contract. This future price is known as the strike price. With a European option, the owner of the contract has the right to purchase or sell the asset at the maturity date. With an American option, the owner can enforce the sale or purchase of the asset at any time before or at the maturity date. It stands to reason that if the option is for the purchase of an asset and the price of the asset at maturity is in excess of the strike price, the owner of the option will exercise their right to purchase. Similarly if the price at maturity is below the strike price, the owner of the contract would be better served buying the asset on the open market and not enforcing the contract.

Swaps are contracts to exchange assets over a set period of time. Generally these assets are cash flows. The most popular swap contracts are interest rate swaps and currency swaps. For an interest rate swap, one party will exchange the cash flows from the principal at a fixed rate, determined in the contract, for the cash flows from a principal at a floating rate. In theory, the individual cash flows, along with the principals are exchanged. In practice, the amounts are offset against one another and only the differences need to be paid.

A currency swap, like an interest rate swap, exchanges the cash flows from a principal, along with the principal. The difference here is that the cash flows from one currency, at its floating rate, are exchanged for the cash flows from a principal held in a different currency, at that currency's prevailing floating interest rate. In commodity swaps, the floating price of the asset, its market price, is exchanged for a fixed price. Unlike most other derivative instruments, foreign currency swaps usually involve the actual swap of the underlying instrument, rather than the simple netting-off of the difference.

As can be seen from the description of the four basic types of derivatives, all instruments can be used for hedging purposes. Although it is possible to use derivative instruments for purely speculative purposes, this investigation is concerned only with derivatives used for hedging.

It should be noted that although the party holding the contract has hedged themselves against a possible future loss, they have opened themselves up to counter-party risk.

For this investigation, a fifth type of financial instrument was investigated, the Employee Share Option Plan (ESOP), sometimes called an Employee Stock Option Plan. This is not a derivative instrument. ESOPs are options granted to employees that enable them to purchase shares in the company. These are usually awarded with vesting periods, to ensure that the employee stays at the firm for a minimum number of years. ESOPs can aid a company in aligning employee interests with those of the company. As a form of employee benefit, ESOPs can also be used to reward staff for performance. K. Mellos and P. Dunne say the use of ESOPs by listed companies is '*reasonably common as a means of attracting staff and giving incentives for employees to improve or maintain high levels of performance*'[7].

2.5 A brief history of derivatives

Derivative instruments in some form or another have been around for centuries. In Don Chance's *Essays in Derivatives*[8], he lists (although quite tongue-in-cheek) the first derivative usage as follows:

> *To start we need to go back to the Bible. In Genesis Chapter 29, believed to be about the year 1700 B.C., Jacob purchased an option costing him seven years of labor that granted him the right to marry Laban's daughter Rachel. His prospective father-in-law, however, reneged, perhaps making this not only the first derivative but the first default on a derivative.*

On a more serious note, Chance refers to Thales of Milesian's purchase of options on olive presses (ca. 580 B.C.). Randall Dodd, the director of the Derivatives Study Center put the first known use of derivatives trading at ca. 2000 B.C.[9], by the merchants of what is now known as Bahrain Island.

Dodd lists the first formal trading of derivatives in the US as having occurred in 1949 on the Chicago Board of Trade (CBOT).

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[7] Employee Share Option Plans Need Careful Consideration, http://www.findlaw.com.au/articles/1746/employee-share-option-plans-need-careful-considera.aspx, Thomson Reuters (Professional) Australia Limited

[8] Essays in Derivatives, Don M. Chance, publisher Wiley; 1 edition (August 1998)

[9] Dodd cites claim made by the Futures Industry Association in their 1984 publication An Introduction to the Futures Markets, and it is cited in Markham (1994) and Markham (1987).

The JSE lists the first South African traded derivative as occurring in April 1987[10], when Rand Merchant Bank (RMB) initiated five futures contracts on various equity indices and long bonds. RMB served as both the exchange and as the clearing house.

In September of 1998, the South African Futures Exchange (Safex) and the Safex Clearing Company (Safcom) were established. In 1990 Safex took over the operation of the futures market (from RMB). In August of that year, Safex was officially licensed as a derivatives exchange and on the 10th of that month it was officially opened by the Minister of Finance.

2.6 The importance of derivatives in modern economics

Derivatives have been used throughout history to hedge against uncertainty in the markets. Since the mid-80s, the use of derivatives has increased astronomically. The Bank of International Settlements puts the gross market value of total OTC derivatives at 24 673 billion US dollars[11]. To give one an indication of the size, the GDP for the US in 2010 was 14 720 billion US dollars (est.) and South Africa's GDP for 2010 was estimated to be 525.5 billion US dollars[12].

Derivatives are invaluable in allowing firms to hedge.

Derivative instruments have been the subject of a large amount of negative press lately, largely due to their hand in the financial crisis. In the Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States[13], the Commission may not blame derivatives for the crisis, but they certainly blame them for exacerbating the situation:

> *When the bubble burst, hundreds of billions of dollars in losses in mortgages and mortgage-related securities shook markets as well as financial institutions that had significant exposures to those mortgages and had borrowed heavily against them. This happened not just in the United States but around the world. The losses were magnified by derivatives such as synthetic securities.*
>
> *[...]When borrowers stopped making mortgage payments, the losses—amplified by derivatives—rushed through the pipeline.*

They also point to the lack of understanding how derivative instruments work, as part of the cause of the crash

> *[The report contains details of] AIG senior management's ignorance of the terms and risks of the company's$79 billion derivatives exposure to mortgage-related securities*

One of their major conclusions is therefore that derivatives played a major part in the crisis:

> • ***We conclude over-the-counter derivatives contributed significantly to this crisis.*** *The enactment of legislation in 2000 to ban the regulation by both the federal and state*

[10] http://www.jse.co.za/Markets/Equity-Derivatives-Market/Equity-Derivatives-Market-History.aspx
[11] BIS Quarterly Review, December 2010, http://www.bis.org/statistics/otcder/dt1920a.pdf
[12] https://www.cia.gov/library/publications/the-world-factbook/geos/us.html and https://www.cia.gov/library/publications/the-world-factbook/geos/sf.html
[13] http://www.fcic.gov/report

governments of over-the-counter (OTC) derivatives was a key turning point in the march toward the financial crisis.

It was, however, not that the instruments themselves were flawed, it was a lack of understanding of their use and a lack of proper reporting that was the real problem.

Yet, without any oversight, OTC derivatives rapidly spiraled out of control and out of sight, growing to $673 trillion in notional amount.

This current financial crisis was not the first time derivative instruments have come under fire. They played a large part in Metallgesellschaft AG's 1993 commodities scandal, Proctor and Gamble's 1994 scandal, Orange County's bankruptcy in 1994, the 1996 Sumitomo Copper Derivatives scandal and, in arguably the most famous pre-crisis scandal relating to derivatives, Baring's speculation on future contracts.

2.7 The derivative market in South Africa

South Africa has a highly developed fixed income market. In the African Development Bank Group's *African Fixed Income and Derivatives Guidebook*, released in May of 2010, they discuss the salient features of the different markets within African countries. Regarding the use of derivates in South Africa, they have the following to say:

Interest rate swaps are available from 2 to 30 years. The pricing for forwards and futures on bonds is as per the existing Government bond tenors. Currency futures and options on futures are also available in the market and pricing is available in near, middle and far tenors for these.

Forward rate agreement – *the market is liquid up to ZAR 500 million, with bid/offer spread of 10 bps. Tenors go out to 2 years and average daily volume is ZAR 6 billion.*

The JSE provides the following interest rate derivative products for trading on the exchange:

J-FRAs – *futures on FRAs (forward rate agreements) quoted on the fixed rate of the underlying contracts; all have a duration of 3 months.*

Bond futures and forwards – *these are offered on all Government bonds listed: R157, R186, R201, R203, R204, R206, R208, and R209.*

J-NOTES – *standardized exchange traded futures contracts on notional underlying swaps, in near (2 years), middle (5 years) and far (10 years) contracts.*

J-GOVIS – *futures and options on the total return Government bond index, in near, middle and far maturities.*

J-ALBI – *futures and options on the total return other bond index, in near, middle and far maturities.*

J-ILBI – *futures and options on the Barclays/BESA Government inflation-linked bond index, in near, middle and far maturities.*

J-SWAPS (bond look alike swaps) – *these are exchange traded and settled swaps of a NACS 6-month interest rate on the fixed side against the 3-month JIBAR.*

FX forwards – *the market is liquid with an average transaction size of USD 50 million. Spreads are 20 bps but are volatile, with tenors of up to 10 years. Average daily volume is USD 1 billion.*

FX options – *the market is less liquid. Transaction sizes average USD 25 million and tenors go out to 5 years.*

Cross currency swap – *the market is liquid up to USD 30 million and is available up to 10 years. Spreads average 15 bps.*

The report also comments on the sophistication of the South African market: '*The most developed fixed income market in Africa with annual listed bond turnover above 15 times*'.

2. 8 Effect of derivatives on the balance sheet

Previously, derivatives were off-balance sheet items. The effects of the use of derivatives would be reported, for example the net effect on settlement of a currency forward exchange contract would be included in foreign currency gains or losses. The actual amount of the derivatives used would not need to be reported; in fact it was difficult to tell whether or not a company had even used derivatives. Regulations were needed to change this.

The IFRS Foundation and the IASB

The International Financial Reporting Standards (IFRS) Foundation is an independent, not-for-profit private sector organisation. Its stated objectives are[14]:

- *to develop a single set of high quality, understandable, enforceable and globally accepted international financial reporting standards (IFRSs) through its standard-setting body, the IASB;*
- *to promote the use and rigorous application of those standards;*
- *to take account of the financial reporting needs of emerging economies and small and medium-sized entities (SMEs); and*
- *to bring about convergence of national accounting standards and IFRSs to high quality solutions.*

The International Accounting Standards Board (IASB) is the independent standard setting body of the IFRS. It is responsible for the formulation and publication of the IFRSs.

3.1 South African and IFRS

In 2003 the South African Institute of Chartered Accountants (SAICA) released Circular 5[15], aligning the text of Statements of Generally Accepted Accounting Practice with that of International Financial Reporting Standards. In paragraph three of the circular, they state:

> *The JSE Securities Exchange's revised Listing Requirements require listed companies to comply with IFRS for financial periods commencing on or after 1 January 2005. Consequently the Accounting Practices Board took a decision to, in future, issue the text of IFRS in South Africa, without any amendments. Future Statements of GAAP will therefore be the exact replica of the relevant IFRS.*

In a summary of countries and their adoption of IFRS, released by PwC in 2010[16], they summarised the rules for listing and filings as follows:

> **IFRS required or permitted for listed companies?**
> *Required for consolidated and standalone/separate financial statements*
>
> **Version of IFRS**
> *IFRS as published by IASB*
>
> **Are subsidiaries of foreign companies or foreign companies listed on local exchanges subject to different rules?**

[14] http://www.ifrs.org/The+organisation/IASCF+and+IASB.htm
[15] http://www.saica.co.za/documents/Circular5_2003.PDF
[16] http://www.icaew.com/index.cfm/route/154095/icaew_ga/en/Library/Links/Accounting_standards/IAS_IFRS/Worldwide_adoption_of_IFRS

No

Is IFRS or IFRS for SMEs required, permitted or prohibited for statutory filings?
IFRS and IFRS for SMEs are permitted for consolidated and standalone/separate financial statements. Otherwise, companies must use SA GAAP (which is almost identical to IFRS).

SA GAAP is almost identical to IFRS except for a delay in the approval process arises in practice, but the effective dates remain the same.

Version of IFRS
IFRS or IFRS for SMEs as published by IASB

South Africa now follows IFRS and is subject to their standards. All companies listed on the JSE must comply with the IAS and IFRS statements.

3.2 The reporting of derivatives

IFRS 2 governs the reporting of share-based payments. IFSR 7 governs the disclosures relating to financial instruments.IAS 32 governs the presentation of financial instruments (and is used to govern the disclosures, until the release of IFRS 7). IAS 39 governs the recognition and measurement of financial instruments. A short description of the regulations as they pertain to this investigation is given below.

The section below draws heavily on the statements themselves. The author would also like to thank KPMG's DPP department and specifically Emma Pratt, for the thorough presentation on the various IFRS and IAS standards.

3.3 IFSR 2 (AC 39)

IFRS 2 was effective from the 1st of January 2005. The amendments were effective from the 1st January 2009. In this way, the amendments fall within the time period under investigation.

IFRS 2 related to all share-based payment (SBP) transactions. SBPs are defined under IFRS 2 as:

> *[...] transactions in which the entity receives or acquires goods or services and the either the entity or the supplier of those goods or services have a choice of settlement in cash (or other assets) or equity instruments*

IFRS 2 recognised two separate types of SBP transactions. Firstly, equity settled SBP transactions in which equity instruments (shares or options) of the firm are considered goods or services. Secondly cash-settled SBP transactions in which, rather than equity instruments, the firm takes on a liability at a price which is linked to the price (or value) of the firm's shares (or similar equity instruments), in exchange for goods or services. It should be noted that, included in these transactions, are occasions when the firm transfers equity instruments (its own, its parent, or its subsidiary) to parties that have transferred goods or services to the firm.

Regarding the measurement of equity-settled SBP transactions, IFRS 2 separates employee-based transactions and those with non-employees. For employee transactions, the grant date is used to measure the future value. This value will stand, as the future value is not reassessed. The future

value will be recognised over the vesting period. For non-employee transactions, the future value of the goods or services received will be measured on the date at which the firm comes into possession of the goods, or receives said services. If it is not possible to reliably estimate this future value, then the future value of the equity instruments to be granted can be used. Any change, such as a modification of replacement in the SBP, can be accounted for by the recognition of an increase in fair value, but not a decrease in fair value. If, in the case of a cancellation or settlement or an equity-settled SBP transaction, a payment is made to the employee instead which will be accounted for as a repurchase of the equity instrument, but only up to the fair value of the SBP transaction.

Regarding the measurement of cash-settled SBP transactions, the value is measured as per the future value of the liability. At each reporting date the future value liability will be reassessed and changes in value will be recognised in profit or loss for the period.

For SBP transactions with cash alternatives, if the firm has the right to choose whether or not to settle in cash or equity, the firm must investigate the obligation and determine if it has an obligation to settle in cash. If this obligation exists, the firm must account for the transaction as a cash-settled SBP transaction. If this obligation does not exist, the firm must account for the transaction as equity-settled. If it is the counterparty that has the right to choose whether the SBP transaction is cash or equity settled, then the instrument is treated as a compound instrument with both cash and equity components.

3.4 IFRS 7 (AC 144)

IFRS 7 is effective from the 1st of January 2007. The amendments are effective from the period starting 1st January 2009. In this way, the amendments fall within the time period under investigation. IFRS 9 will soon replace IFRS 7 with regards to many of the regulations on classification, measurement, impairment and the standards for hedge accounting. IFRS 9 will be effective for annual periods beginning on or after 1 January 2013. This is beyond the period of investigation, so the description of IFRS 7 does not take IFRS 9 into account.

IFRS 7 relates to the disclosure of financial instruments. It deals specifically with disclosure relating to the financial position and performance of financial instruments as well as the risks arising from holding the instrument and the management of said risks.

The categories of financial assets that are governed by IFRS 7 are: held to maturity investments, loans and receivables, available for sale financial assets, financial assets at fair value through profit and loss as well as financial assets (or liabilities) at amortised cost. Where possible and appropriate to the nature of the information to be disclosed, assets of a similar nature should be grouped into classes.

When discussing the disclosure of the significance of financial instruments for the financial position and financial performance, IFRS 7 has a number of recommendations regarding the inclusions in the statement of comprehensive income. Firstly net losses or gains as treated as per IAS 39 should be included. Secondly, interest income and interest expense, using the effective interest method, should be included. The third inclusion is fee income and fee expenses that arise from holding financial assets (or liabilities) not at fair value through profit or loss. Fourth, interest on impaired financial

assets should be included. Lastly the value of the impairment loss on each individual financial asset should be included.

IFRS 7 also discusses a number of items that should be included in the statement of financial position. These are as follows: financial assets that are reclassified; financial assets that have been transferred and cannot be derecognised; compound instrument with multiple embedded derivatives; information on financial liabilities that are designated at fair value through profit or loss as well as the fair value of loans and receivables; details of defaults and/or breaches on loans; information on any financial assets that have been pledged as collateral, as well as any collateral that the firm holds; details on the reconciliation of the allowance account for credit losses; and the totals for each category of financial instrument, as per IAS 39, should be given either here in the statement of financial position or in the notes.

IFRS 7 has a number of recommendations for other disclosures regarding financial instruments, the majority of which would fall under expected accounting practices. All relevant accounting policies, including measurement bias must be disclosed. In the case of hedge accounting, descriptions of the hedge, the instrument used, the fair value of the instrument as well as the risk that is being hedged should be disclosed. Similarly, details regarding cash flow hedges, fair value hedges, and any hedge of a net investment in a foreign operation should be disclosed. For each financial asset (and liability), the fair value, along with methods for calculating it and assumptions used in the calculation, must be disclosed. In the case where the fair value cannot be determined, this too must be disclosed. All financial instruments disclosed here, should be disclosed according to the fair value hierarchy.

The fair value hierarchy has three tiers. Level one includes the quoted prices for identical assets (or liabilities) that are traded in active markets. The second level includes inputs that are used, other than those of level one, that are observable for the asset. These inputs can be direct such as prices of the asset or liability, or can be indirect if derived. The third level is for the inputs in the fair value calculation where there is no observable market data for the asset or liability.

The second part of IFRS 7 discusses risk management and the disclosure associated with it. Qualitative disclosure is discussed briefly. The exposure to risk and how it arose should be disclosed. Specifically the method used to measure the risk and the policies and processes for managing the risk must be disclosed. The quantitative disclosure should include risk concentrations and a summary of the quantitative data relating the exposures. This summary should be taken from information that would be reported to key management staff. The quantitative disclosures governed by IFRS 7 go into detail on three specific risk areas, namely credit risk, liquidity risk and market risk.

In terms of risk management, IFRS 7 states that the firm must disclose a definition of credit risk. A quantifiable value for the firm's total exposure to credit risk must be disclosed. This value should be stated before any collateral has been accounted for. The collateral and any other credit enhancements that would reduce the firm's maximum exposure to credit risk should then be disclosed. Details on financial assets that are individually impaired or are past due but not yet impaired, should be disclosed. Following this, any collateral or other credit enhancements that are related to these impaired assets should be disclosed. Details on the credit quality for financial assets that are not impaired or past due should also be disclosed. Financially assets that would have qualified as impaired or past due, but have instead had their terms renegotiated should also be disclosed.

A definition of liquidity risk should be disclosed. Following this, details on financial assets that could affect the liquidity of the firm should be disclosed. Specifically, maturity analyses of both derivative and non-derivative financial instruments should be provided, detailing the contractual maturities. In the case of derivative financial instruments, only those financial liabilities where the details will be essential to the understanding of the timing of cash flows should be included. A maturity analysis of any other financial assets that are held as part of liquidity risk management must also be included. Finally a description of how the firm manages liquidity risk should be provided.

A definition of market risk should be disclosed. Along with this, the firm should provide a sensitivity analysis for each component and type of market risk, including currency risk, interest rate risk and price risk. This analysis should detail all assumptions used and calculation methodologies, as well as the impact on profit or loss, or the impact on equity. An alternative to such a sensitivity analysis would be one detailing risk interdependencies and the firm's method of managing these. Either analysis could be used in the disclosure.

3.5 IAS 32 (IAS25)

IAS 32 discusses the presentation of financial instruments and was effective from the 1st of January 2005. The amendments to it are effective for annual periods on or after the 1st of January 2009, and so fall within the scope of this investigation. The amendments arose in February 2008 and concerned puttable instruments and obligations arising on liquidation. IAS 32 provides definitions on what constitutes a financial instrument, what constitutes an equity instrument and the classification and definition of financial assets and liabilities. IAS 32 focuses on interest, dividends, losses and gains, treasury shares, preference shares, and, since its amendment, puttable instruments. A short description of the various financial instruments and how IAS 32 governs their presentation is given below.

Interest, Dividends, Losses and Gains

Interest, dividends, losses and gains relating to financial instruments, other than the firm's own equity instruments, must be recognised as income or expenses in the profit and loss.

The dividends and other distributions accruing to the holders of equity instruments must be debited from equity net of any related income tax benefit. The transaction costs relating to said transactions must similarly be deducted from the equity net of any related income tax benefit.

Until the financial asset is derecognised, any associated profit or loss arising from its sale should be recognised as other comprehensive income. Impairment losses and profit or losses associated with foreign exchange are recognised in the profit and loss accounts.

Preference Share Considerations

In cases where the redemption of the option is at the discretion of the holder, the preference share considerations should be treated as a liability. If this is not the case, then the other terms (including the dividend rights) of the financial instrument should be considered.

Treasury Shares

Treasury shares refer to the firm's reacquired shares. The cost of treasury shares must be deducted from equity. In the case where shares are acquired and held by other members of a firm's consolidated group, such as its parent company or subsidiary, they are still treated as treasury shares.

No gains or losses are recognised on treasury shares. This includes: the purchase of shares, the sales of shares, the issue of shares and the cancellation of shares. Any consideration paid or received on these treasury shares must be recognised directly in equity.

Puttable instruments and obligations arising on liquidation

Puttable instruments are defined as financial instruments that grant the holder the option to return the instrument to the issuer in exchange for cash or another financial asset. Puttable instruments may also automatically return the financial instrument to the issuer in the occurrence of an uncertain future event, or in the event of the retirement or death of the instrument holder.

Puttable instruments can be classified as equity only if certain requirements are met. Firstly the instrument must entitle the holder to a pro rata share of the entity's or entities' assets in the event of liquidation. Secondly, the instrument must be in a class that is subordinate to all other classes. Thirdly, all financial instruments that fall within the same class as the puttable instrument must have identical features. Fourth, the instrument must have no other contractual obligation aside from the issuer having to redeem the instrument in exchange for cash or another financial asset. Lastly, the cash flows that are attributable to the instrument must be largely based on the profit or loss and changes in recognised assets, or must be based on the change in the fair value of both the recognised and the unrecognised net assets of the entity over the life of the instrument.

There are also a number of specific paragraphs within IAS 32 that deserve mention. Paragraph AG 20 discusses contracts to buy or sell non-financial items. It states:

> *Contracts to buy or sell nonfinancial items do not meet the definition of a financial instrument because the contractual right of one party to receive a nonfinancial asset or service and the corresponding obligation of the other party do not establish a present right or obligation of either party to receive, deliver or exchange a financial asset. For example, contracts that provide for settlement only by the receipt or delivery of a nonfinancial item (eg an option, futures or forward contract on silver) are not financial instruments. Many commodity contracts are of this type. Some are standardised in form and traded on organised markets in much the same fashion as some derivative financial instruments. For example, a commodity futures contract may be bought and sold readily for cash because it is listed for trading on an exchange and may change hands many times. However, the parties buying and selling the contract are, in effect, trading the underlying commodity. The ability to buy or sell a commodity contract for cash, the ease with which it may be bought or sold and the possibility of negotiating a cash settlement of the obligation to receive or deliver the commodity do not alter the fundamental character of the contract in a way that creates a financial instrument. Nevertheless, some contracts to buy or sell nonfinancial items that can be settled net or by exchanging financial instruments, or in which the nonfinancial item is readily convertible to cash, are within the scope of the Standard as if they were financial instruments*

In the case of commodity contracts with mining firms, where the contract is specifically for the commodity and will not be settled through the exchange of a financial asset, the commodity itself will be delivered.

Another paragraph of direct importance to this study, is paragraph AG 27: *Settlement in the entity's own equity instruments*

AG27

> *The following examples illustrate how to classify different types of contracts on an entity's own equity instruments:*
>
> *(a) A contract that will be settled by the entity receiving or delivering a fixed number of its own shares for no future consideration, or exchanging a fixed number of its own shares for a fixed amount of cash or another financial asset, is an equity instrument (except as stated in paragraph 22A). Accordingly, any consideration received or paid for such a contract is added directly to or deducted directly from equity. One example is an issued share option that gives the counterparty a right to buy a fixed number of the entity's shares for a fixed amount of cash. However, if the contract requires the entity to purchase (redeem) its own shares for cash or another financial asset at a fixed or determinable date or on demand, the entity also recognises a financial liability for the present value of the redemption amount (with the exception of instruments that have all the features and meet the conditions in paragraphs 16A and 16B or paragraphs 16C and 16D). One example is an entity's obligation under a forward contract to repurchase a fixed number of its own shares for a fixed amount of cash.*
>
> *(b) An entity's obligation to purchase its own shares for cash gives rise to a financial liability for the present value of the redemption amount even if the number of shares that the entity is obliged to repurchase is not fixed or if the obligation is conditional on the counterparty exercising a right to redeem (except as stated in paragraphs 16A and 16B or paragraphs 16C and 16D). One example of a conditional obligation is an issued option that requires the entity to repurchase its own shares for cash if the counterparty exercises the option.*
>
> *(c)A contract that will be settled in cash or another financial asset is a financial asset or financial liability even if the amount of cash or another financial asset that will be received or delivered is based on changes in the market price of the entity's own equity (except as stated in paragraphs 16A and 16B or paragraphs 16C and 16D). One example is a net cash-settled share option.*
>
> *(d) A contract that will be settled in a variable number of the entity's own shares whose value equals a fixed amount or an amount based on changes in an underlying variable (eg a commodity price) is a financial asset or a financial liability. An example is a written option to buy gold that, if exercised, is settled net in the entity's own instruments by the entity delivering as many of those instruments as are equal to the value of the option contract. Such a contract is a financial asset or financial liability even if the underlying variable is the entity's own share price rather than gold. Similarly, a contract that will be settled in a fixed number of the entity's own shares, but the rights attaching to those shares will be varied so that the*

settlement value equals a fixed amount or an amount based on changes in an underlying variable, is a financial asset or a financial liability.

Paragraph BC 10 deals with the revisions to AIS 32 with regards to settlement of the entity's own equity instruments:

The approach taken in the revised IAS 32 includes two main conclusions:

(a) When an entity has an obligation to purchase its own shares for cash (such as under a forward contract to purchase its own shares), there is a financial liability for the amount of cash that the entity has an obligation to pay.

(b) When an entity uses its own equity instruments 'as currency' in a contract to receive or deliver a variable number of shares whose value equals a fixed amount or an amount based on changes in an underlying variable (eg a commodity price), the contract is not an equity instrument, but is a financial asset or a financial liability. In other words, when a contract is settled in a variable number of the entity's own equity instruments, or by the entity exchanging a fixed number of its own equity instruments for a variable amount of cash or another financial asset, the contract is not an equity instrument but is a financial asset or a financial liability.

When an entity has an obligation to purchase its own shares for cash, there is a financial liability for the amount of cash that the entity has an obligation to pay.

3.6 IAS39 (AC 133)

IAS 39 concerns financial instruments and can be broken down into two separate sections – hedge accounting and the recognition and measurement of financial instruments. Like IAS 32, IAS 39 also gives definitions, specifically on what constitutes amortised cost, fair value, what constitutes an effective interest method and what constitutes a financial guarantee contract. As its definition on derivatives is at the core of this investigation, it is presented here:

Financial instrument with the following characteristics: value changes in response to a certain underlying variable, requires no or little initial net investment and is settled at a future date

IAS 39 concerns itself with all financial instruments except the following:

- Interests in subsidiaries, associates and joint ventures (these are accounted for under IAS 27 *Consolidated and separate financial statements,* IAS 28 *Investment in Associates and* IAS 31 *Interests in Joint Ventures*)
- Rights and obligations (these are accounted for under IAS 17, *Leases*)
- Employers' rights and obligations (these are accounted for under IAS 19, *Employee benefits*)
- Financial instruments classified as equity (these are accounted for under IAS 32 *Financial instruments: Presentation*)
- Rights and obligations (these are accounted for under IFRS 4 *Insurance contracts*)

- Financial instruments (these are accounted for under IFRS 2 *Share based payments*)
- Forward contracts that will result in business combination within reasonable period to obtain approvals and complete the transaction (effective for annual periods beginning on or after 1 January 2010)
- Loan commitments to which IAS 37 *Provision, Contingent Liabilities and Contingent Assets* applies
- Reimbursement Right

All other financial instruments should be covered under IAS 39. It should be noted that in the descriptions that follow, the term 'asset' means either 'asset' or 'liability'. The assets should be classified as follows:

Assets that are classified as held for trading, or are designation at initial recognition, must be treated at fair value through profit or loss. Assets that have been acquired principally for the purpose of reselling, or repurchasing in the near future, or on their initial recognition were part of a portfolio of instruments with a recent pattern of short-term profit taking, or in the case where the financial instrument is a derivative that is neither a financial guarantee contract, nor a designated hedging instrument, the asset must classified as held for trading.

For an asset to be designated as held at fair value through profit and loss, at initial recognition it must eliminate, or at least significantly reduce, accounting mismatches or it must be in a managed group of financial assets (or liabilities) and its performance evaluated on a fair value basis, or it must contain at least one embedded derivative.

For a financial asset to be classified as held-to-maturity, it must be a non-derivative financial asset, its payments must be fixed or at least determinable and it must have a fixed maturity. The firm must also have the intention of holding the asset to maturity and, as such, must not designate it as available for sale or designate it at fair value through profit and loss. The financial asset must also not meet the definition of loans and receivables.

For a financial asset to be classified as loans and receivables, it must be a non-derivative financial asset. It must have fixed or at least determinable payments. The asset must not be quoted in an active market. The firm must not have classified the asset at fair value or through profit and loss or have classified it as available for sale.

For an asset to be classified as available-for-sale, it must not be classified as loans and receivables, held-to-maturity or be classified at fair value through profit and loss.

For an asset to be classified as a financial liability at amortised cost, it must be a financial liability that is not classified at fair value through profit and loss.

Along with the classification of financial assets, IAS 39 also discusses the recognition and de-recognition of financial assets, the impairment of such assets, and their measurement.

In short, a firm will recognise a financial asset (or liability) when the firm becomes a party to the contractual provisions of the instrument. In the case of a financial liability, it is de-recognised when the provisions no longer hold. This could be because the obligation has been cancelled or expired, or

because the obligation has been discharged. In the case of a financial asset, de-recognition occurs only when the contractual rights to the cash flows arising from the asset expire, or when the firm transfers the majority of the of the risks and rewards associated of the ownership of the asset, or , barring the two situations already given, the firm can no longer recognise control of the financial asset.

Regarding impairment, IAS 39 states that if there is objective evidence of impairment of a financial asset at the end of any reporting period, then the carrying amount of the asset must be reduced and an impairment loss will be recognised in (profit or) loss. In the case where a financial asset is carried at amortised cost, is should not be carried at more than the present value of estimated future cash flows discounted at the original effective interest rate. In the case where an available-for-sale asset is impaired, the cumulative loss, previously recognised in comprehensive income, should be reclassified to (profit or) loss.

For measurement, IAS 39 states that financial assets are initially recognised at fair value. In the case of assets not recognised at fair value through profit, transactions costs can be added.

Post initial recognition, the classification of financial instruments comes into play. The asset will be recognised at fair value in the case where the assets are held at fair value through profit or loss and in cases of available-for-sale financial assets. As in the case of impairment, those cumulative unrealised movements previously recognised in other comprehensive income are reclassified to profit or loss at sale or disposal of the asset.

The asset will be classified at amortised cost using the effective interest rate method in cases where the asset is held-to-maturity, loans and receivables or financial liabilities that are not held for trading and not designated at fair value through profit or loss.

The asset will be classified at cost when the fair value cannot be accurately or reliably measured and must be settled by the delivery of the asset. Examples of this are investments in unquoted equity investments.

The second part of IAS 39 concerns hedge accounting. As with the section on recognition and measurement, it contains various definitions. Of direct concern to us is the definition of a hedging instrument. It is as follows:

> *Designated derivative or (for a hedge of foreign exchange risk only) a designated non-derivative financial asset or financial liability whose fair value or cash flows are expected to offset changes in the fair value or cash flows of a designated hedged item.*

This is fairly self-explanatory. IAS 39 also covers the definition of hedge effectiveness and hedged items. Furthermore, IA39 discusses conditions for qualifying instruments as hedging instruments, types of hedges and accounting treatment.

Instruments that qualify as hedging instruments must involve an external party. This is obvious as a firm cannot provide its own cover. Only in cases of a hedge against foreign currency risk can a non-derivative instrument be designated as a hedging instrument.

Only instruments that involve external parties can be designated as hedging instruments. A non-derivative financial instrument may only be designated as a hedging instrument for a hedge of a foreign currency risk. Some written options are restricted for use as hedging instruments. There are no other restrictions for the classification of derivatives as hedging instruments.

Regarding the designation of hedging instruments, they should be designated normally at fair value. The exceptions to this are the intrinsic and time value of options, and the interest element and the spot price of a forward contract. IAS 39 also states that it is possible for a single hedging instrument to be the hedge for more than one type of risk.

IAS 39 allows for three separate hedging relationships to be recognised. They are: cash flow hedges, fair value hedges and net investments in foreign operations. Before hedge accounting can be applied in respect of these relationships, a number of criteria must be met. Firstly, the purpose behind the hedge must be clear from the onset. In this manner, the hedge must be formally designated as such, and the details of the risk management strategy behind the hedging, along with the hedging relationship, must be clearly documented. Secondly, the hedge must actually work. In this there must be a clear expectation that the hedge will succeed in offsetting changes in cash flows associated with the aforementioned risk. Thirdly, the risk behind the hedge must be clear in cases where a cash flow hedge has been used. It is not permissible to use hedge accounting unless the transaction relating to the hedge is highly probably. Fourth, the (proposed) effectiveness of the hedge must be clear and measurable. Lastly, the hedge must be reassessed on an ongoing basis and it must be determined to have been effective.

A hedge can only be regarded as effective if the results of the hedge are expected to be within the 80-125% range. Both forecasting and post facto testing of the effectiveness should put the hedge into this range. Specific methods to utilise in the testing of the effectiveness of the hedge are not prescribed in IAS 39.

There are a number of cases where hedge accounting must be discontinued. These are relatively obvious cases. Hedging accounting must be discontinued in respect of fair value hedges if the hedging instrument has been sold, exercised, terminated or has expired, if the hedge no longer meets the criteria for hedge accounting, or if the firm revokes the instrument's designation. In the cases of cash flow hedges, hedging accounting must be discontinued if any of the previously mentioned circumstances occur, or if the forecast transaction is no longer likely to occur.

Regarding the accounting treatment of hedges, the three separate hedge types that IAS 39 recognises are discussed below.

In the case of fair value hedges, when the hedge is reassessed, losses or gains recognised at fair value in the case of a derivative, or losses or gains in the case of non-derivatives with a foreign currency component in its carrying amount (as measured in accordance with IAS 21), will be recognised in profit or loss. Also the case of a loss or gain in the hedged risk that results in a loss or gain on the hedged item, will be recognised in profit or loss.

In the case of cash flow hedges, the loss or gain on the hedging item will be recognised in other comprehensive income. The portion of the instrument that is ineffective will be recognised in profit and loss. Specifically, in cases where a hedge of a forecast transaction results in the recognition of a

financial item that would affect profit or loss, the losses or gains that were previously recognised in other comprehensive income should now be reclassified as profit and loss (rather than equity). In the case where a hedge of a forecast transaction results in the recognition of a non-financial item, there are two choices. Firstly, if the asset affects the profit or loss, it can be treated like a financial item and the losses or gains will be recognised in profit and loss, transferred from other comprehensive income. The second option is to include the gains or losses in the carrying amount of the asset, rather than in other comprehensive income.

In the case of the hedge of a net investment in a foreign operation, the hedging accounting should follow the same protocol as those for cash flow hedges. In the event of the disposal of the foreign operation, the loss or gain will be reclassified to profit or loss, from equity.

It is important to note that while this study concerned the review of financial statements filed between May of 2009 and May of 2010, IAS 39 was in effect. From the second quarter of 2011, IFRS 9 should have replaced IAS 39 with regards to the classification and measurement, impairment methodology as well as the standards for hedge account relating to financial instruments. The standard will be effective for annual periods beginning on or after 1 January 2013.

Chapter 4: The review into 3rd tier South African companies

4.1 Methodology

This investigation focuses on the 111 listed third-tier South African companies selected. Since the introduction of IFRS 2, IFRS 7, IA 32 and IAS 39, listed companies are obliged to report their use of financial derivatives. It was decided that the annual reports of the companies would be reviewed. Where possible these would be taken directly from the company's websites. In cases where this was not possible, an annual report hosting website was used. The annual financial reports for all 111 companies were located.

The annual reports were reviewed with specific focus on the notes in the financial statements regarding risk management. The results of the review were used to populate excel templates. Please see Appendix 3 for an example of the template used. A summary of the results was then created. Please see Appendix 2 for the summary of results sheet. In places where the summary table could not capture all the relevant information, comments were made and later incorporated into the report.

The information filled into the template includes: the Name of the Company; the Financial Year End; The Market Cap as at 31st December 2009; Nature of Business; Whether the company had an Employee Share Option Plans; the Dilutive Effect of the ESOP; and Derivative use. Derivative use was broken down into whether the company had entered into Swaps, Forwards contracts, Options or Futures for the year under review, or the previous financial year. In the case of an affirmative, the type of Swap used was recorded (Interest, Commodity or Currency). In the case of affirmative, the type of Forward contract (Currency or Commodity) was recorded. In the case of an affirmative, the type of Option (Commodity, Currency or Share) was recorded. In the case of an affirmative, the type of Future (Commodity or Share/Stock) was recorded. The fair value of the derivatives used as at the company's financial year end was also recorded.

4.2 Results

The period of review is for financial statements filed between May of 2009 and May of 2010.

Of the 120 companies being investigated, 8 are index funds (BIPS TOP 40, DB X-DJ EURO STOXX 50, DB X-FTSE 100 PR, SATRIX DIV PLUS, DBX MSCI USA, DB-MSCI JAPAN, SATRIX RESI, and SATRIX SWIX). One of the companies, Set-Point Group, has delisted. The annual financial statements and notes were reviewed for the remaining 111 companies.

The average market capitalisation of the 111 companies, as at the 31st December 2010, was R235 565 896. The largest market capitalisation was R595 804 480 (Metrofile). The smallest market capitalisation was R66 226 180 (WG Wearne).

In the 1998 Wharton study, 45% of the medium firms (with market capitalisation between $50m and $250m) were found to be using derivatives. The sample group under investigation is roughly comparable to the US one in terms of market capitalisation. Since South Africa has a sophisticated securities exchange, it is expected that the market for derivatives will allow companies that require them, to find counterparties. It is also more than ten years since the 1998 Wharton study. Bodnar *et al.* reported increases in the use of derivatives between their initial 1994 (published in 1995) and the 1998 study. One may therefore expect that, in the South African market, derivative use will be higher than what was reported in the 1998 Wharton study. However, it should be noted that the effect of the market crash and the negative publicity that derivative instruments have received could also have impacted the use of derivatives in South Africa.

The number of firms found to be using derivative instruments was 45 out of the 111 reviewed. This represents 40.54% of the sample and is in line with our initial expectations.

A number of firms were found to be using more than one type of derivate instrument. Excellerate, Jasco, Metrofile, Musket, SecureData Holdings, Super Group and York Timbers all use both swaps and forwards.

Of the 111 companies, 66 (59.46%) use Employee Share Option Plans. It is by far the most used of the financial instruments investigated.

In previous studies it was important to test the statistical significance of the results. Therefore, in cases where a sample of the population has been reviewed, using surveys or interviews, it is particularly significant. As the sample for this investigation comprises the entire population group, the results are representative.

4.2.1 Swaps

The total number of companies that reported using swaps in 2009 was 9 (8.11%) (2008:6). Of the 9 that reported using swaps in 2009, 4 (3.60%) used swaps in the previous year. The other 5 (4.50%) did not report having used swaps in the previous year. Of the 6 that reported using swaps in 2008, 2 reported not using swaps in 2009. The total value of the swaps was R235 994 000, with the average value being R26 221 556. Only 8 of the 9 companies reported their swap amount. Taking this into consideration, the average value reported for the 8 should be R29 499 250. One company, Mustek,

did report that they used interest rate swaps, but the amount was not reported separately from their 'other financial assets'.

Of these 9 swaps, 8 were interest rate swaps. Only one firm, Jasco, reported using a currency swap.

4.2.2 Forwards

The total number of companies that reported using forwards in 2009 was 38 (34.23%) (2008:38). Of the 38 companies that reported using forwards in 2009, 33 (29.73%) reported having used them in the previous year. 5 (4.50%) of the companies reported using them in 2009, but not 2008. One of the companies using forwards, Litha Healthcare Group Limited, was a recent merger and listing and the financial report was for the seven months leading up to December 2009; no previous set of statements exists.

The total value of the forward contracts reported was R1 063 438 723. The average value of the forward contracts reported was R27 523 890. These figures exclude 2 companies that did not separate the FEC amounts from 'other financial assets'. From the amounts in the balance sheets, both companies have forward contracts with values higher than the average value given here.

Of the 38 swaps reported, one company, Crookes Brothers Limited, reported using commodity swaps only. Crookes Brothers is an Agricultural firm, focussing mainly on sugar cane. 34 firms reported using currency swaps only and 3 firms reported using both.

For some companies, the outstanding forward positions were material in relation to their market capitalisation.

4.2.3 Options

The total number of companies that reported using options was 3 (2.70%). Of these, 2 were share options and 1 was a commodity option. This number is puzzlingly low and it seems likely that more than just 3 of the 111 companies are using options, but simply not reporting them separately in their annual reports. This would be in violation of the regulations concerning options. It is possible that companies do not fully understand the reporting requirements, or that they have not correctly aggregated their financial instruments.

The commodity option was held by First Uranium, a mining firm. Beige Holdings and Ingenuity Property Investments Limited both reported using share options.

The total value of the options reported was R97 451 619. The average value is R32 483 873. The numbers are skewed though, since the largest option is R83m, with the other two being R12m and R2m.

4.2.4 Futures

There was only 1 (0.90%) future contract reported in the annual reports of the 111 companies. This was a single stock future, with a value of R17 881 173, reported by Huge Group.

4.2.5 ESOP

The total number of companies that reported having ESOPs in 2009 was 66 (59.46%) (2008:67). The average dilutive effect of the share options as at the end of 2009 was 4.03%. It should be noted that for one of the companies, the number of shares in the ESOP was calculated from the rand value given (rather than simply taken from the number of share options). Also, for one firm, the dilutive effect was calculated using the total number of Treasury shares held since there was no aggregation.

The largest value for the dilutive effect of the share options was 26.47%. This was unusual, however, as only 8 of the 65 companies had dilutive effects above 10% and only 2 of these were above 20%.

A number of firms reported having Employee Share Option Plans, but not having instituted them or, in one case, the shares allocated had passed their maturity date and had not been taken up. These were thus forfeited. Companies that reported having ESOPs with a value of zero were counted as not having ESOPs, since no options were outstanding.

The number of ESOPs compared the number of other derivative instruments used, is unusual. The next highest reported usage, after ESOPs, was forwards with 38 (34.23%) companies. Compared to the 66 (59.46%) companies reporting ESOPs, it seems that other derivatives are not used nearly as much. One of the major reasons for non-use of derivatives is a lack of understanding of the instruments. It is then a worrying trend that companies that may not necessarily understand derivatives, are using ESOPs.

4.2.6 Industry analysis

The South African Reserve Bank released the *Institutional Sector Classification Guide for South Africa*[17] in February 2005. This gives the breakdown of the Standard Industrial Codes (SIC) to be used in South Africa, and is our equivalent of the North American Industry Classification System (NAICS). The NAICS is '*the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy'*[18]. The South Africa SIC uses a five digit code for the breakdown of industry, compared to the four digits of the NAICS. For the analysis, only the overall industry (the first digit of the SIC) was used. The codes allocated to individual companies are given in Appendix 2. The categories identified for 3rd tier South African companies were: Agriculture; Community; social and personal services; Construction; Financial Intermediation; Manufacturing; Mining and quarrying; Transportation; storage and communication; and Wholesale and retail trade. The companies were sorted according to their primary business concern in cases where they matched more than one category. Holding companies were sorted according to the primary nature of their business because, if they existed to hold interests purely for financial benefit, they were judged to be financial intermediaries. If the holding companies held interests in companies of a certain industry only, they were deemed to belong to that industry.

Mining and quarrying

17 http://www.reservebank.co.za/internet/Publication.nsf/LADV/57EB318CF3CD8B4D42256FB3004E4F5F/$File/Classification+Guide.pdf

18 http://www.census.gov/eos/www/naics/

Nine companies were identified primarily as mining and quarrying businesses. They are Central Rand Gold, First Uranium, Great Basin Gold Limited, Infrasors Holdings Limited, Miranda Mineral Holdings Limited, Sallies Limited, Sephaku Holdings Limited, Transhex and Wescoal. Of these 9 companies, only 2 (22.22%) reported using derivatives in the period under review. The derivative use included one company using Currency Forward contracts and one company using Commodity Options. 7 of the 9 (77.78%) companies reported having ESOPs.

Agriculture

Three companies were identified primarily concerned with agriculture. They are Country Bird Holdings, Crookes Brothers Limited and Sovereign Foods. 2 of the 3 (66.67%) companies reported using derivatives in the period under review. One company reported using Commodity Forward contracts and the other company reported using both Commodity and Currency Forward contracts. All three companies (100%) reported having ESOPs.

Construction

Four companies were identified as primarily involved with construction. They are Erbacon Investment Holdings Limited, Protech Khuthele Holdings Limited, Sanyati Holdings and Top Fix Holdings. No use of derivatives was reported in these companies. 2 of the 4 (50%) companies reported having ESOPs.

Manufacturing

Thirty-six companies were identified as being primarily involved in manufacturing. They are ABE Construction Chemicals Limited, Accentuate, African Media Entertainment, African and Overseas Limited, Afrimat, Alert Steel Holdings, Amalgamated Appliance Holdings Limited, Amalgamated Electronic Corporation (AMECOR), Austro Group, Beige Holdings, Bowler Metcalf, Brikor, BSI Steel, Buildmax, B&W Instrumentation and Electrical Limited, Chemspec, Control Instruments, Dorbyl Limited, Ellies Holdings Limited, Ideco Group Limited, Insimbi Refractory and Alloy Supplies Limited, Kaydav Group Limited, Masonite, Mazor Group Limited, Mustek, Nu-World Holdings Limited, O-Line Holdings Limited, Rex Trueform Clothing Company Limited, Rolfes Technology Holdings, Seardel Investment Corporation, South Ocean Holdings, Transpaco Limited, Universal Industries Corporation Limited, WG Wearne, William Tell and York Timbers.

Of the 36 companies, 23 (63.89%) reported using derivatives during the period under review. 3 of the companies reported using Interest Rate Swaps. 21 of the companies reported using Forward Contracts, with 19 using Currency Forward Contracts and 2 companies using both Currency Forward Contracts and Commodity Forward Contracts. None of the companies reported using Futures Contracts. 18 of the 36 companies (50%) reported having ESOPs.

Wholesale and retail trade

Six companies were identified as primarily involved in wholesale and retail trade. They are ARB Holdings, Gooderson Leisure, IFA Hotels, Taste Holdings Limited, The Don Group, and Verimark Holdings Limited. 3 of the 6 (50%) companies reported using derivatives. One company reported using Interest Rate Swaps. Two companies reported using Currency Forward Contracts. Three of the six companies (50%) reported having ESOPs.

Transportation, storage and communication

Fifteen companies were identified as primarily concerned with transportation, storage and communication. They are 1time Holdings, African Cellular Towers, Cargo Carriers, CIC Holdings, Cullinan Holdings Limited, FoneWorx, Huge Group Limited, Jasco, Labat Africa Limited, Metrofile, Onelogix, SecureData Holdings Limited, Super Group, Telemasters and VoxTelecom.

Of the 15 companies, 8 (53.33%) reported using derivatives. Three companies reported using Interest Rate Swaps and one company reported using Currency Swaps. Seven of the companies reported using Currency Forward Contracts. No other types of Forward Contracts were reported. One company reported having a Single Stock Futures Contract. Of the 15 companies, 11 (73.33%) reported having ESOPs.

Financial Intermediation

Thirty-six companies were identified as primarily involved with financial intermediation. There are problems with the aggregation according to the South African SIC system in that some of these companies, IT firms for example, are not strictly financial firms by nature, but are classified as such. The firms belonging to the financial intermediation sector are Afrocentric Investment Corporation, Barnard Jacobs Mellet Holdings, Blue Financial Service, Compu-Clearing Limited, Cape Empowerment Trust, Conduit Capital Limited, ConvergeNet, Efficient Collective Investment, ELB Group, Excellerate, Fairvest Property Holdings Limited, Finbond Group Limited, Glenrand MIB, Ingenuity Property Investments Limited, IQUAD Group Limited, ISA Holdings Limited, Kelly Group, MicroMega Holdings Limited, Orion Real Estate Limited, Paracon Holdings, Pinnacle Point Group, Purple Capital Limited, PUTPROP Limited, Quantum Property Group Limited, Sable Holdings Limited, Sabvest, Sea Kay Holdings Limited, Sekunjalo Investment Limited, Silverbridge Holdings limited, Simeka Business Group, Tradehold Limited, Trematon Capital Investments, UCS Software Limited, Vunani Limited, Winhold Limited and Workforce Holdings Limited.

Of the thirty-six companies, 6 (16.67%) reported using derivatives in the period under review. Four reported using Currency Forward Contracts. No other types of Forward Contracts were reported. Two of the companies reported having Stock Options. No Futures Contracts were reported. 20 of the 36 companies (55.56%) reported having ESOPs.

Community, social and personal services

Two of the companies were identified as primarily involved in community, social and personal services. They are Interwaste Holdings Limited and Litha Healthcare Group Limited.

Of the two companies, one (50%) reported using Currency Forward Contracts. No other derivative use was reported. Both companies (100%) reported having ESOPs.

Comparison to equivalent studies

In the Bodnar *et al.* Wharton surveys, the authors broke the responses down by both company size and sector. The sample chosen for this investigation is equivalent in size to that of the US studies. However, since the US studies did not separate their results by both sector and size, this makes the comparisons more difficult.

In the 1995 Wharton survey, Bodnar *et al.* found that 29% of firms in the Services sector used derivatives. This number increased to 42% in their 1998 survey. The firms in this investigation that are classified as Services are those that fall into the Financial Intermediary, Transportation, Storage and Communication and Community, Social and Personal Services classifications. Of the 53 firms classified as Service, 15 (28.30%) use derivatives.

In the 1995 Wharton survey, Bodnar *et al.* found that 48% of firms in the Primary Products sector used derivatives. This number increased to 68% in their 1998 survey. The firms in this investigation classified as Primary Products are those that fall into the Mining and quarrying and Agriculture classifications. Of the 12 firms classified as Primary Products, 4 (33.33%) use derivatives.

The firms classified here as Manufacturing have already been discussed above. There are 36 of them, 23 of which (63.89%) use derivatives. In Bodnar *et al.*'s 1995 Wharton survey, they found that 44% of the firms in the Manufacturing sector used derivatives. This number had increased to 48% in the 1998 survey.

4.3 Summary

Of the 111 firms, 45 (40.54%) reported using derivatives. 39 firms (34.23%) reported using forward exchange contracts. 9 firms (8.11%) reported using swaps. 4 firms (3.60%) reported using options. 1 firm (0.90%) reported using futures contracts. 66 firms (59.46%) reported having an Employee Share Option Plan with outstanding options.

Of the 9 Mining and quarrying companies, 2 (22.2%) reported using derivatives. Of the 3 Agriculture companies, 2 (66.67%) reported using derivatives. Of the 4 Construction companies, none reported using derivatives. Of the 36 Manufacturing companies, 23 (62.89%) reported using derivatives. Of the 6 Wholesale and retail trade companies, 3 (50%) reported using derivatives. Of the 15 Transportation, storage and telecommunication companies, 8 (53.33%) reported using derivatives. Of the 36 Financial intermediation companies, 6 (16.67%) reported using derivatives. Of the 2 Community, social and personal services companies, 1 (50%) reported using derivatives.

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http://www.census.gov/eos/www/naics/

https://thomsonone.com/ (a paid subscription site listing financial data, used to download annual reports)

Appendix 1

Ticker	Short Name	Market Cap	Price:D-1	P/E	Total Return YTD	Revenue T12M	EPS T12M	Index Fund
MFL SJ Equity	METROFILE	R 595 804 480.00	146	11.6242	8.148149	R 388 680 000.00	0.1265	No
GBG CN Equity	GREAT BASIN GOLD	R 588 332 288.00	1.74		-3.8674	R 28 698 134.00	-0.14	No
PCN SJ Equity	PARACON HOLDINGS	R 580 529 728.00	166	9.764706	-1.673177	R 947 062 016.00	8.09	No
UCS SJ Equity	UCS GROUP LTD	R 571 858 176.00	195	0.27227	6.382977	R 872 469 024.00	7.194	No
BCF SJ Equity	BOWLER METCALF	R 550 363 200.00	685	8.83643	4.193371	R 459 400 000.00	0.9215	No
UNI SJ Equity	UNIVERSAL INDUST	R 538 694 400.00	120	10.52632	37.003056	R 587 072 000.00	0.113	No
CBH SJ Equity	COUNTRY BIRD HOL	R 529 421 600.00	262	0.039507	-24.53727	R 2 390 791 936.00	0.5651	No
CCI SJ Equity	CIC HOLDINGS LTD	R 522 029 312.00	207	8.085938	62.992126	R 2 530 972 032.00	0.222	No
SER SJ Equity	SEARDEL INV CORP	R 520 180 096.00	38		8.571428	R 2 962 739 968.00	-89.5	No
KEL SJ Equity	KELLY GROUP SA P	R 510 000 000.00	510	12.79799	4.387755	R 2 176 851 968.00	0.3974	No
ARH SJ Equity	ARB HOLDINGS LTD	R 505 249 984.00	215	8.001489	10.256411	R 1 083 811 072.00	0.2692	No
SEP SJ Equity	SEPHAKU HOLDI	R 497 019 104.00	319		-18.205128			No
CUL SJ Equity	CULLINAN HLDGS	R 481 297 984.00	67	32.84314	-4.285714	R 403 948 992.00	0.025	No
ELI SJ Equity	ELLIES HOLDINGS	R 476 386 912.00	176	8.014572	0.571429	R 1 022 964 512.00	0.2199	No
CKS SJ Equity	CROOKES BROTHERS	R 458 368 800.00	3701	17.79327	-28.211004	R 307 578 992.00	5.657	No
AFT SJ Equity	AFRIMAT LTD	R 451 276 608.00	315	6.140351	-0.630915	R 778 016 000.00	0.531	No
BDM SJ Equity	BUILDMAX LTD	R 447 500 896.00	43	5.058824	-42.666668	R 1 835 893 056.00	-0.204	No
TSX SJ Equity	TRANS HEX GROUP	R 408 297 408.00	385	0.071357	-1.282051	R 678 445 984.00	-6.8539	No
BSS SJ Equity	BSI STEEL LTD	R 404 817 984.00	57		-5	R 1 379 633 088.00	-0.0363	No
NWL SJ Equity	NU-WORLD HLDGS	R 401 627 392.00	1899	8.321648	10.086957	R 1 546 204 992.00	2.13	No
BIPS40 SJ Equity	BIPS TOP 40	R 383 033 888.00	2345		-5.736553			Yes
BJM SJ Equity	BARNARD JACOBS	R 370 000 000.00	370	8.258928	8.823529	R 483 712 992.00	0.481	No
LHG SJ Equity	LITHA HEALTHCARE	R 363 894 304.00	113	8.943911	19.556353	R 294 361 008.00	0.1266	No
ACT SJ Equity	AFROCENTRIC INVE	R 353 499 200.00	135	6.31136	-24.581005	R 1 202 551 040.00	0.1913	No
AMA SJ Equity	AMALG APPLIANCE	R 352 234 912.00	166	36.88889	-2.352941	R 831 456 992.00	0.029	No

VOX SJ Equity	VOX TELECOM LTD	R 343 635 584.00	31	5.467372	0	R 2 067 414 016.00	0.0498	No
MST SJ Equity	MUSTEK LTD	R 342 394 400.00	310	5.295525	24	R 3 351 158 912.00	0.6048	No
GMB SJ Equity	GLENRAND MIB LTD	R 321 341 088.00	110	15.94203	9.735456	R 582 178 976.00	0.151	No
DBXEU SJ Equity	DB X-DJ EURO STO	R 308 729 984.00	2510		-20.870113			Yes
BWI SJ Equity	B&W INSTRUMENTAT	R 301 279 904.00	142	5.078684	-3.160856	R 480 481 008.00	0.28	No
TDH SJ Equity	TRADEHOLD LTD	R 298 704 192.00	86	215	3.614458	R 60 032 388.00	0.0938	No
DBXUK SJ Equity	DB X-FTSE 100 PR	R 295 800 000.00	5800		-10.700539			Yes
TPC SJ Equity	TRANSPACO LTD	R 294 819 008.00	1050	5.651238	30.894312	R 783 244 000.00	1.866	No
SPO SJ Equity	SET POINT GROUP	R 288 145 408.00	88	8.224299	6.024096	R 349 986 992.00	0.0705	No
CSP SJ Equity	CHEMICAL SPECIAL	R 285 200 000.00	92	0.882555	9.523809	R 512 959 184.00	0.1131	No
MAS SJ Equity	MASONITE AFRICA	R 284 968 992.00	4000	8.230453	0	R 628 745 984.00	4.85	No
ELR SJ Equity	ELB GROUP LTD	R 283 596 192.00	1090	6.028761	-9.156982	R 1 088 549 024.00	1.972	No
PNG SJ Equity	PINNACLE POINT G	R 280 264 896.00	4		-42.857143	R 102 713 000.00	-0.0009	No
AME SJ Equity	AFRICAN MEDIA EN	R 276 700 512.00	3200		13.371128	R 161 347 000.00	2.6284	No
ING SJ Equity	INGENUITY PROPE	R 276 591 008.00	42	22.10526	2.439024	R 55 881 000.00	0.046	No
SPG SJ Equity	SUPER GROUP LTD	R 272 758 112.00	66		0	R 6 849 073 152.00	-1.0672	No
MZR SJ Equity	MAZOR GROUP LTD	R 267 303 392.00	220	6.727818	-30.379747	R 273 513 992.00	0.305	No
STXDIV SJ Equity	SATRIX DIV PLUS	R 266 084 704.00	150		5.633803			Yes
CVN SJ Equity	CONVERGENET HOLD	R 265 383 600.00	29	7.774798	-42	R 906 433 024.00	0.0373	No
SOH SJ Equity	SOUTH OCEAN HOLD	R 258 024 992.00	165	6.846473	12.062505	R 957 971 968.00	0.202	No
PKH SJ Equity	PROTECH KHUTHELE	R 253 750 000.00	70	2.892562	-30	R 784 315 008.00	0.2441	No
SBV SJ Equity	SABVEST LTD	R 243 320 896.00	603	5.075758	2.481184	R 57 565 000.00	1.395	No
ERB SJ Equity	ERBACON INVESTME	R 242 736 096.00	150	3.442736	-9.090909	R 774 299 776.00	0.4372	No
ASO SJ Equity	AUSTRO GROUP LTD	R 237 277 408.00	55	5.5	0	R 580 518 976.00	0.101	No
CRD SJ Equity	CENTRAL RAND GOL	R 234 573 696.00	95		-48.369564		-0.1493	No
1TM SJ Equity	1TIME HOLDINGS L	R 228 900 000.00	109	2.770013	3.809524	R 1 251 061 376.00	0.1946	No
IWE SJ Equity	INTERWASTE HOLDI	R 228 691 600.00	68	8.947369	4.615385	R 407 259 008.00	0.081	No
QPG SJ Equity	QUANTUM PROPERTY	R 226 744 704.00	149		-12.352942		2.429	No
YRK SJ Equity	YORK TIMBER HOLD	R 223 354 704.00	315		8.620689	R 842 710 976.00	-3.133	No

EFF SJ Equity	EFFICIENT FINANC	R 218 027 296.00	550		-3.508772			No
SOV SJ Equity	SOVEREIGN FOOD	R 214 519 008.00	650	20.12384	-20.245399	R 1 056 202 976.00	0.353	No
RTO SJ Equity	REX TRUEFORM	R 209 402 704.00	950	7.207891	26.666666	R 483 144 992.00	1.3263	No
SDH SJ Equity	SECUREDATA HOLDI	R 208 207 696.00	86	28.66667	1.176471	R 452 752 992.00	0.0299	No
AOO SJ Equity	AFRICAN & OVERS	R 202 119 200.00	900	7.575758	0	R 483 144 992.00	1.2032	No
IFH SJ Equity	IFA HOTELS	R 192 025 408.00	88	0.129025	-29.032259	R 88 240 000.00	-0.2085	No
FIU CN Equity	FIRST URANIUM CO	R 191 874 096.00	1.15		-50	R 77 686 000.00	-0.5	No
OLI SJ Equity	O-LINE HOLDINGS	R 178 875 008.00	75		-11.764706	R 275 855 000.00	0.1166	No
ATR SJ Equity	AFRICA CELLULAR	R 177 737 904.00	48	2.459016	-23.809525	R 505 408 000.00	0.1957	No
SAN SJ Equity	SANYATI HOLDINGS	R 175 988 608.00	44	1.85654	-12	R 1 997 165 952.00	0.134	No
DBXUS SJ Equity	DBX MSCI USA	R 174 930 000.00	833		2.208589			Yes
BFS SJ Equity	BLUE FINANCIAL	R 174 823 504.00	28	2.28013	-39.130436	R 916 775 040.00	0.2303	No
PPR SJ Equity	PUTPROP LTD	R 169 878 496.00	590	8.651027	20.408163	R 35 087 000.00	1.148	No
CRG SJ Equity	CARGO CARRIERS	R 169 837 504.00	875	7.36532	7.361963	R 443 811 984.00	1.28	No
WNH SJ Equity	WINHOLD LTD	R 160 293 200.00	127	6.546391	-5.67639	R 994 947 008.00	0.214	No
ABU SJ Equity	ABE CONSTRUCTION	R 160 000 000.00	160	6.4	50.943398	R 262 728 912.00	0.252	No
WSL SJ Equity	WESCOAL HOLDINGS	R 159 063 696.00	109	7.676056	51.388889	R 570 560 960.00	0.142	No
DBXJP SJ Equity	DB-MSCI JAPAN	R 158 400 000.00	480		2.12766			Yes
STXRES SJ Equity	SATRIX RESI	R 156 958 896.00	4500		-11.902898			Yes
FGL SJ Equity	FINBOND GROUP LT	R 152 810 096.00	40		14.285714	R -	0.159	No
SBL SJ Equity	SABLE HOLDINGS	R 149 504 992.00	1500		-3.846154	R 33 852 000.00	1.246	No
JSC SJ Equity	JASCO ELECTRONIC	R 148 862 304.00	130	6.632653	-26.553673	R 606 293 968.00	0.205	No
OLG SJ Equity	ONELOGIX GROUP	R 144 990 592.00	69	7.752809	53.912151	R 502 601 984.00	0.084	No
BIK SJ Equity	BRIKOR LTD	R 137 552 896.00	22		29.411764	R 304 517 008.00	-0.072	No
DLV SJ Equity	DORBYL LTD	R 135 696 000.00	400		0.250627		-5.437	No
AET SJ Equity	ALERT STEEL HOLD	R 135 695 104.00	53		39.473682			No
MMH SJ Equity	MIRANDA MINERAL	R 133 381 104.00	62		-11.428572		-0.0328	No
SKJ SJ Equity	SEKUNJALO INVEST	R 132 661 696.00	27	21.95122	-15.625	R 390 348 992.00	-0.1337	No
TFX SJ Equity	TOP FIX HOLDINGS	R 132 068 304.00	65	5.508474	-13.333333	R 329 569 008.00	0.1181	No

TMT SJ Equity	TREMATON CAP INV	R 131 154 800.00	75	16.66667	1.351351	R 391 000.00	-0.013	No
EXL SJ Equity	EXCELLERATE HLDG	R 130 718 400.00	60	5.405406	-4.761905	R 696 232 992.00	0.1225	No
CAE SJ Equity	CAPE EMPOWERMENT	R 128 926 496.00	37		2.777778	R 57 928 000.00	-0.021	No
CND SJ Equity	CONDUIT CAPITAL	R 128 189 904.00	50	9.541985	-23.076923	R 396 332 000.00	0.0617	No
IRA SJ Equity	INFRASORS HOLDIN	R 126 154 304.00	68	9.066667	-10.526316	R 219 993 000.00	0.07	No
PPE SJ Equity	PURPLE CAPITAL	R 121 465 296.00	17		-10.526316		-0.0517	No
RLF SJ Equity	ROLFES TECHNOLOG	R 119 150 304.00	115	11.05769	34.183231	R 375 512 000.00	0.104	No
VMK SJ Equity	VERIMARK HOLDING	R 117 991 400.00	107	8.629032	148.837204	R 347 511 008.00	0.127	No
FWX SJ Equity	FONEWORX HOLDING	R 117 304 896.00	86	0.063544	-9.473684	R 85 668 056.00	0.1429	No
STXSWX SJ Equity	SATRIX SWIX	R 116 165 696.00	499		-4.038462			Yes
AER SJ Equity	AMALGAMATED ELEC	R 114 638 496.00	147	6.391304	27.826086	R 138 100 000.00	0.337	No
CCL SJ Equity	COMPU-CLEARING	R 112 573 696.00	270	11.44068	-5.263158	R 46 318 000.00	0.1519	No
ORE SJ Equity	ORION REAL ESTAT	R 110 103 104.00	19		-36.666668	R 56 042 666.00	0.3227	No
ISA SJ Equity	ISA HOLDINGS LTD	R 109 777 800.00	57	8.028169	29.545454	R 57 363 000.00	0.0705	No
ISB SJ Equity	INSIMBI REFRACTO	R 109 200 000.00	42	4.93537	-23.636364	R 690 090 016.00	0.0822	No
VUN SJ Equity	VUNANI LTD	R 107 245 000.00	8		-20	R 121 935 000.00	-0.1283	No
CNL SJ Equity	CONTROL INSTRUMT	R 104 577 600.00	75		15.384615	R 840 404 000.00	-0.1622	No
SAL SJ Equity	SALLIES LTD	R 102 755 200.00	16		6.666667	R 146 902 000.00	-0.03	No
IDE SJ Equity	IDECO GROUP LTD	R 99 088 888.00	49		-34.666668	R 83 076 000.00	-0.0598	No
SBG SJ Equity	SIMEKA BUSINESS	R 98 979 296.00	18	1.621622	-18.181818	R 752 070 016.00	0.091	No
FVT SJ Equity	FAIRVEST PPTY-UT	R 96 949 456.00	113	29.73684	2.727273	R 15 272 000.00		No
MMG SJ Equity	MICROMEGA HLDGS	R 96 845 000.00	100	4.819277	-33.333332	R 721 900 000.00	0.1688	No
LAB SJ Equity	LABAT AFRICA LTD	R 96 605 696.00	49		716.666687	R 30 897 000.00	0.01	No
KDV SJ Equity	KAYDAV GROUP LTD	R 94 476 000.00	40	18.18182	33.333332	R 461 236 368.00	0.022	No
TAS SJ Equity	TASTE HOLDINGS	R 85 080 496.00	50	5.376344	13.636364	R 136 345 008.00	0.094	No
BEG SJ Equity	BEIGE HOLDINGS	R 80 631 688.00	5	3.731344	-16.666666	R 574 360 000.00	0.0134	No
HUG SJ Equity	HUGE GROUP LTD	R 79 625 248.00	75		5.633803	R 578 982 496.00	-0.2513	No
SKY SJ Equity	SEA KAY HOLDING	R 78 218 280.00	16		-51.515152	R 813 884 992.00	-0.1282	No
TLM SJ Equity	TELEMASTERS HOLD	R 77 700 000.00	185	0.20567	-0.840619	R 235 085 936.00	0.269	No

IQG SJ Equity	IQUAD GROUP LTD	R 73 020 112.00	260	5.627706	47.36842	R 79 970 000.00	0.506	No
WKF SJ Equity	WORKFORCE HOLDIN	R 72 000 000.00	30	4.6875	-14.285714	R 1 043 063 936.00	0.051	No
GDN SJ Equity	GOODERSON LEISUR	R 70 174 192.00	58	4.845447	-17.142857			No
WTL SJ Equity	WILLIAM TELL HOL	R 70 000 000.00	56	62.22223	-37.777779	R 135 539 000.00	0.1086	No
ACE SJ Equity	ACCENTUATE LTD	R 68 887 032.00	62	6.666667	73.660927	R 298 036 000.00	0.093	No
DON SJ Equity	DON GROUP	R 67 731 616.00	23		-32.35294	R 76 010 000.00	-0.0674	No
SVB SJ Equity	SILVERBRIDGE HOL	R 66 752 400.00	195	4.909366	18.181818	R 91 839 000.00	0.3975	No
WEA SJ Equity	WAERNE	R 66 226 180.00	36		-10	R 587 001 984.00	-0.005	No

Appendix 2

Company	Fin year	Market cap	Swap in '08	Swap in '09	Swap value	Swap Type	Forwards in '08	Forwards in '09	Forward Value	Forward Type
1time Holdings	31-Dec-09	228 900 000	No	No	-		No	No	-	
ABE Construction Chemicals Limited	31-May-09	160 000 000	No	No	-		Yes	Yes	967 035	Currency
Accentuate	30-Jun-09	68 887 032	No	No	-		Yes	Yes	5 334 888	Currency
African Cellular Towers	28-Feb-09	177 737 904	No	No	-		Yes	Yes	73 419 848	Currency
African Media Entertainment	31-Mar-09	276 700 512	No	No	-		No	No	-	
African and Overseas Limited	30-Jun-09	202 119 200	No	No	-		Yes	Yes	5 642 000	Currency
Afrimat	28-Feb-09	451 276 608	No	No	-		No	No	-	
Afrocentric Investment Corporation	30-Jun-09	353 499 200	No	No	-		No	No	-	
Alert Steel Holdings	30-Jun-09	135 695 104	No	No	-		No	No	-	
Amalgamated Appliance Holdings	30-Jun-09	352 234 912	No	No	-		Yes	Yes	54 978 000	Currency
Amalgamated Electronic Corporation	31-Mar-09	114 638 496	No	No	-		No	No	-	
ARB Holdings	30-Jun-09	505 249 984	No	No	-		Yes	Yes	2 521 621	Currency
Austro Group	31-Aug-09	237 277 408	Yes	No	-		No	No	-	
Beige Holdings	31-Mar-09	80 631 688	No	No	-		No	No	-	
Barnard Jacobs Mellet Holdings	31-Mar-09	370 000 000	No	No	-		No	No	-	
Bowler Metcalf	30-Jun-09	550 363 200	No	No	-		No	No	-	
Brikor	28-Feb-09	137 552 896	No	No	-		No	No	-	
BSI Steel	31-Mar-09	404 817 984	No	No	-		Yes	Yes	42 093 109	Currency
Buildmax	28-Feb-09	447 500 896	No	Yes	7 739 000	Interest	No	No	-	
B&W Instrumentation	30-Sep-09	301 279 904	No	No	-		Yes	No	-	
Blue Financial Service	28-Feb-09	174 823 504	No	No	-		No	No	-	
Cargo Carriers	28-Feb-09	169 837 504	No	No	-		No	No	-	
Country Bird Holdings	30-Jun-09	529 421 600	No	No	-		No	No	-	
Compu-Clearing Limited	30-Jun-09	112 573 696	No	No	-		No	No	-	
Cape Empowerment Trust	30-Jun-09	128 926 496	No	No	-		Yes	No	-	

Chemspec	31-Mar-09	285 200 000	No	No	-		No	No	-	
CIC Holdings	28-Feb-09	522 029 312	No	No	-		No	No	-	
Conduit Capital Limited	31-Aug-09	128 189 904	No	No	-		No	No	-	
Control Instruments	31-Dec-09	104 577 600	No	No	-		Yes	Yes	46 034 000	Currency
ConvergeNet	31-Aug-09	265 383 600	No	No	-		No	No	-	
Central Rand Gold	31-Dec-09	234 573 696	No	No	-		No	No	-	
Crookes Brothers Limited	31-Mar-09	458 368 800	No	No	-		No	Yes	1 721 000	Commodity
Cullinan Holdings Limited	30-Sep-09	481 297 984	No	No	-		Yes	Yes	7 669 329	Currency
Dorbyl Limited	31-Mar-09	135 696 000	No	No	-		Yes	Yes	12 499 000	Currency
Efficient Collective Investment	31-Aug-09	218 027 296	No	No	-		No	No	-	
ELB Group	30-Jun-09	283 596 192	No	No	-		Yes	Yes	11 879 000	Currency
Ellies Holdings Limited	30-Apr-09	476 386 912	No	No	-		No	No	-	
Erbacon Investment Holdings Limited	28-Feb-09	242 736 096	No	No	-		No	No	-	
Excellerate	30-Jun-09	130 718 400	Yes	Yes	909 000	Interest	Yes	Yes	450 000	Currency
Fairvest Property Holdings Limited	31-Mar-09	96 949 456	No	No	-		No	No	-	
Finbond Group Limited	28-Feb-09	152 810 096	No	No	-		No	No	-	
First Uranium	31-Mar-09	191 874 096	No	No	-		No	No	-	
FoneWorx	30-Jun-09	117 304 896	No	No	-		No	No	-	
Glenrand MIB	30-Jun-09	321 341 088	No	No	-		No	No	-	
Gooderson Leisure	28-Feb-09	70 174 192	No	No	-		No	No	-	
Great Basin Gold Limited	31-Dec-09	588 332 288	No	No	-		No	No	-	
Huge Group Limited	28-Feb-09	79 625 248	No	No	-		No	No	-	
Ideco Group Limited	31-Aug-09	99 088 888	No	No	-		Yes	Yes	27 921 000	Currency
IFA Hotels	30-Jun-09	192 025 408	No	No	-		No	No	-	
Infrasors Holdings Limited	28-Feb-09	126 154 304	No	No	-		No	No	-	
Ingenuity Property Investments	31-Aug-09	276 591 008	No	No	-		No	No	-	
Insimbi Refractory and Alloy	28-Feb-09	109 200 000	No	No	-		Yes	Yes	24 192 000	Currency
Interwaste Holdings Limited	31-Dec-09	228 691 600	No	No	-		No	No	-	
IQUAD Group Limited	28-Feb-09	73 020 112	No	No	-		No	No	-	

ISA Holdings Limited	28-Feb-09	109 777 800	No	No	-		No	No	-	
Jasco	30-Jun-09	148 862 304	Yes	Yes	2 227 000	Currency	Yes	Yes	63 581 000	Currency
Kaydav Group Limited	31-Dec-09	94 476 000	No	No	-		Yes	Yes	120 170 446	Both
Kelly Group	30-Sep-09	510 000 000	No	No	-		No	No	-	
Labat Africa Limited	28-Feb-09	96 605 696	No	No	-		No	No	-	
Litha Healthcare Group Limited	31-Dec-09	363 894 304		No	-			Yes	1 189 000	Currency
Masonite	31-Dec-09	284 968 992	No	No	-		Yes	Yes	24 588 000	Currency
Mazor Group Limited	28-Feb-09	267 303 392	No	No	-		No	No	-	
Metrofile	30-Jun-09	595 804 480	Yes	Yes	135 000 000	Interest	Yes	Yes	2 215 000	Currency
Miranda Mineral Holdings Limited	31-Aug-09	133 381 104	No	No	-		No	No	-	
MicroMega Holdings Limited	31-Dec-09	96 845 000	Yes	No	-		Yes	No	-	
Mustek	30-Jun-09	342 394 400	Yes	Yes		Interest	Yes	Yes	35 242 000	Currency
Nu-World Holdings Limited	31-Aug-09	401 627 392	No	No	-		Yes	Yes	205 576 800	Currency
O-Line Holdings Limited	30-Jun-09	178 875 008	No	No	-		Yes	Yes	1 104 000	Currency
Onelogix	31-May-09	144 990 592	No	No	-		Yes	Yes	9 249 000	Currency
Orion Real Estate Limited	30-Jun-09	110 103 104	No	No	-		No	No	-	
Paracon Holdings	30-Sep-09	580 529 728	No	No	-		No	No	-	
Pinnacle Point Group	28-Feb-09	280 264 896	No	No	-		No	No	-	
Protech Khuthele Holdings Limited	28-Feb-09	253 750 000	No	No	-		No	No	-	
Purple Capital Limited	31-Aug-09	121 465 296	No	No	-		No	No	-	
PUTPROP LTD	30-Jun-09	169 878 496	No	No	-		No	No	-	
Quantum Property Group Limited	31-Aug-09	226 744 704	No	No	-		No	No	-	
Rex Trueform Clothing Company Limited	30-Jun-09	209 402 704	No	No	-		No	No	-	
Rolfes Technology Holdings	30-Jun-09	119 150 304	No	No	-		No	Yes	483 000	Currency
Sable Holdings Limited	30-Jun-09	149 504 992	No	No	-		No	No	-	
Sabvest	31-Dec-09	243 320 896	No	No	-		No	No	-	
Sallies Limited	30-Jun-09	102 755 200	No	No	-		Yes	No	-	
Sanyati Holdings	28-Feb-09	175 988 608	No	No	-		No	No	-	

Sea Kay Holdings Limited	30-Jun-09	78 218 280	No	No	-		No	No	-	
Seardel Investment Corporation	31-Mar-09	520 180 096	No	No	-		Yes	Yes	218 359 000	Both
SecureData Holdings Limited	31-Jul-09	208 207 696	No	Yes	1 567 000	Interest	No	Yes	5 508 000	Currency
Sekunjalo Investment Limited	31-Aug-09	132 661 696	No	No	-		Yes	No	-	
Sephaku Holdings Limited	28-Feb-09	497 019 104	No	No	-		No	No	-	
Silverbridge Holdings limited	28-Feb-09	66 752 400	No	No	-		No	No	-	
Simeka Business Group	31-May-09	98 979 296	No	No	-		No	No	-	
South Ocean Holdings	31-Dec-09	258 024 992	No	No	-		Yes	Yes	5 575 000	Currency
Sovereign Foods	28-Feb-09	214 519 008	No	No	-		Yes	Yes	533 750	Both
Super Group	30-Jun-09	272 758 112	No	Yes	51 310 000	Interest	Yes	Yes	30 014 000	Currency
Taste Holdings Limited	28-Feb-09	85 080 496	No	Yes	1 923 000	Interest	No	No	-	
Telemasters	30-Sep-09	77 700 000	No	No	-		No	No	-	
The Don Group	30-Jun-09	67 731 616	No	No	-		No	No	-	
Top Fix Holdings	30-Jun-09	132 068 304	No	No	-		No	No	-	
Tradehold Limited	28-Feb-09	298 704 192	No	No	-		No	No	-	
Transhex	31-Mar-09	408 297 408	No	No	-		Yes	Yes	-	Currency
Transpaco Limited	30-Jun-09	294 819 008	No	No	-		Yes	Yes	3 077 000	Currency
Trematon Capital Investments	31-Aug-09	131 154 800	No	No	-		No	No	-	
UCS Software Limited	30-Sep-09	571 858 176	No	No	-		Yes	Yes	2 443 000	Currency
Universal Industries Corporation	31-Dec-09	538 694 400	No	No	-		Yes	Yes	350 000	Currency
Verimark Holdings Limited	30-Apr-09	117 991 400	No	No	-		Yes	Yes	2 485 000	Currency
VoxTelecom	31-Aug-09	343 635 584	No	No	-		No	No	-	
Vunani Limited	31-Dec-09	107 245 000	No	No	-		No	No	-	
WG Wearne	31-Dec-09	66 226 180	No	No	-		No	No	-	
Wescoal	31-Mar-09	159 063 696	No	No	-		No	No	-	
William Tell	30-Jun-09	70 000 000	No	No	-		Yes	Yes	1 467 000	Currency
Winhold Limited	30-Sep-09	160 293 200	No	No	-		Yes	Yes	12 786 897	Currency
Workforce Holdings Limited	31-Dec-09	72 000 000	No	No	-		No	No	-	
York Timbers	30-Jun-09	223 354 704	No	Yes	35 319 000	Interest	No	Yes	120 000	Currency

Company	Options in '08	Options in '09	Option Value	Option Type	Futures in '08	Futures in '09	Future value	Future Type	ESOP in '08	ESOP in '09	SIC	NAICS
1time Holdings	No	No	-		No	No	-		No	No	**74110-74190**	**4724**
ABE Construction Chemicals Limited	No	No	-		No	No	-		No	No	**33510-33599**	**2899**
Accentuate	No	No	-		No	No	-		Yes	Yes	**34111-34112**	**3231**
African Cellular Towers	No	No	-		No	No	-		Yes	Yes	**75200**	**4813**
African Media Entertainment	No	No	-		No	No	-		Yes	Yes	**32600**	**3999**
African and Overseas Limited	No	No	-		No	No	-		No	No	**31401-31404**	**2389**
Afrimat	No	No	-		No	No	-		Yes	Yes	**34251**	
Afrocentric Investment Corporation	No	No	-		No	No	-		No	No	**81910-81990**	**6282**
Alert Steel Holdings	No	No	-		No	No	-		Yes	Yes	**35310-35320**	**3399**
Amalgamated Appliance Holdings	No	No	-		No	No	-		Yes	Yes	**35800**	**3651**
Amalgamated Electronic Corporation	No	No	-		No	No	-		Yes	Yes	**36100**	**3677**
ARB Holdings	No	No	-		No	No	-		Yes	Yes	**62110-62190**	**5311**
Austro Group	No	No	-		No	No	-		No	No	**35610-35690**	**3569**
Beige Holdings	Yes	Yes	2 363 000	Share	No	No	-		Yes	Yes	**61310-61399**	**5719**
Barnard Jacobs Mellet Holdings	No	No	-		No	No	-		Yes	Yes	**81910-81990**	**6282**
Bowler Metcalf	No	No	-		No	No	-		Yes	Yes	**33800**	**3089**
Brikor	No	No	-		No	No	-		Yes	Yes	**34231**	
BSI Steel	No	No	-		No	No	-		Yes	Yes	**35310-35320**	**3399**
Buildmax	No	No	-		No	No	-		No	No	**34251**	
B&W Instrumentation	No	No	-		No	No	-		Yes	Yes	**36200**	**3829**
Blue Financial Service	No	No	-		No	No	-		Yes	Yes	**81910-81990**	**6282**
Cargo Carriers	No	No	-		No	No	-		Yes	Yes	**71211-71239**	**4119**
Country Bird Holdings	No	No	-		No	No	-		Yes	Yes	**11210-11220**	**0211**

Compu-Clearing Limited	No	No	-		No	No	-		Yes	Yes	**86900**	**7379**
Cape Empowerment Trust	No	No	-		No	No	-		Yes	Yes	**81910-81990**	**6282**
Chemspec	No	No	-		No	No	-		No	No	**33510-33599**	**2899**
CIC Holdings	No	No	-		No	No	-		Yes	Yes	**74110-74190**	**4724**
Conduit Capital Limited	No	No	-		No	No	-		Yes	Yes	**81910-81990**	**6282**
Control Instruments	No	No	-		No	No	-		Yes	Yes	**38301-38309**	**3714**
ConvergeNet	No	No	-		No	No	-		Yes	Yes	**86900**	**7379**
Central Rand Gold	No	No	-		No	No	-		Yes	Yes	**23000**	**1442**
Crookes Brothers Limited	No	No	-		No	No	-		Yes	Yes	**11110-11130**	**0191**
Cullinan Holdings Limited	No	No	-		No	No	-		No	No	**74110-74190**	**4724**
Dorbyl Limited	No	No	-		No	No	-		No	No	**38301-38309**	**3714**
Efficient Collective Investment	No	No	-		No	No	-		No	No	**81910-81990**	**6282**
ELB Group	No	No	-		No	No	-		Yes	Yes	**88211-88220**	**8784**
Ellies Holdings Limited	No	No	-		No	No	-		No	No	**35800**	**3651**
Erbacon Investment Holdings Limited	No	No	-		No	No	-		Yes	Yes	**50211-50240**	**1542**
Excellerate	No	No	-		No	No	-		Yes	Yes	**81910-81990**	**6282**
Fairvest Property Holdings Limited	No	No	-		No	No	-		No	No	**84110-84130**	**6519**
Finbond Group Limited	No	No	-		No	No	-		Yes	Yes	**81910-81990**	**6282**
First Uranium	Yes	Yes	83 088 619	Commodity	No	No	-		Yes	Yes	**23000**	**1442**
FoneWorx	No	No	-		No	No	-		Yes	Yes	**75200**	**4813**
Glenrand MIB	No	No	-		No	No	-		Yes	Yes	**81910-81990**	**6282**
Gooderson Leisure	No	No	-		No	No	-		Yes	Yes	**64101-64109**	**7011**
Great Basin Gold Limited	No	No	-		No	No	-		Yes	Yes	**23000**	**1442**
Huge Group Limited	No	No	-		Yes	Yes	17 881 173	Single Stock	Yes	Yes	**75200**	**4813**
Ideco Group Limited	No	No	-		No	No	-		No	No	**37411-37430**	**3841**
IFA Hotels	No	No	-		No	No	-		No	No	**64101-64109**	**7011**
Infrasors Holdings Limited	No	No	-		No	No	-		No	No	**25110-25190**	**1422**
Ingenuity Property Investments	Yes	Yes	12 000 000	Share	No	No	-		Yes	Yes	**84110-84130**	**6519**

Insimbi Refractory and Alloy	No	No	-		No	No	-		No	No	**35310-35320**	**3399**
Interwaste Holdings Limited	No	No	-		No	No	-		Yes	Yes	**94000**	**9511**
IQUAD Group Limited	No	No	-		No	No	-		No	No	**81910-81990**	**6282**
ISA Holdings Limited	No	No	-		No	No	-		No	No	**86900**	**7379**
Jasco	No	No	-		No	No	-		Yes	Yes	**75200**	**4813**
Kaydav Group Limited	No	No	-		No	No	-		Yes	Yes	**32210-32299**	**2435**
Kelly Group	No	No	-		No	No	-		Yes	Yes	**88911-88999**	**7389**
Labat Africa Limited	No	No	-		No	No	-		No	No	**75200**	**4813**
Litha Healthcare Group Limited		No	-			No	-			Yes	**93111-93199**	**8099**
Masonite	No	No	-		No	No	-		No	No	**32210-32299**	**2435**
Mazor Group Limited	No	No	-		No	No	-		Yes	Yes	**35310-35320**	**3399**
Metrofile	No	No	-		No	No	-		Yes	Yes	**75110-75120**	**4215**
Miranda Mineral Holdings Limited	No	No	-		No	No	-		No	No	**21000**	**1422**
MicroMega Holdings Limited	No	No	-		No	No	-		Yes	Yes	**81910-81990**	**6282**
Mustek	No	No	-		No	No	-		No	No	**35800**	**3651**
Nu-World Holdings Limited	No	No	-		No	No	-		Yes	Yes	**35800**	**3651**
O-Line Holdings Limited	No	No	-		No	No	-		No	No	**35510-35599**	**3499**
Onelogix	No	No	-		No	No	-		Yes	Yes	**75110-75120**	**4215**
Orion Real Estate Limited	No	No	-		No	No	-		Yes	Yes	**84110-84130**	**6519**
Paracon Holdings	No	No	-		No	No	-		No	No	**86900**	**7379**
Pinnacle Point Group	No	No	-		No	No	-		No	No	**84110-84130**	**6519**
Protech Khuthele Holdings Limited	No	No	-		No	No	-		No	No	**50211-50240**	**1542**
Purple Capital Limited	No	No	-		No	No	-		Yes	Yes	**81910-81990**	**6282**
PUTPROP LTD	No	No	-		No	No	-		No	No	**84110-84130**	**6519**
Quantum Property Group Limited	No	No	-		No	No	-		No	No	**84110-84130**	**6519**
Rex Trueform Clothing Company	No	No	-		No	No	-		Yes	Yes	**31401-31404**	**2389**
Rolfes Technology Holdings	No	No	-		No	No	-		No	No	**33510-33599**	**2899**
Sable Holdings Limited	No	No	-		No	No	-		No	No	**84110-84130**	**6519**
Sabvest	Yes	Yes	-		No	No	-		Yes	Yes	**81910-81990**	**6282**

Sallies Limited	No	No	-		No	No	-		Yes	Yes	**23000**	**1442**
Sanyati Holdings	No	No	-		No	No	-		Yes	Yes	**50211-50240**	**1542**
Sea Kay Holdings Limited	No	No	-		No	No	-		No	No	**84110-84130**	**6519**
Seardel Investment Corporation	No	No	-		No	No	-		Yes	No	**31401-31404**	**2389**
SecureData Holdings Limited	No	No	-		No	No	-		Yes	Yes	**75110-75120**	**4215**
Sekunjalo Investment Limited	No	No	-		No	No	-		No	No	**81910-81990**	**6282**
Sephaku Holdings Limited	No	No	-		No	No	-		Yes	Yes	**25110-25190**	**1422**
Silverbridge Holdings limited	No	No	-		No	No	-		No	No	**81910-81990**	**6282**
Simeka Business Group	No	No	-		No	No	-		Yes	Yes	**86900**	**7379**
South Ocean Holdings	No	No	-		No	No	-		No	No	**36600**	**3679**
Sovereign Foods	No	No	-		No	No	-		Yes	Yes	**11210-11220**	**0211**
Super Group	No	No	-		No	No	-		Yes	Yes	**75110-75120**	**4215**
Taste Holdings Limited	No	No	-		No	No	-		Yes	Yes	**62201-62209**	**5499**
Telemasters	No	No	-		No	No	-		No	No	**75200**	**4813**
The Don Group	No	No	-		No	No	-		No	No	**64101-64109**	**7011**
Top Fix Holdings	No	No	-		No	No	-		No	No	**50211-50240**	**1542**
Tradehold Limited	No	No	-		No	No	-		No	No	**81910-81990**	**6282**
Transhex	No	No	-		No	No	-		Yes	Yes	**25200**	**1442**
Transpaco Limited	No	No	-		No	No	-		Yes	Yes	**33800**	**3089**
Trematon Capital Investments	No	No	-		No	No	-		No	No	**81910-81990**	**6282**
UCS Software Limited	No	No	-		No	No	-		Yes	Yes	**86900**	**7379**
Universal Industries Corporation	No	No	-		No	No	-		No	No	**35800**	**3651**
Verimark Holdings Limited	No	No	-		No	No	-		No	No	**62110-62190**	**5311**
VoxTelecom	No	No	-		No	No	-		Yes	Yes	**75200**	**4813**
Vunani Limited	No	No	-		No	No	-		Yes	No	**81910-81990**	**6282**
WG Wearne	No	No	-		No	No	-		Yes	Yes	**34251**	
Wescoal	No	No	-		No	No	-		Yes	Yes	**21000**	**1422**
William Tell	No	No	-		No	No	-		No	No	**32210-32299**	**2435**
Winhold Limited	No	No	-		No	No	-		Yes	Yes	**81910-81990**	**6282**

Workforce Holdings Limited	No	No	-		No	No	-		Yes	Yes	**88911-88999**	**7389**
York Timbers	No	No	-		No	No	-		No	No	**32210-32299**	**2435**

Appendix 3

This is an example of the template sheet that was used. The figures and comments here are for illustrative purposes only.

COMPANY	ANGLOGOLD ASHANTI											
	Industry: Mining		SWAPS			FORWARDS		OPTIONS			FUTURES	ESOP
1	**Market cap at year-end**	**R'm**										
2	**Has the company entered into the following during**											
	- the financial year ended 2009		Yes			Yes		Yes			No	Yes
	- the financial year ended 2008		Yes			Yes		Yes			No	Yes
			Interest	**Commodity**	**Currency**	**Currency**	**Commodity**	**Commodity**	**Currency**	**Share**	**Commodity**	
3	**If so, specify**											
	- the financial year ended 2009		No	Yes	No	No	Yes	Yes	No	Yes	No	
	- the financial year ended 2008		No	Yes	No	Yes	Yes	Yes	Yes	No	No	
3	**Quantify the fair value as at the year end**	**R'm**										
	- 2009		-	-99	-		-1 450	-14 771	-	40	-	
4	**Dilutive effect of share options as at end of 2009**											1.52%

Additional Notes: