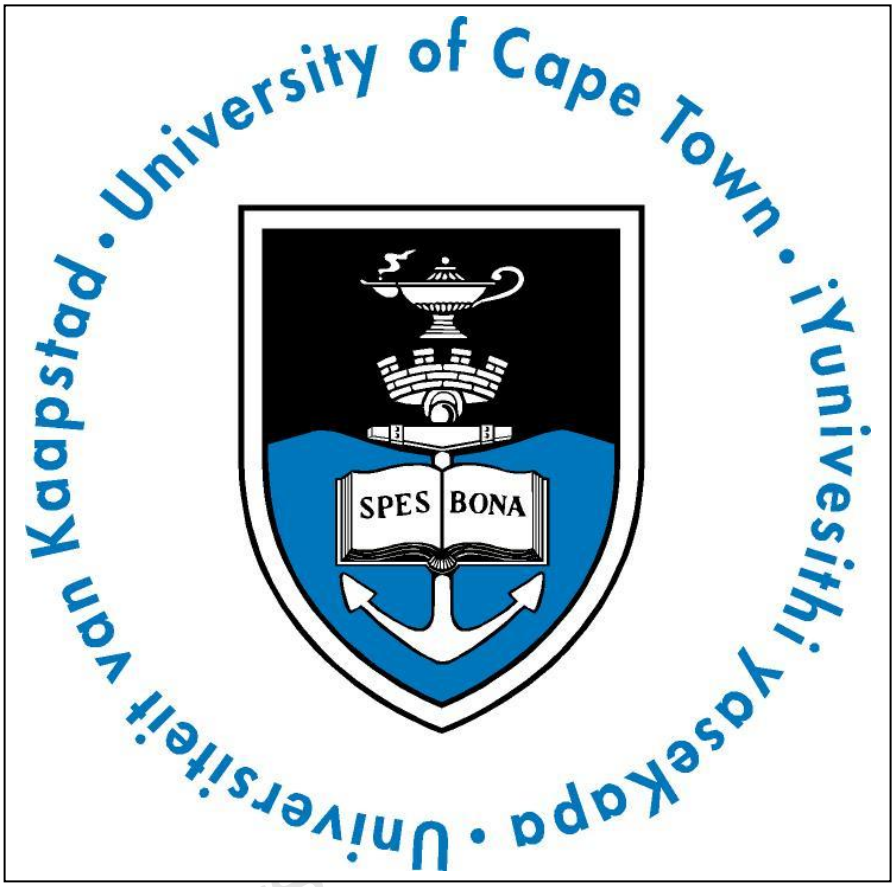

"An investigation into the use of derivative by 104 of the smallest companies listed on the main board of the JSE as well as those companies listed on the ALTX"

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Date: July 2011

DECLARATION

This research dissertation is presented for the approval of the senate in the fulfillment of part of the requirements for the master of Commerce Degree in approved courses and minor dissertation.

I do hereby declare that I have read and understand the regulation governing submission of a Master of Commerce dissertation, including those relating to plagiarism, as contained in the rules of the university, and that this dissertation conforms to those rules.

Signature _____

LIST OF ACRONYMS	
1. ALTX	Alternative Index
2. CAPM	Capital Asset Pricing Model
3. FASB	Financial Accounting Services Board
4. GAAP	Generally Accepted Accounting Practice
5. GDP	Gross Domestic product
6. IAS	International Accounting Standards
7. IASB	International Accounting Standards Board
8. IFRS	International Financial Reporting Standards
9. JSE	Johannesburg Stock Exchange
10. OTC	Over the counter
11. SADC	Southern African Development Community
12. SARB	South African Reserve Bank

1. ABSTRACT

This paper is a study of the use of derivatives by the smallest companies listed on the Johannesburg Stock Exchange (JSE). The size of the company is measured in terms of its market capitalisation. The sample of companies chosen for review is roughly comparable to the small companies referred to in the studies of Bodnar, Hayt, Marston and Smithson (1995) and Bodnar, Hayt, and Marston (1996; 1998) and similar studies that followed in various other countries.

The objective of the study is to test the hypothesis that…

1. the use of derivative by small South African companies will be aligned to international trends,
2. that companies in the primary sector will demand derivatives mainly for the management of exposure to commodity price risk,
3. that manufacturing companies will demand derivatives mainly for the management of foreign exchange risk and that the instrument of choice will be forwards,
4. and finally, that companies who use derivatives for the management of interest rate exposure will show an overwhelming preference for swaps as an instrument of choice.

The study supports the third and fourth hypothesis. The first hypothesis is not supported given the lower demand for derivatives shown compared to international trends, although the trend in South Africa is in line with earlier studies of Bodnar, Hayt, Marston and Smithson (1995) and Bodnar, Hayt, and Marston (1996; 1998). There is not enough evidence to support the second hypothesis.

17% of the companies under review used derivatives; 11% of these fell within the primary sector, and 44% (each) in the manufacturing and services sectors. 89%

of derivatives users did so with the objective of managing foreign exchange exposure, 11% equity exposure and 5% interest rate exposure.

96% of derivatives users managing foreign exchange exposure show a preference for forwards as an instrument of choice and 6% show a preference for options as an instrument of choice. 100% of derivatives users managing equity and interest rate exposures show a preference for options and swaps (respectively) as instruments of choice.

South Africa's demand for derivatives for the management of foreign exchange risk is in line with international experience of small open economies.

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2. INTRODUCTION: BACKGROUND TO THE RESEARCH QUESTION

There are generally two ways in which financial risk management can be approached. Firstly, companies can choose to follow a diversification strategy which may be based on industry and / or geography. The second option open to companies is to engage in financial transactions. This is a more direct approach to financial risk management which obviates the need for direct investment in activities to reduce volatility in whatever it is the company wishes to manage i.e. price, earnings, cash flow etc. The current availability of a variety of derivative instruments, which allows companies to transfer financial price risks to other parties who may have a greater appetite for such risks, acts as a huge facilitator of financial risk management by companies (Sprcic, , 2007).

Research into the growth in the use of derivatives by the corporate sector and the motives for the use of derivatives by this sector has thus far been centred mainly on companies in the USA, the UK, Europe and Australasia; very little work has gone into this area of research in emerging countries and even less in Africa.

Prior to the introduction of the disclosure guidelines as outlined in International Financial Reporting Standard 7 (IFRS 7), a comparative study into the use of derivatives by the corporate sector was somewhat difficult due to non-standard disclosure practices. Comparative studies should in theory become much easier since the introduction of IFRS 7 on 1 January 2007. However, whilst the introduction of IFRS 7 has neatly consolidated the disclosure requirements under International Accounting Standard 32 (IAS 32) and IAS 39 into one set of standards which makes referencing for organisations much easier, its usefulness in standardising disclosure outputs for comparative purposes remains to be seen; being principle-based, IFRS accommodates a great deal of interpretation by organisations which makes comparative studies difficult if organisations have a wide divergence of interpretation (E&Y: US Generally Accepted Accounting Practice (GAAP) vs. IFRS: The basics, December 2009). An added consideration is the impact of accounting treatment and disclosure requirements

on the decision to use derivatives; many of the studies referred to in this paper bear evidence of the impact of disclosure requirements and concern about accounting treatments on the company's decision to use derivatives; indeed a study carried out by Marsden and Prevost (2005) on the impact of the introduction of a new Financial Reporting Act (of 1993) requiring New Zealand companies to comply with applicable financial reporting standards, has found that high growth companies were less likely to use derivatives contracts after the introduction of the new legislation. This paper does not intend perusing this avenue of research which, given the introduction of IFRS 7, may be an interesting area for future research.

The research undertaken in this study focuses on an analysis of the use of derivatives by the smallest companies listed on the main board of the JSE as well as those companies listed on the Alternative Exchange (ALTX). Similar studies have been conducted in the USA (Bodnar, Hayt, Marston and Smithson,1995 and Bodnar, Hayt, and Marston, 1996; 1998), New Zealand (Berkman, Bradbury and Magan, 1997), the UK (Grant, and Marshall, 1997 and Mallin, Ow-Yong, and Reynolds, 2001) Germany (Bodnar, and Gebhardt,1999), Belgium (De Ceuster, Durinck, Laveren, and Lodewyckx, 2000), Sweden (Alkeback and Hagelin,1999 and Alkeback, Hagelin, and Pramborg, 2006), Hong Kong and Singapore (Sheedy, 2006), Slovenia and Croatia (Milos, 2007), the Netherlands (Bodnar, de Jong, and Macrae, 2003), Taiwan (Shu, and Chen, 2003),Canada (Jalilvand,1999), Brazil (Junior, 2007;2011), and a comparative study on Argentina, Brazil, Chile and Mexico (Schiozer and Saito, 2009)

Data gathering in most of these studies was based questionnaires which are sent to a select group of companies; many of these questionnaires were based on research done by The Wharton School under the leadership of Gordan M Bodnar in 1995, 1996 and 1998. Some of the studies have sourced information from local financial databases and annual financial statements either as an alternative approach or conjunction with the questionnaire approach (Sprcic, 2007;

Jalivland,1999; Shu and Chen, 2003; Junior, 2007;2011 and Schiozer and Saito, 2009). In this study, data is gathered through a review of the 2008 and 2009 audited financial reports of the companies concerned.

This approach has its limitations. Firstly, for those companies listed on the ALTX, there is no obligation to publish comprehensive annual financial reports; indeed many companies have opted not to publish full financial reports; some have opted to limit their publication to abridged financial statements. The consequent constraint on available information reduces the size of the selected sample of companies to some extent. Secondly, whilst questionnaires enable the researcher to gather information on the intent behind the use of derivatives, a review of financial reports does not always make such intent clear. A more significant limitation of the "financial report review" approach is the inability to illicit, from companies that do not use derivatives, a response for the reasons behind this decision. Nevertheless, this study does offer a starting point for research with respect to the use derivatives among smaller companies in South Africa which will hopefully complement research done on larger companies, not only in South Africa but on the continent of Africa as well.

The main questions that the study attempts to address include:

- To what extent do small and medium companies in South Africa make use of derivatives?
- What types of derivatives are most commonly used?
- What are the underlying motives for the use of derivatives? Are they used for speculative or risk management purposes?
- If for risk management purposes, what types of risks are being managed? Are these commodity price risk, interest rate risk or foreign exchange risks?
- What are preferred (derivative) instruments used for the management of these risks?
- How prevalent is the use of stock options by companies under review.

A comprehensive literature review flows in which an outline of prior work done in this area of research is provided followed by an outline of the recent developments in the accounting disclosure requirements pertaining to the use of derivatives. This is followed by brief outlined of the hypothesis of this research as well as an outline of the research methodology employed and comments on the sample data used in the study. The results of the study consisting of a detailed descriptive analysis of the use of derivatives as outlined in the bullet points above, precedes the paper's conclusion.

3. LITERATURE REVIEW

3.1 The use of Derivatives by non-financial corporate companies

In the introduction to the paper written by Milos (2007) he cites as one of his objectives a review of the awareness of Croatian and Slovenian non-financial companies of the importance of financial risk management. At first it seems like an odd starting point since it could be taken for granted that this awareness should exist, but we should remember that it was not so long ago that conventional thinking around risk management was that it was irrelevant to the value of the company (Sprcic, 2007). This ***"irrelevance theory"*** was based on the well-known Capital Asset Pricing Model (CAPM) and the Miller-Modigliani propositions. These theories render the decisions to hedge against interest rate, exchange rate and commodity price risk irrelevant since stock holders are assumed to have already protected themselves against these risks by holding diversified portfolios. This effectively meant that financial risks were outside of management control.

Since the introduction of derivatives exchanges in the early 1970s, starting with interest rate and exchange rate derivatives, we have seen significant growth in the market for derivatives as well as the growth and the evolution and refinement of derivative instruments such as swaps, futures, forwards and options. Managers now have a wide range of options to choose from to manage the corporation's exposure to financial risk (Sprcic, 2007). There has also been move

away from the “irrelevance theory” as managers and corporations realise the benefit that financial risk management has on reducing cash flow volatility, expected financial distress and agency costs which ultimately enhances the value of the company (Sprcic, 2007).

Most of the work done outside of the United States of America in this area of research is modelled on studies conducted by the Wharton School Surveys of 1994, 1995 and 1997. These include the works by Berkman, Bradbury and Magan (1997), with a focus on non-financial companies in New Zealand, Bodnar, and Gebhardt, (1999), with a focus on non-financial companies in Germany; Sheedy (2006), with a focus on non-financial companies in Hong Kong and Singapore and Bodnar, de Jong, and Macrae (2003), with a focus on non-financial companies in the Netherlands. These studies make a direct comparison between the patterns of derivatives use by non-financial companies in the countries under review and that of the USA. Generally the studies take the form of a ***descriptive analysis*** although some studies such as that of Jalilvand (1999), with a focus on non-financial companies in Canada, Shu and Chen (2000), with a focus on non-financial companies in Taiwan, Junior (2007;2011) with a focus on non-financial companies in Brazil and Schiozer and Saito (2009) with a focus on no-financial companies in Argentina, Brazil, Chile and Mexico take a more analytic approach to test statistical significance of selected variables on the decision to use derivatives. As is evident by a summary of some of the key findings of the studies to which this paper makes reference, the different approaches adopted do not make the comparison of derivative use easy. We are also cautioned by Sprcic (2007) and Jalivland (1999) that the timing of the review may have an impact on comparisons; comparisons are more meaningful between studies that have been carried out over the same period or in periods that are as close as possible to each other. The impact of the timing difference should be considered when interpreting the results of such comparisons. A further constraint on comparability, especially between developed and emerging economies, is that the studies by Junior (2007; 2011)and Schiozer and Saito

(2009), are specifically focused on the use of currency derivatives, this is a much narrower focus than most studies done on developed economies.

When looking at trends in specific countries it is important to also consider the period on which the study focuses. Junior (2007; 2011) points out that there was a significant change in the trend of derivative use during a period when Brazil moved from a fixed exchange rate regime to a flexible exchange rate regime; Ignorance of this very important development and similar ones in any of the countries reviewed would lead to serious errors in the interpretation of the results.

One of the earliest studies of the extent of derivative use by corporations can be traced to the work done by Bodnar, Hayt, Marston and Smithson (1995). This survey was directed at non-financial companies, the objective being to focus on the end user of the derivatives; financial institutions are often both end users and deal makers, hence their exclusion from the study. This is an approach that was adopted by all other studies covered in this literature review. Most of the studies took the form of questionnaires which sought to ascertain not only the number of companies using derivatives, but also certain characteristics of these companies such as size of the company, the industry in which the company is classified and capital structure of the company.

Out of this initial survey by Bodnar, Hayt, Marston and Smithson (1995; 1996), a response rate of 26.5% was achieved ***(see figure 1)***. The 1998 survey by Bondar, Hayt, and Marston saw a response rate of 20.7%. Similar response rates were achieved in later studies in Belgium (21.9%) (De Ceuster, Durinck, Laveren, and Lodewyckx, 2000), and Slovenia (22%) (Sprcic, 2007). However, the response rates achieved by Bodnar, Hayt, Marston and Smithson (1995; 1996), and Bondar, Hayt, and Marston (1998) are well below the rates achieved in studies in Sweden (76.6% and 52%) (Alkebach and Hagelin, 1999 and Alkeback, Hagelin, and Pramborg, 2006), the Netherlands (50.3%) (Bodnar, de Jong, A and

Macrae, 2003), the UK (28.9%, 39.4%) (Bailly, Browne, Hick, and Skerrat, 2003 and Mallin, Ow-Yong, and Reynolds, 2001), Croatia (31%) (Sprcic, 2007), New Zealand (64%) (Berkman, Bradbury, and Magan, 1997) and Germany (34%) (Bodnar and Gerhardt, 1999)

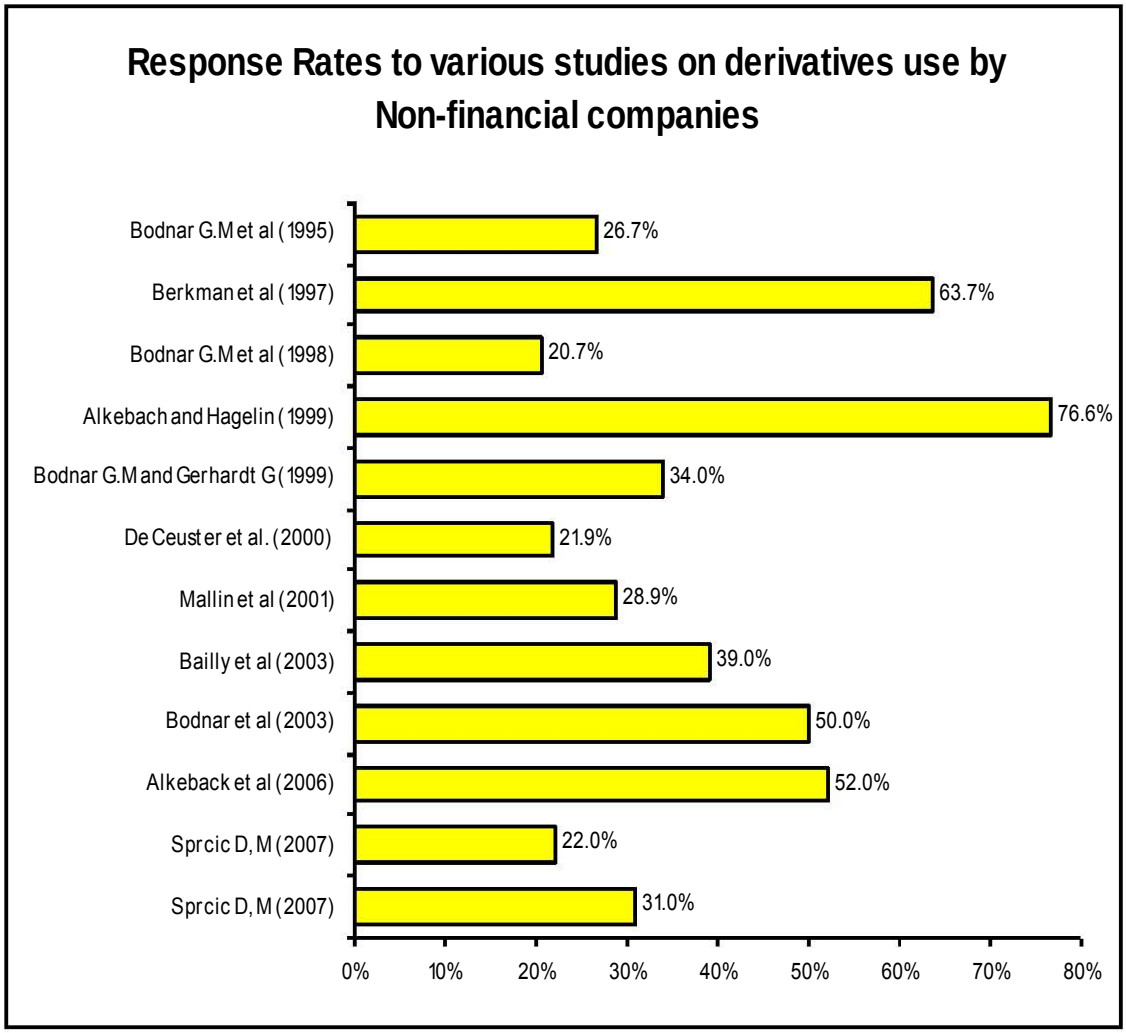

Figure 1

Some changes were made to the set of companies that responded to the surveys of the period 1994 to 1998 by Bodnar et al. As a result, comparisons of the results of these surveys with each other and between these surveys and those that were undertaken later in other countries must be viewed with some caution.

The intent of the comparisons made is to give an overall feel for the directional changes over the period rather than focussing on the accuracy of the data.

Whilst the response rate in the surveys of Bondar et al. (1995 and 1998) decreased from 26.7% to 20.7% from the 1995 survey to the 1998 survey, the reported number of users of derivatives increased to 50% in the 1998 survey from 35% in 1995 survey ***(see figure 2)***.

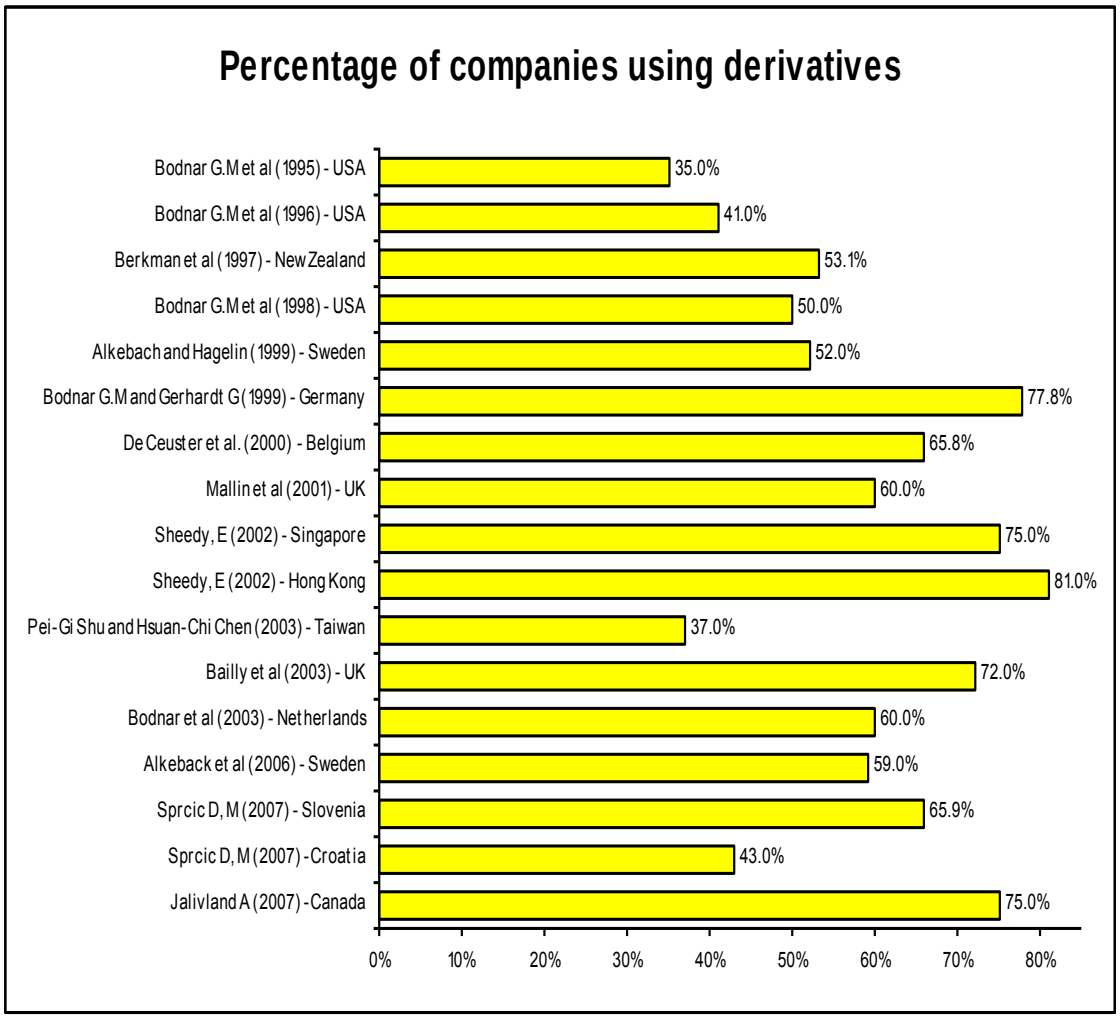

Figure 2

Whilst the reported number of derivatives users in Sweden (52%) (Alkeback, and. Hagelin, 1999) and New Zealand (53.1%) (Berkman, Bradbury, and Magan,

1997) were similar to that of the USA as reported by Bodnar et al., companies confirming the use of derivatives outside of the USA generally reported a much higher rate of usage. The percentage of Belgian, Dutch, German, Canadian, Singaporean, Hong Kong, UK and Slovenian companies reporting the use of derivatives exceed 60%, with the highest being Hong Kong companies at 81% ***(see figure 2).*** The only countries where the number of companies who use derivative is lower than the USA is Taiwan (Shu and Chen, 2003) and Croatia (Sprcic, 2007) at 37% and 43% respectively.

When analysing the data by size of the corporation, Bodnar, Hayt, Marston, and Smithson (1995) found that 65% of large companies used derivatives; this percentage declined to 30% and 12% for medium and small companies respectively ***(see table 1).*** Large companies were assumed to have a market value in excess of $250m; medium and small companies, between $50m and $250M and less than $50m respectively.

Table 1

Percentage of companies using Derivatives (by company size)

	Large	Medium	Small
Alkeback et al. (2006) - Sweden	89%	68%	34%
Bodnar et a.l (2003) – Netherlands[6]	88%	57%	42%
Bailly et al. (2003) – UK [4]	40%	70%	97%
Sheedy, (2002) - Hong Kong [5]	86%	88%	68%
Sheedy, (2002) – Singapore [5]	91%	77%	55%
Mallin et al. (2001) - UK [1]	29-66%	63-81%	100%
De Ceuster et al. (2000) - Belgium [3]	40%	23%	37%
Bodnar and Gerhardt (1999) - Germany [2]	75-94%	84-88%	50-55%
Alkebach and Hagelin (1999) - Sweden	86%	43%	18%
Bodnar et al. (1998) – USA [5]	83%	45%	12%
Berkman et al. (1997) - New Zealand [5]	100%	70%	36%
Bodnar et al. (1996) – USA [5]	59%	48%	13%
Bodnar et al. (1995) – USA [5]	65%	30%	12%

Notes to Table one
[1] Company size is based on Turnover: Measured in term of turnover: Small = BGP0-GBP90m; Medium=GBP91m-GBP1bn;Large=GBP1bn and higher
[2] Company size is based on market value: Large >DM3,3b, Medium <DM3.3b & >DM0.66b; Small ,DM0.66b
[3 Company size is based on turnover: Small=,8.23bnBEF; Medium = 8.23bnBEF - 22.43bnBEF; Large=>22.43bnBEF
[4] Company size is based on market value: Small = Mkt Value < BP100m; Medium= Mkt Value between GBP100m and GBP1bn; Large =Mkt Value > GBP1bn
[5] Company size is base on market value. Large >$250m; Medium < $250m and >$5m and small <$50m
[6] Company size is based on turnover: Large >$800m; Medium < $800m and >$250m and small <$250m

Whilst a greater percentage of large companies reported the use of derivatives in 1998 (83%), the pattern of use between the small, medium and large companies seen in 1994 repeated itself in the 1995 and 1998 surveys. This was a trend that repeated itself in almost all subsequent studies in the UK, Europe, Australasia and Latin America (for foreign exchange derivatives); size of the company was identified as a significant determinant of derivative use and was thought to be linked to the existence of economies of scale as well as to the greater range of risk exposures that larger companies were thought to have had.

The analysis of the use of derivatives by size and industry in New Zealand shows that for large companies (equity value >$250m) as well as smaller companies (equity value <$50m) the use of derivatives reported is 100% and 36% respectively compared to the US experience of 65% and 12% (Berkman, Bradbury, and Magan, 1997). This result is attributed to the potentially greater currency exposure of New Zealand companies given the nature of its economy. New Zealand is a small but relatively open economy and as seen in similar economies of Belgium (De Ceuster, Durinck, Laveren, and Lodewyckx, 2000), the Netherlands (Bodnar, de Jong, A and Macrae, 2003) and Taiwan (Shu and Chen, 2003), where local companies have greater exposure to currency price

risk, the focus on the need to manage these risks takes precedence over cost effectiveness issues associated with economies of scale.

Growth in the use of derivatives by companies of all sizes over time is evident in the studies of Alkeback, Hagelin, and Pramborg, (2006) which show that the number of derivatives users among the medium and smaller companies in Sweden increased significantly from 1996 to 2003. Medium companies who indicated the use of derivatives increased from 43% to 68% and smaller companies from 18% to 34%. This trend is also evident in the studies by Bodnar et al. (1995, 1995,1998).

Sheedy (2006) found the rate of derivatives use to be similar across all company sizes; 82% of medium and 62% of small companies for Hong Kong and Singapore combined used derivatives compared to 86% of large companies. This goes against the general trend alluded to above. There is a distinct lack of large companies in the sample of Singapore and Hong Kong; 31% and 24% respectively. This provides a partial explanation for the difference in the observed trend in derivatives use by company size between Hong Kong and Singapore and other countries reviewed.

The studies by Jalivand (1999), Shu and Chen (2003), Sprcic (2007), Junior (2007; 2011) and Schiozer and Saito (2009) do not provide data on the use of derivatives by company size.

In the earlier studies of Bodnar, Hayt, Marston, and Smithson (1995) an analysis of derivatives users by industry classification showed that 49% of commodity based companies used derivatives; between 39% and 42% of manufacturing companies used derivatives and less than 30% of transportation, retail / wholesale and services companies used derivatives. The higher percentage of companies using derivatives in the commodity industries is thought to be linked to the availability of derivative products suitable for this industry. This trend was repeated in the 1996 and 1998 surveys, but as seen in the feedback

for 1998 ***(see table 2),*** the percentage of users in the Service sector increased significantly from 12% (1995) to 42% (1998).

In most small open economies such as Sweden, the Netherlands, New Zealand, Taiwan, Honk Kong and Singapore, manufacturing sectors are more frequent users of derivatives than their US counterparts, whereas the USA primary product sectors are more frequent users of derivatives. This is believed to be related to the nature of these economies. The economies of Sweden, the Netherlands, New Zealand, Taiwan, Honk Kong and Singapore are classified as small open economies; as such manufacturing companies in these countries who engage in high levels of international trade are exposed to a higher level of foreign exchange risk than that experienced by their US counterparts (Alkeback, and Hagelin, 1999). The higher rate of derivatives use by US companies in the primary sector is related to the relative maturity of the commodities derivatives exchange in this country. The UK also shows a higher level of derivatives use in the manufacturing sector compared to their US counterparts (Mallin, Ow-Yong, and Reynolds, 2001 and Bailly, Browne, Hick, and Skerrat, 2003).

Table 2

Percentage of companies using Derivatives (by Industry Classification)

	Sectors		
	Primary	**Manufacturing**	**Service**
Bodnar et al. (2003) - Netherlands	*not given*	66%	48%
Bailly et a.l (2003) - UK	77%	75%	*not given*
Shu and Chen (2003) - Taiwan	54%	47%	0%
Sheedy, E (2002) - Hong Kong	93%	81%	58%
Sheedy, E (2002) - Singapore	100%	85%	63%
Mallin et al. (2001) - UK	57%	63%	57%
Alkebach and Hagelin (1999) - Sweden	63%	79%	39%
Bodnar et al (1998) - USA	68%	48%	42%
Berkman et al. (1997) - New Zealand	29%	14%	86%

Table 2 (continued) **Percentage of companies using Derivatives (by Industry Classification)**			
Bodnar et al. (1996) - USA	48%	44%	29%
Bodnar et al. (1995) - USA	49%	42%	32%

A number of the studies referenced did not make direct reference to an analysis of derivatives use by industry sector or at most restricted the analysis of the results to a descriptive analysis; these include the studies by Sprcic (2007), Alkeback, Hagelin and Pramborg (2006), Jalivland (1999), Bodnar and Gerhardt (1999), Berkman, Bradbury, and Magan (1997), Junior (2007; 2011) and Schiozer and Saito (2009). This lack of data makes comparative analysis difficult. However, for those studies that have given the information, a consistent trend of derivatives use by sector is evident. The low derivatives use observed in the services sector in all countries is consistent with the findings of Bodnar et al. (1996; 1996; 998).

The kinds of exposure managed were classified as foreign exchange, interest rate, commodity and equity exposures ***(see table 3)*** and the kinds of derivatives used were generally classified as over the counter (OTC) forwards, Futures, Swaps, OTC options and exchange options (***see table 4)***.

Table 3 **Percentage of companies using Derivatives (by class of derivative)**				
	F. Exch.	**Int. Rate**	**Comm.**	**Equity**
Alkeback et al. (2006) - Sweden	90.0%	47.0%	12.0%	9.0%
Bodnar et al. (2003) - Netherlands	96.0%	81.0%	20.0%	Not Given
Bailly et al. (2003) - UK	62.5%	31.5%	7.1%	0.6%
Shu and Chen (2003) - Taiwan	48.9%	11.5%	4.6%	Not given
Sheedy, (2002) - Hong Kong	89.0%	77.0%	19.0%	19.0%

Table 3 (continued) **Percentage of companies using Derivatives (by class of derivative)**				
Sheedy, (2002) - Singapore	92.0%	66.0%	19.0%	13.0%
Mallin et al. (2001) - UK	89.0%	49.0%	9.0%	2.0%
De Ceuster et al. (2000) - Belgium	98%	85%	17%	Not given
Bodnar and Gerhardt (1999) - Germany	96%	89%	>40%	Not given
Alkebach and Hagelin (1999) - Sweden	93%	50%	12%	10%
Bodnar et al. (1998) - USA	83%	76%	56%	34%
Bodnar et al. (1996) - USA	76%	73%	37%	12%
Junior (2007) – Brazil				
1996	8.24%			
2004	29.95%			

Of the companies who use derivatives, 70% or more flagged the use of derivatives to manage foreign exchange risk in all studies except Bailly, Browne, Hick and Skerrat, (2003), and Shu and Chen (2003) with the latter being the only study that returned a result of less than 50%. Companies in countries whose economies are characterised as small open economies (the Netherlands, Singapore, Honk Kong and Sweden) reported more intense use of derivatives to manage exchange rate risks, all of them reporting 90% and higher of companies using derivatives to manage exchange rate risks. The only exception is Hong Kong with 89%.

The percentage of companies signalling the use of derivatives to manage interest rate risk range from 11.5% (Shu and Chen 2003) to 88.8% (Bodnar and Gerhardt, 1999). There is no distinct pattern across all countries. Reasons cited for interest rate hedging by companies include the reduction of interest rate exposure and the locking in of finance rates (De Ceuster, Durinck, Laveren, and Lodewyckx, 2000). A pattern of significantly lower use of derivatives to manage commodity price risk and equity, relative to exchange risk and interest rate risk, is consistent across all studies. The use of derivatives to manage commodity price

risk is highest in the USA which is consistent with a larger primary sector and a much more developed market for these derivatives.

Sprcic (2007), Jalivland (1999), Bodnar, Hayt, Marston, and Smithson, (1995) Berkman, Bradbury, and Magan (1997), Junior (2011) and Schiozer and Saito (2009) do not provide data on class of derivatives used.

Whilst Jalivland (1999) and Sheedy (2002) do not report on the most favoured derivative instrument for each class of derivatives used, those studies that did report on this reported a preference for OTC Forwards and Futures for the management of Foreign Exchange risk; Swedish companies showed a preference for Swaps in addition to these instruments (Alkebach and Hagelin,1999 and Alkeback, Hagelin, and Pramborg, 2006). Swaps was identified as the instrument of choice for managing interest rate risk by all companies in all countries whilst Futures and Forwards were identified in all studies as instruments of choice for managing commodity price risk. Only five of the studies reviewed recorded an instrument of choice for the management of equity risk and amongst these there was no consistency.

Table 4

Most favoured derivative instrument to manage foreign exchange, interest rate, commodity prices and equity price risks

	Foreign Exchange	**Interest Rate**	**Commodity**	**Equity**
Sprcic (2007) -Croatia	Forwards	Swaps	Futures, Forwards	Not given
Sprcic (2007) - Slovenia	Forwards	Swaps	Futures, Forwards	Not given
Alkeback et al. (2006) - Sweden	Swaps	Swaps	OTC Forwards , Swaps	Swaps

Table 4 (continued) **Most favoured derivative instrument to manage foreign exchange, interest rate, commodity prices and equity price risks**				
Bodnar et a.l (2003) - Netherlands	OTC Forwards	Swaps	OTC Options	Not given
Bailly et al. (2003) - UK	OTC Forwards	Swaps	OTC Forwards	Not given
Shu and Chen (2003) - Taiwan	Forwards	Swaps	Futures	Not given
Mallin et al. (2001) - UK	OTC Forwards	Swaps	Futures, Swaps	Exchange Options
De Ceuster et al. (2000) - Belgium	Forwards	Swaps	Forwards	Not given
Bodnar and Gerhardt (1999) - Germany	OTC Forwards	OTC Swaps	Forwards	Not given
Alkebach and Hagelin (1999) - Sweden	OTC Forwards, Futures, Swaps	Swaps	Futures	Futures
Berkman et a.l (1997) – New Zealand	Forwards	Swaps	Forwards	Not given
Bodnar et al. (1996) – USA	Forwards	Swaps	Futures	OTC Options
Bodnar et al. (1995) – USA	OTC Options	Swaps	Futures, OTC Options	OTC Options
Junior (2007) – Brazil	Swaps			

The analysis of the reasons for derivatives transactions by companies shows an overwhelming tendency by companies in all countries reviewed toward the management of short term exposures (to hedge transactions less than 12 months and to hedge company commitments) ***(see table 5).***

Table 5 **Percentage of companies that cite each of the following objectives as the most important in their hedging decision**						
To hedge…						
	Economic / competitive exposure	**Anticipate transactions**		**Firm commit. Trans.**	**Foreign div.**	**The Bal. Sheet**
		>12 months	**<12 months**			
Alkeback et al. (2006) – Sweden	Not given	24.0%	56.0%	46.0%	15.0%	29.0%
Bodnar et al. (2003) – Netherlands	8.0%	8.0%	53.0%	41.0%	42.0%	67.0%
Sheedy, (2002) – Hong Kong	25.0%	43.0%	78.0%	50.0%	33.0%	80.0%
Sheedy, (2002) – Singapore	22.0%	53.0%	78.0%	65.0%	51.0%	94.0%
Mallin et al. (2001) – UK	7.2%	11.6%	42.0%	56.5%	17.4%	15.9%
Bodnar and Gerhardt (1999) – Germany	8.7%	28.3%	6.5%	77.2%	38.0%	Not given
Alkebach and Hagelin (1999) – Sweden	Not given	18.0%	67.0%	55.0%	23.0%	54.0%
Bodnar et al. (1998) - USA	11%	12%	46%	24%	32%	54%
Berkman et al (1997) - New Zealand	Not given	19.0%	71.0%	60.0%	Not given	Not given
Bodnar et a.l (1996) - USA	8%	11%	50%	49%	34%	14%
Bodnar et al. (1995) - USA	16%	15%	46%	45%	25%	22%

In addition there is a high tendency toward hedging the balance sheet in Sweden (Alkebach and Hagelin, 1999), the Netherlands (Bodnar, de Jong, and Macrae, 2003), and Singapore and Hong Kong (Sheedy, 2006). Sheedy suggests that the low percentage of Asian (Singapore and Hong Kong) firms citing a low use of derivatives to manage competitive exposure could relate to a greater tendency toward the use of strategic operations to manage this exposure.

Sprcic (2007), Shu and Chen (2003), Jalivland (1999), De Ceuster, Durinck, Laveren, and Lodewyckx (2000), Junior (2011) and Schiozer and Saito (2009) do not provide data for this aspect of the survey.

An analysis of the most important objective for companies that hedge show that most companies cite as an objective the minimisation of cash flow fluctuations or the minimisation of fluctuations in accounting earnings, very few companies cited the protection of the balance sheet as a major objective ***(see table 6).*** With the exception of the Netherlands and the USA (Bodnar, Hayt, de Jong, and Macrae, (2003) a higher percentage of companies cited minimising fluctuations in accounting earnings as a major objective. This trend is especially evident in European countries (De Ceuster, Durinck, Laveren, and Lodewyckx (2000), Bodnar and Gerhardt (1999), Mallin, Ow-Yong, and Reynolds (2001), Bailly, Browne, Hick and Skerrat, 2003) and Alkeback, Hagelin, and Pramborg (2006)) where it is believed that the role of accounting and taxation rules has a huge influence on the motives for hedging activity. Since this is not necessarily the case with the USA, concern with fluctuating accounting earnings would not be as pronounced as in these European countries. Conventional theoretical financial literature recommends a focus on the value of the company (i.e. discounted future cash flows), but a surprisingly low percentage of companies focus on this as a primary objective of risk management. However, accounting earnings and cash flows as primary objective of risk management may lead to similar hedging decisions; Bodnar and Gerhardt (1999) therefore cautions against too much focus on the different emphasis.

Table 6 Percentage of companies that cites each of the following objectives as the most important in their hedging decision			
	Minimise fluctuations in accounting earnings	*Minimise fluctuations in cash flow*	*Protect the appearance of the balance sheet*
Alkeback et al. (2006) - Sweden	51.0%	26.0%	30.0%
Bodnar et al. (2003) - Netherlands	33.0%	60.0%	8.0%
Bailly et al. (2003) - UK	50.0%	30.0%	13.0%
Mallin et al. (2001) - UK	53.0%	38.0%	3.0%
Bodnar and Gerhardt (1999) - Germany	55.30%	34%	7.40%
Berkman et al. (1997) - New Zealand	62.0%	28.0%	10.0%
Bodnar et al. (1996) - USA	42%	49%	1%
Bodnar et al. (1995) - USA	28%	67%	5%

Bodnar, Hayt and Marston (1998), Alkebach and Hagelin (1999), Sheedy, (2002), Shu and Chen (2003), Sprcic (2007) and Jalivland (2007) have not commented on the percentages of companies who focus on each of the three objectives commented on above.

Whilst Junior (2007; 2011) and Schiozer and Saito (2009) have not provided detail on the objectives behind the use of derivatives that can be directly compared to the studies detailed in the table 6, some important observations have been made. The study by Junior suggests that the main objective behind the use of foreign exchange derivatives by Brazilian companies is to protect the liabilities side of the balance sheet. This is evidenced by the preference for

swaps as an instrument of choice. Swaps tend to cater for longer term transactions where there is less uncertainty compared to forwards which is assumed to have more of a short term focus and is accompanied by much more uncertainty. Forwards are the preferred instrument for the protection of the revenue side of the balance sheet (Junior, 2007). These results were confirmed in Junior (2011) and by the findings of Schiozer and Saito (2009).

The surveys reviewed also tried to analyse the pattern of governance with respect to the use of derivatives. As a measure of the level of involvement of the board of directors in the review of decisions taken with respect to the use of derivatives, companies were asked to indicate the frequency with which derivatives activity was shared with the board. A surprisingly high percentage of companies in all of the studies indicated that they had no set schedule for feedback to the board. Although this tendency is more evident in the USA where just over 50% of companies report that they do not have a set schedule (Bodnar, Hayt, Marston, and Smithson, 1995 and Bodnar, Hayt and Marston, 1996; 1998), companies in other countries are not far behind; 51% of companies in Singapore have no set schedule (Sheedy, 2002) and 48% of UK companies have no set schedule (Mallin, Ow-Yong, and Reynolds (2001); although Bailly, Browne, Hick, and Skerrat, (2003) puts this at 25.6% for the UK, this is still significantly high ***(see table 7)***. For those companies that have a set schedule for reporting to the board of directors, most have a preference for quarterly feedback, the only country where companies have a preference for more regular feedback in the form of monthly feedbacks, is New Zealand where 60% of companies indicated a monthly reporting cycle.

Table 7 **Percentage of companies who share derivatives activity with the board annually, quarterly, monthly or without as set schedule.**				
	Annually	**Quarterly**	**Monthly**	**No schedule**
Alkeback et al. (2006) - Sweden	5.0%	47.0%	24.0%	22.0%
Bodnar et al. (2003) - Netherlands	0.0%	20.0%	27.0%	39.0%
Bailly et al. (2003) - UK	11.9%	24.4%	38.1%	25.6%
Mallin et al. (2001) - UK	5.0%	19.0%	28.0%	48.0%
Bodnar and Gerhardt (1999) - Germany	14.70%	27.90%	35.30%	22.10%
Alkebach and Hagelin (1999) - Sweden	7.0%	39.0%	19.0%	30.0%
Bodnar et al (1998) - USA	17%	23%	4%	50%
Berkman et al. (1997) - New Zealand	6.0%	6.0%	61.0%	27.0%
Bodnar et a (1996) - USA	20%	25%	4%	51%
Bodnar et a (1995) - USA	14%	26%	7%	53%

Jalivland (2007), Sprcic (2007), Shu and Chen (2003), Sheedy, (2002) De Ceuster, Durinck, Laveren, and Lodewyckx (2000), Junior (2011) and Schiozer and Saito (2009) do not provide data on the frequency with which derivatives activity was shared with the board.

The studies also enquired about the frequency with which derivatives portfolios were valued; the bulk of users tended to value their derivative portfolios on a monthly basis. However very few studies reported data on the frequency of valuation of portfolios, so comparisons and the identification of trend is difficult. The only studies that published this data are Bodnar, Hayt, Marston, and Smithson (1995) and Bodnar, Hayt and Marston (1996; 1998), De Ceuster, Durinck, Laveren, and Lodewyckx (2000), Bodnar and Gerhardt (1999) and Mallin, Ow-Yong, and Reynolds (2001). The existence of a documented policy on derivatives use together with the frequency of reporting to the board on derivative activity and the frequency with which valuations is carried out give a fairly good

perspective on the overall governance around the use of derivatives. Not many of the studies reported on the existence of documented policies, but 82%, 75% and 68% of companies in Germany, the UK and the Netherlands respectively reported the existence of a documented policy on derivatives use. This is purported to be significantly higher than most other countries; by contrast Sheedy (2000) reports the percentage of companies having a documented policy in place for Honk Kong and Singapore at 50% and 57% respectively. Overall, the attention to governance with respect to the use of derivatives is surprisingly weak given the increased focus on disclosure requirements and accounting treatment for derivatives as well as the reaction to derivatives related losses such as that of the Barings Bank, Procter and Gamble and Metallgesellschaft (Bodnar and Gebhardt, 1999).

Finally, whilst the thrust of most of these studies was to understand the extent of the use of derivatives in the countries under review, some of the studies also looked at the extent to which economic considerations dominated the decision to use derivates relative to decisions being driven by institutional differences and/or cultural differences between countries. De Ceuster, Durinck, Laveren, and Lodewyckx (2000), cites the role that cultural values, as highlighted in the work of Hofstede (1991), may play in the decision to hedge. Hofstede highlights “power distance” and “uncertainty avoidance” as two significant cultural-related values in organisations. De Ceuster et al. feel that these may have an impact on the rational used for hedging as well as the control and reporting procedures adopted. Bodanar and Gerhardt (1996) also focussed on the extent of the impact of differences in institutional and informational environments on the nature of derivatives use. Bodnar, de Jong, and Macrae, (2003) show that much of the difference in the observed pattern of derivatives use between the US and the Netherlands is based on economic considerations; however some institutional differences such as the more open Dutch economy, the stricter US external disclosure requirements and a more developed US derivatives market does

account for some of the behavioural differences in the use of derivatives, but there is no evidence that these dominate economic considerations.

3.2 Accounting Disclosure

Lajili and Zeghal (2005) undertake a content analysis of risk management disclosures in Canadian Annual reports. Some of the conclusions of this study perhaps best explain the need for the introduction of IFRS7 and its amendment in 2007 and 2009 respectively by the International Accounting Standards Board and the introduction of an amendment to FASB No. 133 under FASB No. 161 by the Financial Accounting Standards Board of the US in 2005.

The research found risk management information disclosed by (Canadian) companies to be almost exclusively qualitative in nature, focusing mostly on financial risk, commodity risk and market risk. The disclosure of risk assessment and analysis was found to be limited and lacking valuable quantitative insights into the companies' performance and exposures. This was not only true of internal risks, but also external risks. It is perhaps against this background of a history of poor standards of disclosure that the introduction of standard of disclosure for financial instruments (broadly defined) under IFRS7 and FASB No. 133 and 161 (limited to derivatives) should be viewed. It is also important to bear in mind a rapidly changing global (economic) environment and increasing complexity of the instruments concerned has acted as a catalyst for the introduction of these disclosure requirements.

IFRS7 was issued by the International Accounting Standards Board (IASB) during August 2005. The standard deals with requirements around financial instrument disclosures which supersede the requirements laid down in IAS30 and IAS32. It became effective on 1 January 2007 and was adopted by South Africa on the 1st January 2009.

The revised Companies Act 71 of 2008 S29 (4) (b) requires public companies to present financial information in their annual financial statements in manner that

is consistent with the International Financial Reporting Standards of the International Accounting Standards Board. This requirements for compliance with the standards as stipulated in IFRS7 became effective as at 1st January 2009 for all companies listed on the Johannesburg Stock Exchange (JSE).

The main thrust of IFRS7 is the recognition of the changing environment in which organisations operate. Over the last few years organisations have adopted new approaches to the measurement and management of risks associated with the use of financial instruments; in the process new risk management concepts and approaches have gained acceptance (KPMG: IFRS 7 for Corporates, December 2006). There is also growing recognition of the need to provide more transparent information to the users of financial statements on the organisation's exposure to risks and their approach to the management of these risks. Such information can play a significant role in the user's assessment of the financial position and performance of the organisation and will assist them in their assessment of (current / potential) risk and return of the organisation.

IFRS7 calls for the disclosure of information on financial instruments used by the company that will enable the user of the financial statements to evaluate the nature and extent of risks arising from these financial instruments. These risks would typically include credit risk, liquidity risk and market risk. From a qualitative perspective, IFRS7 requires the financial statement to disclose for each risk, the exposure to that risk, the objectives, policies and process for managing the risk and the methods used to measure the risk. From a quantitative perspective an analysis of exposure to risks as it would have been presented to, or based on information reported to senior (key) management. If any of these should change from one year to the next, these changes should be disclosed in the financial statement.

IFRS7 excludes operational risk where this risk is not attached to the financial instruments referred to above; it also excludes disclosure requirements on

commodity contracts that meet the own use exemption criteria laid down in IAS39.

Changing market conditions called for greater focus on fair value measurements of the company's financial instruments and the significance of the instruments to its financial performance and position. This resulted in the issue of amendments to IFRS7 in March 2009 by the IASB. These amendments focused on enhanced disclosures about fair value measurements and liquidity risk. The amendments to IFRS7 require companies to classify fair value measurements for financial instruments using a three tier fair value hierarchy which reflect the inputs used in the measurements (PWC, July 2009).

If fair value can be determines as the "unadjusted quoted price for an identical instrument in an active market" this would be classified as a level 1 of the fair value hierarchy (KPMG, December 2009). IAS39 refers to the existence of "published price quotations in an active market" as the best evidence of fair value. When these exist the company is expected to use them as a basis for measuring fair value. IAS 39 states that "a financial instrument is regarded as quoted in an active market if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service or regulatory agency." These prices should represent "actual and regularly occurring market transactions on an arm's length basis" (KPMG, December 2009). It is important to note that as a requirement for quotation as a level 1 measurement, the measurement should be represented as a price of an identical instrument. It cannot be based on a quoted rate or a pricing index which is used as an input into a model to calculate the fair value of the financial instrument (IAS39, Paragraph AG73). A level 1 hierarch valuation can only be used if the instrument being valued is the same as other existing instruments of the same kind. Therefore OTC derivatives contracts, being individual agreements between specific counterparties cannot be subject to level 1 measurement in the fair value hierarchy since there is no active market for the identical instrument. Lastly, level

one measurements of fair value should be the unadjusted quoted price observed in an active market; any deviation from this will not qualify the fair value of the instrument to be measured using level 1 measurement.

Valuation techniques are used for level 2 and level 3 fair value measurements where there is no active market for the financial instrument. For example, the current price of an identical instrument can be used as an input into valuation of the financial instrument if an active market for the instrument does not exist. Where the inputs used in the valuation are observable, the fair value measurement would be classified as a level 2 measurement. If the inputs into the valuation are not observable or if observable inputs require significant adjustments based on unobservable inputs, the measurement will be classified as a level 3 measurement of fair value. Examples of observable inputs include (KPMG, December 2009):

- Transaction prices in markets which are not active for similar, but not identical instruments.
- Quoted prices in active markets for similar, but not identical instruments.
- Interest rates derived from bond prices

Examples of unobservable inputs include (KPMG, December 2009):

- Interest rates in a currency that are not observable and cannot be corroborated by observable market data for the term of the financial instrument being valued.
- Volatility of a share option derived from the shares historical prices, as it does not generally represent current market expectations about future volatility.
- A credit risk adjustment based on historical data on credit losses.

Prior to the amendments to IFRS7 as discussed above, a simple general disclosure of the methods and assumptions used to value finical instruments would have sufficed. However, IFRS7 now requires this explanation for each

class of financial instrument; it also requires full disclosure of changes in valuation techniques, stating the reasons for such changes.

As would be expected, level 3 measurements require a significant amount of disclosure; these include reconciliations from beginning balances to closing balances, transfers in and out of level 3 and reasons for these transfers, an explanation of gains and losses recognized in profit and loss and the effect of changes to one or more inputs used in the fair value measurements (sensitivity analysis).

An illustration of the commonly held instruments is depicted fig 3 and 4 (adapted, PWC, (2009)

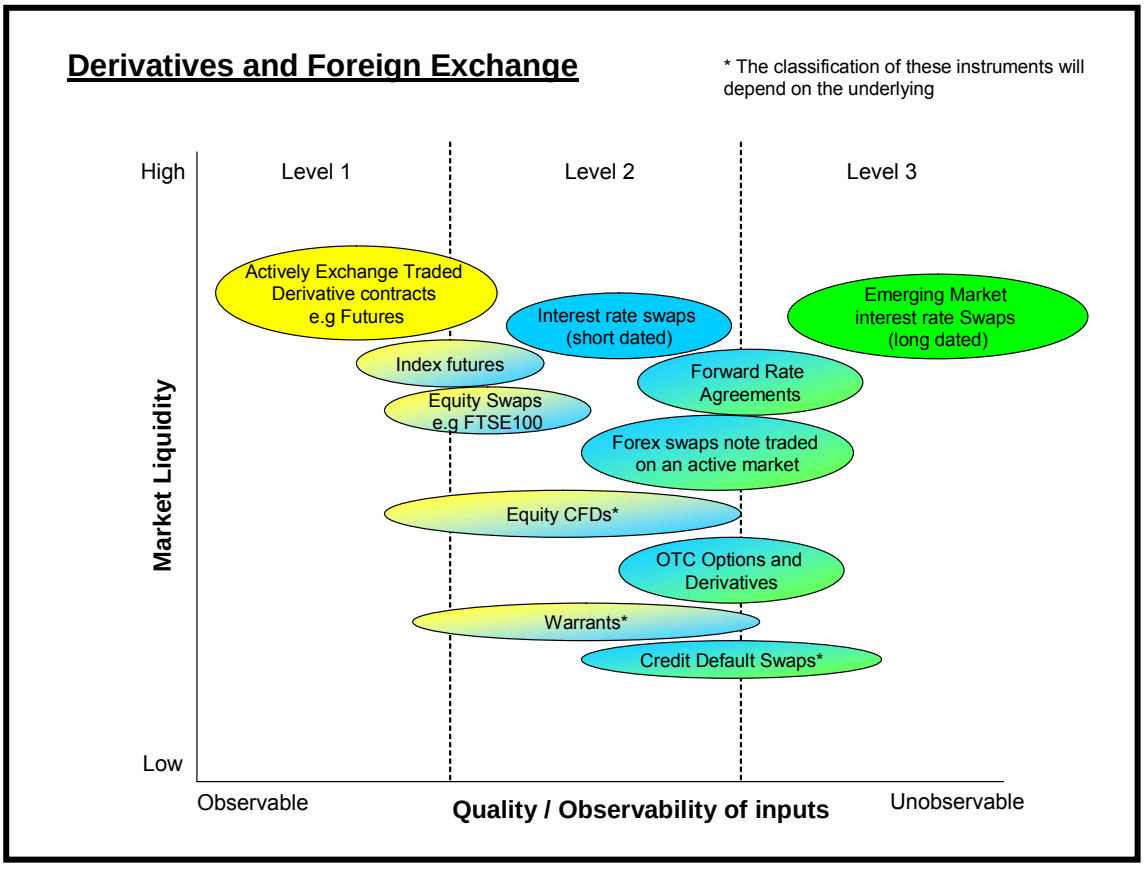

Fig. 3

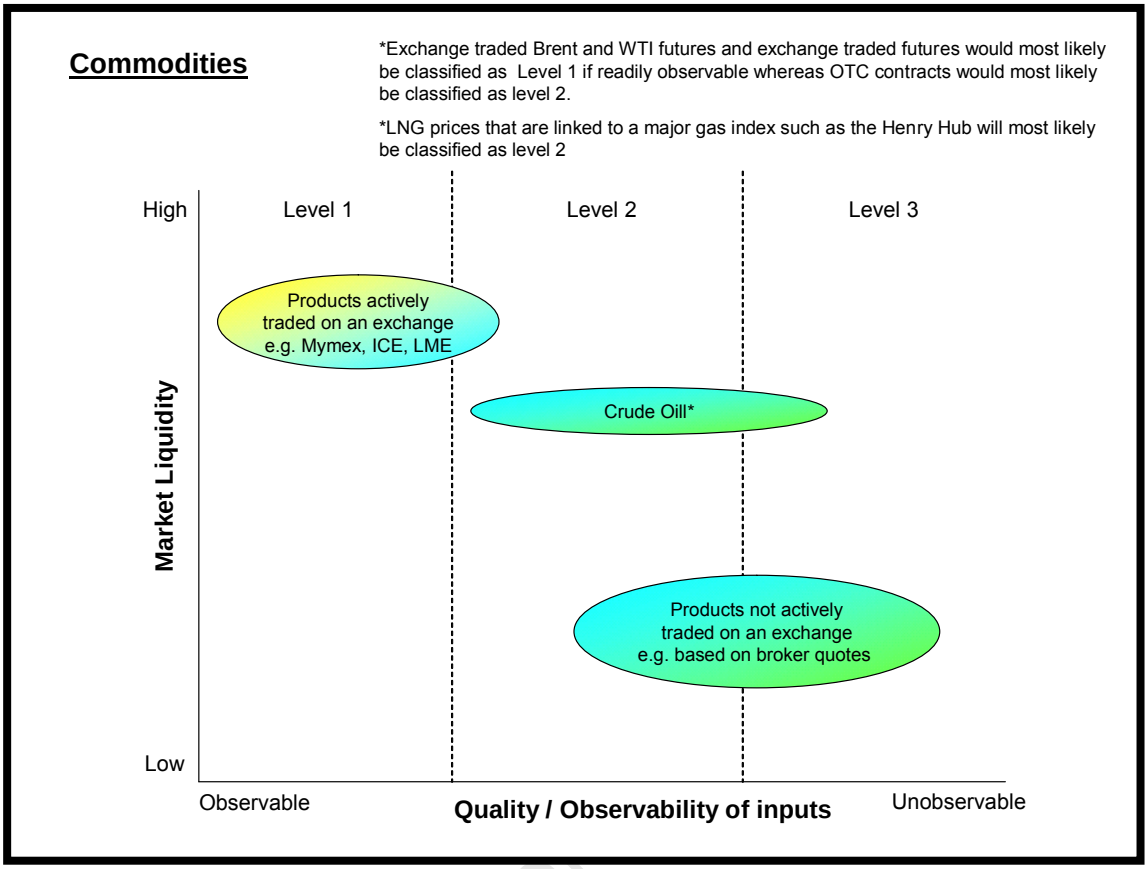

Fig. 4

Subsequent to the release of IFRS7 the Financial Accounting Standards Board (US) released a Financial Accounting Standard statement, FASB No.161 – Disclosures about derivative Instruments and Hedging Activities which served as an amendment to FASB 133 (FASB, Journal of Accountancy, June 2008). The amendment was deemed necessary for the very same reasons that IFRS7 was deemed necessary. It was felt that the existing statement, FASB 133, which dealt with Accounting for derivative Instruments and hedging activities, did not provide adequate information on how derivatives and hedging activities affected the company's financial position, financial performance and cash flows. The amended statement called for enhanced disclosure of the company's derivative and hedging activities, aimed at improving the transparency of financial reporting.

The enhanced disclosure pertained to:

- How and why a company use derivatives instruments
- How derivative instruments and their related hedged items are accounted for under FASB133
- How derivative instruments and its hedged items affect the company's financial position, financial performance and cash flow.

The FASB hopes that this amendment of FASB 133 would better convey the purpose of derivative use by companies i.e. highlighting which risks the derivative is intended to manage or mitigate. It requires complete information about the fair values of derivative instruments and their gains and losses. It requires complete information on the impact on the company's liquidity from using derivatives and it requires clear cross-referencing between the financial statements and notes thereto to assist users of financial statement to locate important information about derivatives use.

The difference between FASB 161 and IFRS7 relates to the scope of the two statements; IFRS7 has a wider scope than FASB 161. The scope of IFRS7 includes all financial instruments whilst FASB 161 only addresses derivative instruments. There is still therefore some way to go before the two statements converge.

Finally, it has been suggested at in the introduction to this paper that a common global accounting standard would not necessarily make for easier comparative studies on the use of derivatives by companies in different countries. Erlend and Nobes (2010) support this assertion. Their research proves that in no less than sixteen different areas there is wide range of interpretation of IFRS in different countries. Indeed, they assert that IFRS facilitates this tendency by allowing flexibility in its interpretation which leads to many companies reverting to what the authors refer to as "national versions for IFRS practice" (Erlend,and Nobes, 2010, p. 173). Their study shows that companies extensively use the opportunity

to revert to pre-IFRS practices which are aligned to their national Generally Accepted Accounting Practices. As a result, full international comparability is not yet possible and would not be as long as accounting standards contain options and require the use of judgment. It is therefore questionable whether the introduction of IFRS7 will make future comparative studies on the use of derivatives easier if such studies are based on that which is reported in annual financial statements.

4. HYPOTHESES

Number 1:

The findings of the majority of the studies referred to in the literature review support the view that derivatives use is strongly correlated with the size of the company, most commonly measured in terms of turnover or market capitalisation. The chosen sample of companies in this study i.e. the smallest companies on the main board of the Johannesburg Stock Exchange (JSE) as well as the companies on ALTX, represent the companies with lowest market capitalisation.

The percentage of companies reporting the use of derivatives for risk management purposes will be in line with the international experience of use among small companies.

Number 2:

Further to the findings under the literature review, there is evidence that supports the view that companies in the primary sector that use derivatives do so primarily to manage risks against commodity price exposure with the instruments of choice for these companies tending toward the use of futures and forwards.

Companies within the primary sector in the chosen sample who use derivatives will do so primarily for the purposes of hedging against

commodity price risk exposure with the instrument of choice tending toward futures and forwards.

Number 3:

With South Africa having a relatively small but open economy, we expect the level of imports and exports by companies within the manufacturing sector in particular, but not necessarily confined to the manufacturing sector, to contribute to a high rate of exposure to foreign currency price risk. The instrument of choice for most companies as outlined in the literature review was forwards, mostly OTC forwards.

Companies reporting the use of derivatives within the manufacturing sector will do so primarily for the management of exchange rate exposure with the instrument of choice tending toward OTC forwards.

Number 4:

Almost 100% of companies who report the use of derivatives to manage interest rate exposure have a tendency toward Swaps as an instrument of choice.

Companies reporting the use of derivatives for the management of interest rate exposure will record Swaps as their instrument of choice.

5. METHODOLOGY

As stated in the literature review, Bodnar, Hayt, Marston, and Smithson, (1995) conducted a postal survey of derivatives and risk management practices by US non-financial companies. Many of the studies that followed used the same format, with a few exceptions being a review of derivatives use in Taiwan, Singapore and Hong Kong. The study of markets in Taiwan which was carried out by Shu and Chen and published in the Review of Pacific Basin Financial Markets and Policies, Vol. 6, No.4 of 2003 was based on a review of financial reports of non financial companies during the period 1997 to 1999. Although

based on the format of the Wharton School surveys, the study differs from the study by Sheedy (2006) differs in that one-on-one interviews were conducted with representatives of companies instead of questionnaires being sent through the postal service. These subtle differences in approach could potentially have a significant impact on the outcome of the surveys. For example, a review of annual financial statements would not offer any significant insight into why companies choose not to use derivatives or which concerns about derivatives use rank uppermost in the minds of decision makers. On the other hand, personal interviews may facilitate a more informed view on these issues.

The approach taken in thus study was to review the use of derivatives by selected companies on the main board of the Johannesburg Stock Exchange (JSE) as well as the companies listed on the Alternative Index (ALTX) of the JSE by reviewing their Annual Financial Statements for the periods 2008 and 2009. The initial sample of companies selected was based on a ranking of companies in terms of market capitalisation; the sample selected has a market capitalisation below R1bn; based on the benchmarks set by the Wharton studies, these companies would fall within their classification of “small” companies.

In analysing the sample cognisance was taken of movements in the market pertaining to new listings, de-listings, company suspensions from the board and name changes. A summary of these changes is given in tables 8, 9, 10 and 11.

These changes meant that…

- Some new companies would not be included in the final sample because data for the relevant period would not be available.
- Some of the companies that were delisted could not be included in the final sample due to lack of available data.
- Some of the companies suspended may not have had data for the relevant period and were possibly suspended due to lack of compliance with JSE rules on publishing this data. The lack of availability of data for the relevant period

does not apply to all suspended companies; some may have published data even if just in an abridged format. Companies suspended before 2008 were not considered in the final sample.

Table 8:

***New Company Listings (Jan 2009 – Dec 2010)**

Short name	Full name	Sector	Date
RGT SMART	RGT Smart Market Intelligence Limited	Altx	15 Apr 2010
UBUBELE	Ububele Holdings Limited	Altx	11 Nov 2009
PALCAP	Paladin Capital Limited	Altx	01 Sept 2009
NEPI	New Europe Property Investments plc	Real Estate Investment and Services	17 Apr. 2009

- *Only new listings relevant to the chosen sample are recorded*

Table 9:

***De-listings (Jan 2009 – Dec 2010)**

Full Name	Date
ABE Construction Chemicals limited	27 Sep 2010
Good Hope Diamonds (Kimberly) Limited	1 October 2010
Kimberley Consolidated Mining Limited	5 Nov 2010 / 08 Nov 2010

***** *Only De- listings relevant to the chosen sample are recorded*

Table 10:

***Suspended Companies**

Full Name	Date
AG Industries Limited	30 Nov 2010
Alliance mining Corporation Limited	1 Oct 2009
Beget Holdings Limited	4 Aug 2010
Best Cut Limited	7 Dec 2009
Bonatla Property Holdings	22 Nov 2010

Table 10 (continued) * Suspended Companies	
Command Holdings	2 Aug 2010
Corwil Investments	8 Sep 2005
Decillion Limited	1 Dec 2009
Faritec Holdings	30 Apr 2010
Industrial Credit Company Africa Holdings Limited	1 Aug 2008
Intertrading Limited	11 Nov 2010
JCI	1 Aug 2005
M Cubed Holdings Limited	13 Jul 2007
New Africa Investments	17 Aug 2006
Pamodzi Gold Limited	23 Mar 2009
Queensgate Hotels and Leisure	15 Apr 2010
Saambou Holdings Limited	11 Feb 2002
SA Coal Mining Company Holdings Limited	2 Jul 2010
Square One Solutions Group Limited	19 may 2010
Thabex Limited	22 Jun 2010

* *Only suspensions relevant to the chosen sample are recorded*

Table 11 *Companies re-named (Jan 2009- Dec2010)		
Old name	**New name**	**Date**
Absolute Holdings	Bauba Platinum limited	**16 Sep 2010**
Buildworks Group limited	Con. Infrastructure Group Limited	**3 Sep 2010**
Cenmag Holdings	Capricorm Investment Holdings Limited	**20 Dec 2010**
Dynamic cables RSA Limited	Cape Empowerment Limited	**21 May 2010**
Finbond Property Finance Limited	Finbond Group Limited	**7 Sep 2009**
Placecol Holdings Limited	**Skinwell Holdings Limited**	**27 Jul 2009**

* *Only name changes relevant to the chosen sample are recorded*

After considering all these movements the sample of companies that were subjected to review totalled 104. These companies are listed in tables 12, 13 and 14 below. 15% of the companies in the sample are classified under the Primary Sector, 28% under the Manufacturing sector and 57% under the Services sector.

Table 12 : Companies in the Primary Sector	
Absolute Hold (Bauba Platinum)	Sacoil Holding L
African Eagle Resources Plc	South African Coal Mining Holdings Ltd
Alliance Mining	Thabex Ltd
Chrometco Limited	Ububele Holdings Limited
Diamondcorp Plc	Village Main Reef Gold Mining Company
Kimberley Consolidated Mining Ltd	White Water Resources Ltd
Randgold & Exploration	

Table 13: Companies in the Manufacturing Sector	
Abe Construction Chemicals Limited	Consolidate Infrastructure Group
Accentuate Limited	Ellies Holdings Limited
Africa Cellular Towers Limited	Imuniti Holdings Limited
African Brick Centre Limited	IPSA Group Plc
Ag Industries Ltd	Kairos Industrial
AH-Vest Ltd	O-Line Holdings Limited
Awethu Breweries	Quantum Property Group Limited
B&W Instrumentation & Electrical Ld	Racec Group Limited
Beget Holdings Limited	Rare Holdings Limited
Beige Holdings Limited	RBA Holdings Limited
Bioscience Brand	Rolfes Technology Holdings Limited
Brikor Limited	Spanjaard Ltd
BSI Steel Limited	Stella Vista Technology
Calgro M3 Holdings	W G Wearne Limited
Chemical Specialities Limited	William Tell Holdings Limited
Poynting Holdings Limited	

Table 14: Companies in the Services Sector	
1time Holdings Limited	John Daniel Hold
Adaptit Holdings	MAS Plc
African Dawn Capital Limited	Merchant & Indus
Alert Steel Holdings Limited	Money Web Holdings Limited
Andulela Investment	New CPA
Ansys Limited	New Europe Property Investments Plc
Blue Financial Services Limited	Nictus Ltd
Bonatla Property	Oasis Crescent Property Fund
Cape Empowerment Ltd	Paladin Capital Limited
Capricorn Holdings Ltd	Primeserv Group
Colliers South A	PSV Holdings Limited
Command Holdings	Queensgate Hotels & Leisure Limited
Dialogue Group Holdings Limited	S A French Limited
Decillion Ltd	Santova Logistics Limited
Erbacon Investment Holdings Limited	Silverbridge Holdings Limited
Faritec Holdings	Simeka Business Group Limited
Finbond Group Limited	Skinwell Holdings Limited
Foneworx Holdings Limited	Southern Electrical Company Ltd
Foord Compass Ltd	Spescom Ltd
Gooderson Leisure Corporation Ltd	Square One Solutions
Hardware Warehouse Limited	Stratcorp Limited
Huge Group Limited	Taste Holdings Limited
Ideco Group Limited	Telemasters Holdings Limited
IFCA Technologies Limited	Top Fix Holdings Limited
Indequity Group	Total Client Services Limited
Insimbi Refractory & Alloy Sup Ltd	Vox Telecom Limited
Intertrading Ltd	Vunani Limited
Interwaste Holdings Limited	Workforce Holdings Limited
Iquad Group Limited	Zaptronix Limited
Isa Holdings Limited	Onelogix Group Limited

A review of the financial statements was done with the objective of finding out which of these companies used derivatives for risk management purposes. The types of derivatives considered included Swaps, Forwards, Options and Futures.

In this regard the focus of the review is aligned with studies referred to in the literature review. The types of risks considered in the review included Interest rate risks, commodity price risks, currency risks and equity risks. Similarly, this approach is aligned to the reviews referred to in the literature review. Where companies have indicated the used of derivatives for risk management purposes, the review tried to identify the fair value of the derivatives held at the end of 2009.

In addition to the above, the review also tried to identify the sectors in which the companies are classified. The sector classification used is in line with the approach by studies referred to in the literature review; these were classified as Primary sector, Manufacturing and Services sectors.

Finally, the review tried to identify which companies had issued employee share options and where this has been done, what the dilutive effect of share options were as at end of 2009.

6. RESULTS

Analysis of the sample

57% of the companies in the chosen sample were classified under the Services sector, with the manufacturing sector being represented by 30% and the primary sector by 13% ***(see figure 5).*** The total market capitalisation for the companies under review is R18 944m made up of R13 019m (69%) from the Services sector, R3 584m (19%) from the manufacturing sector and R2 341m (12%) from the primary sector. The bulk of the sample of companies under review is therefore made up of the Services sector in both number and value. As outlined in the literature review, the tendency for companies in the service sector to use derivatives is relatively low compared to that of other sectors, the only exception being New Zealand where manufacturing and primary sector is relatively small. One would expect the same trend of derivatives use in the services sector to be revealed in South Africa; given the Services sector makes up such a high percentage of the sample under review, it would be expected that there would be

a low percentage of companies reporting the use of derivatives within the chosen sample of companies.

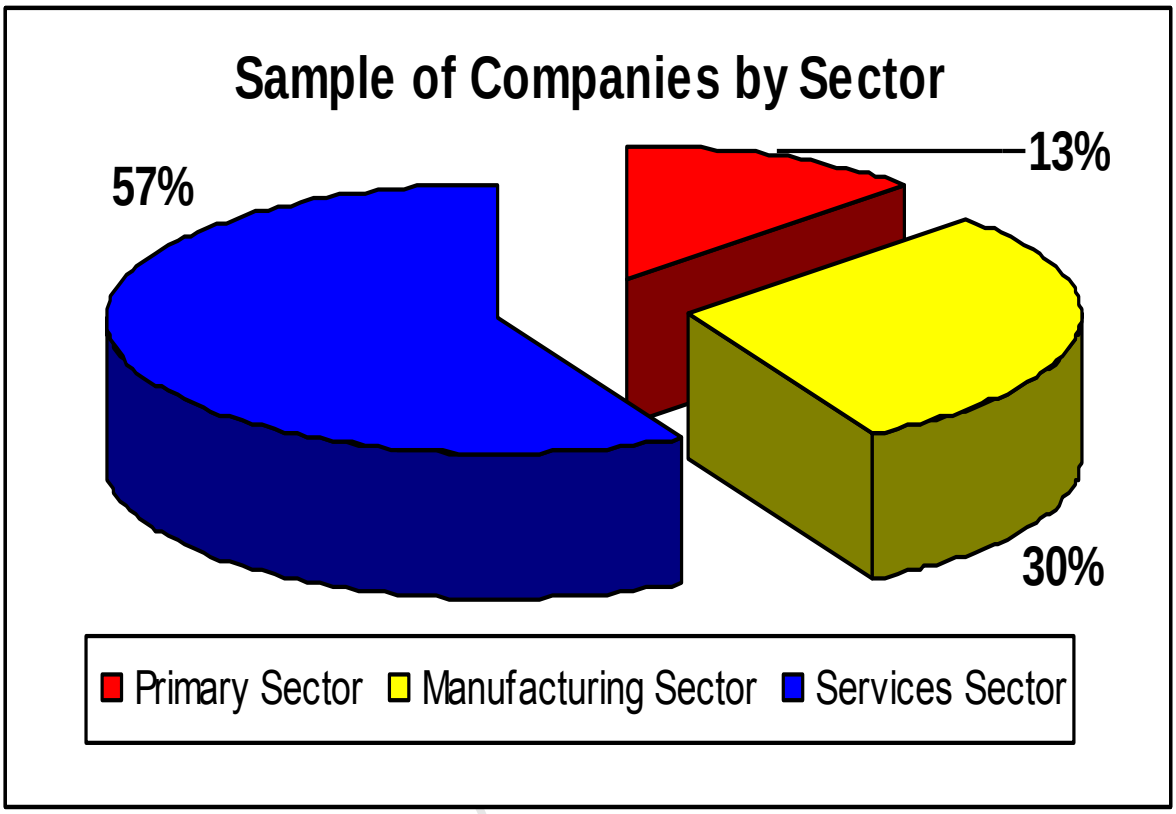

Figure 5

Analysis of derivative use by company size

This study, being confined to a focus on "small companies", will not be commenting on derivatives use by medium and large companies. ***Figure 6*** show the market capitalisation of the sample of companies under review together with an indication of the companies that engage in derivative use (The vertical bars are an indication of companies using derivatives; ignore the value of the bars, this was just arbitrarily chosen so that the points representing companies engaged in derivative use stands out). It is evident from the graph that the bulk of derivatives use is among the relatively small companies. 56% of the sample that use derivatives have a market capitalisation lower than R100m (Indicate by "A" in figure 4) and 89%t of those that use derivatives have a market capitalisation

lower than R200m (Indicated by “B” in figure 4). Only 2 companies with a market capitalisation above R200m are engaged in derivatives use.

One of these two companies is a manufacturing company, BSI Steel Ltd, with a market capitalisation of R506m. BSI Steel Ltd is a group of companies which operates in the steel and associated industries with operations in South Africa, the Democratic Republic of Congo (DRC), Zimbabwe and Zambia. The South African and Zimbabwean operations focus on the manufacturing and construction industries, whilst the Zambian and DRC companies are largely focused towards mining. The nature of its business opens the companies up to foreign exchange exposure; hence the use of derivatives, mainly currency forwards, to manage this risk.

The second company is Ubulele Holdings. Ububele’s business revolves around beneficiation within the Agricultural sector. The company supplies crop protection compounds to farmers which aids the protection of crops and facilitates the maximization output. The company then acquires produce from these farmers for supply to hotels, airline caterers, restaurants and supermarkets. It has a growing export market in the Southern African Development Community (SADC) countries and the Far East and is currently targeting exports to Europe where it assumes it would have a cost advantage given Europe’s high labour costs. As with BSI Steel, the nature of its business opens the company up to foreign exchange exposure; hence the use of derivatives, mainly currency forwards, to manage this risk.

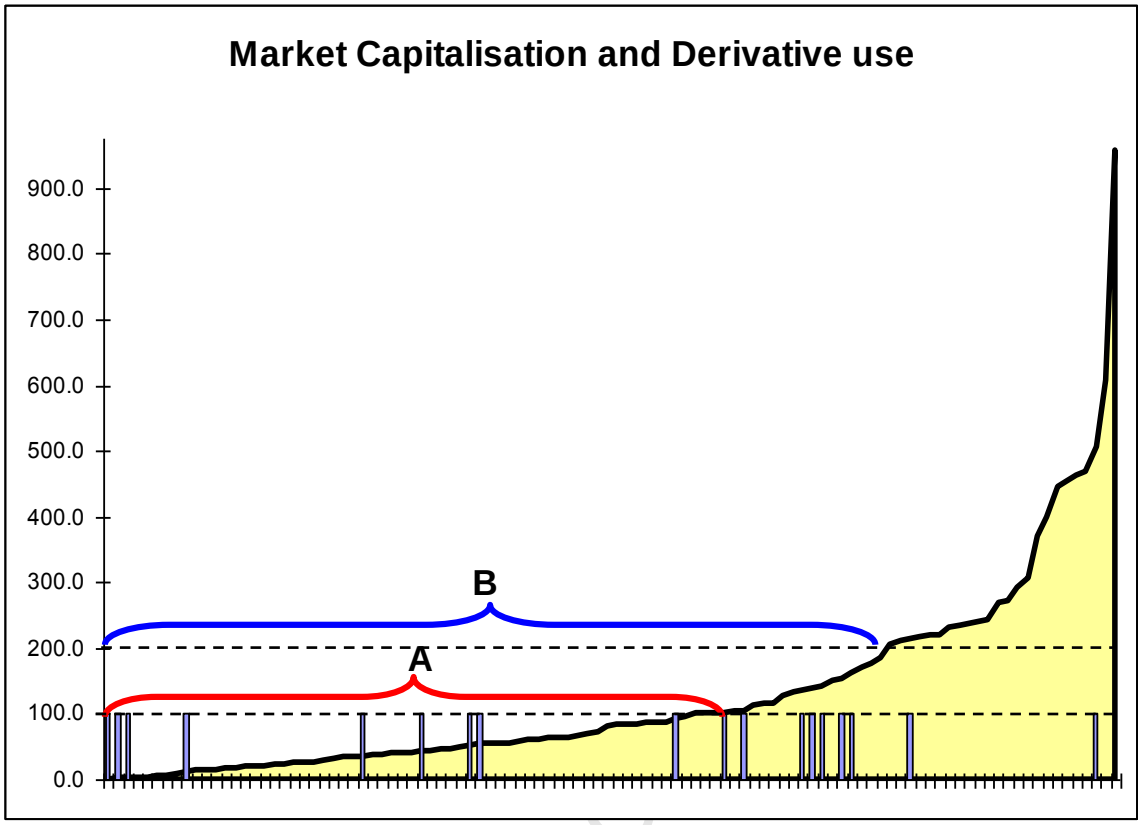

Figure 6

This is a surprising outcome since one would expect the relatively larger companies to have greater exposure and therefore a greater demand for derivatives to manage this exposure. The majority of companies in the sample set are exposed to interest rate and foreign currency risk. The 83% of companies that do not use derivatives (***see figure 7***), are exposed to varying degrees, to interest rate and currency risks, but the chosen strategy would be to accept the financial impact of these risks. 100% of companies were found to be compliant with IFRS disclosure requirements pertaining to these risks. These disclosures include a sensitivity analysis of the impact of movements in interest and exchange rates. With only 13% of companies in the sample making up the Primary sector, the low rate of use of derivatives to manage commodity price risk is not surprising, especially considering that most of the companies in this sector are in an early exploration phase or are attempts at re-habilitating old mines.

Analysis of derivative use by size and sector

As indicated, 17% of the companies under review reported the use of derivatives in their AFS ***(see figure 7)***. This is comparable to the finding by Bodnar, Hayt, Marston and Smithson, in their 1994, 1995 and 1998 surveys where between 12% and 13%.of companies classified as small companies reported the use of derivatives. However, this is significantly lower than the percentage reported by Bodnar, de Jong, and Macrae (2003) for the Netherlands (42%), Berkman, Bradbury and Magan (1997) for New Zealand (36%), Sheedy (2002) for Hong Kong (68%) and Singapore (55%), Alkeback, Hagelin, and Pramborg, (2006) for Sweden (34%), Bailly, Browne, Hick, and Skerrat (2003) for the UK (97%), Mallin, Ow-Yong, and Reynolds, (2001) for the UK (100%) and De Ceuster, Durinck, Laveren, and Lodewyckx, (2000) for Belgium (37%).

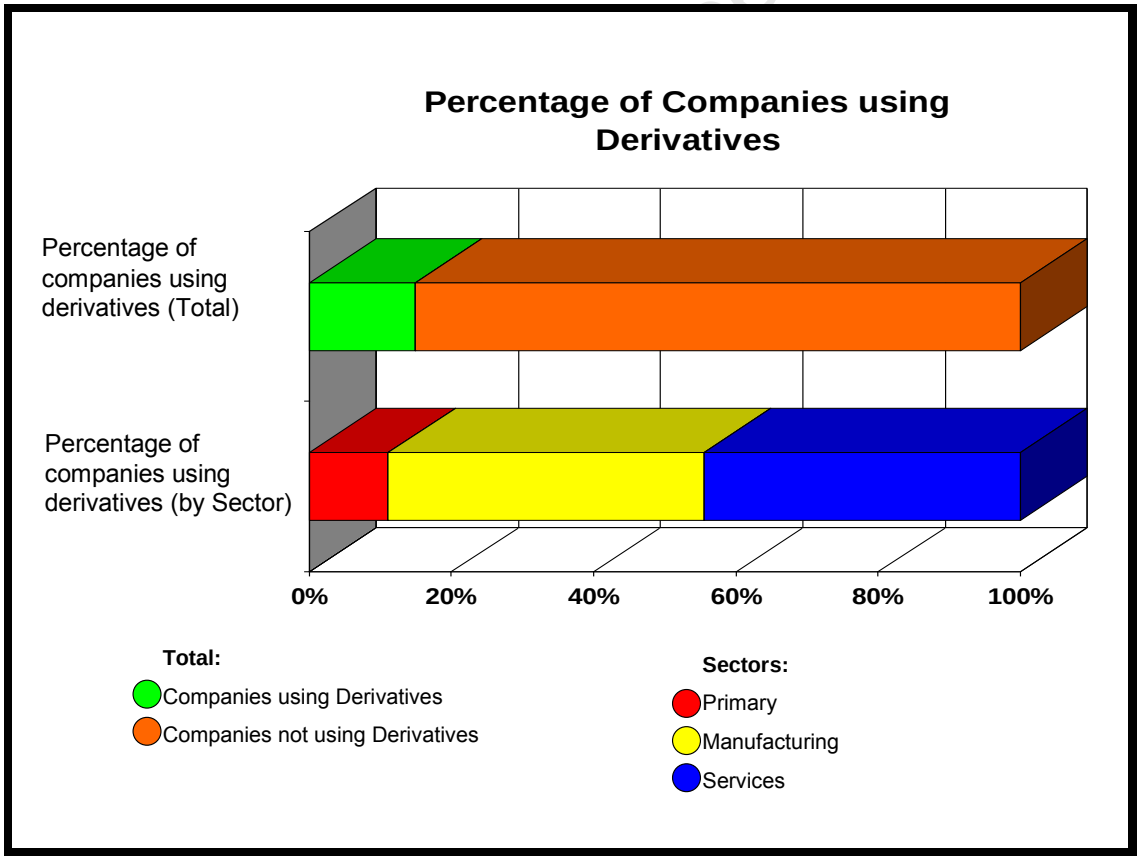

Figure 7

The relatively lower percentage of derivatives usage for this company size for South Africa should not be surprising given the heavy weighting of the Services sector in the sample. As explained, derivates use with the Services sector was generally found to be relatively low in most of the studies reported on in the literature review. The trend in South Africa is therefore not different to that experienced in other countries.

Of the companies that were identified as users of derivatives 11.1% are within the Primary sector, and 44.4% in each of the Manufacturing and Services sector. Since the focus of this study is restricted to small companies, a direct comparison of the used of derivatives by sector with earlier studies referred to in the literature review is not possible; these studies have carried out the analysis by sector on all companies that use derivatives without making reference to the size of the company. However, if considered in conjunction with the distribution of companies by sector within the sample, it is evident that the intensity of derivatives use is highest in the Manufacturing sector; whilst representing just 30% of the companies within the sample, the number of companies using derivatives in the manufacturing sector is equal to that of the Services sector which makes up 57% of the sample. It may become evident in the analysis of the types of derivatives used, why this level of intensity is or derivatives use is prevalent in the manufacturing sector.

Use of derivatives by instrument and financial price risk

Table 15 and ***figure 8*** below show that there is an overwhelming preference among users of derivatives for Forwards as an instrument of choice for the management of foreign exchange price risk. Of the companies that use derivatives, 89% use derivatives to manage foreign exchange exposure, 11% use derivative to manage equity exposure and 5% use derivatives to manage interest rate exposure.

Table 15: Derivatives use by instrument and financial price risk				
Derivative Instrument	**Interest Rate**	**Foreign Exchange**	**Commodity**	**Equity**
Swaps	1	0	0	0
Forwards	0	16	0	0
Options	0	1	0	2
Futures	0	0	0	0

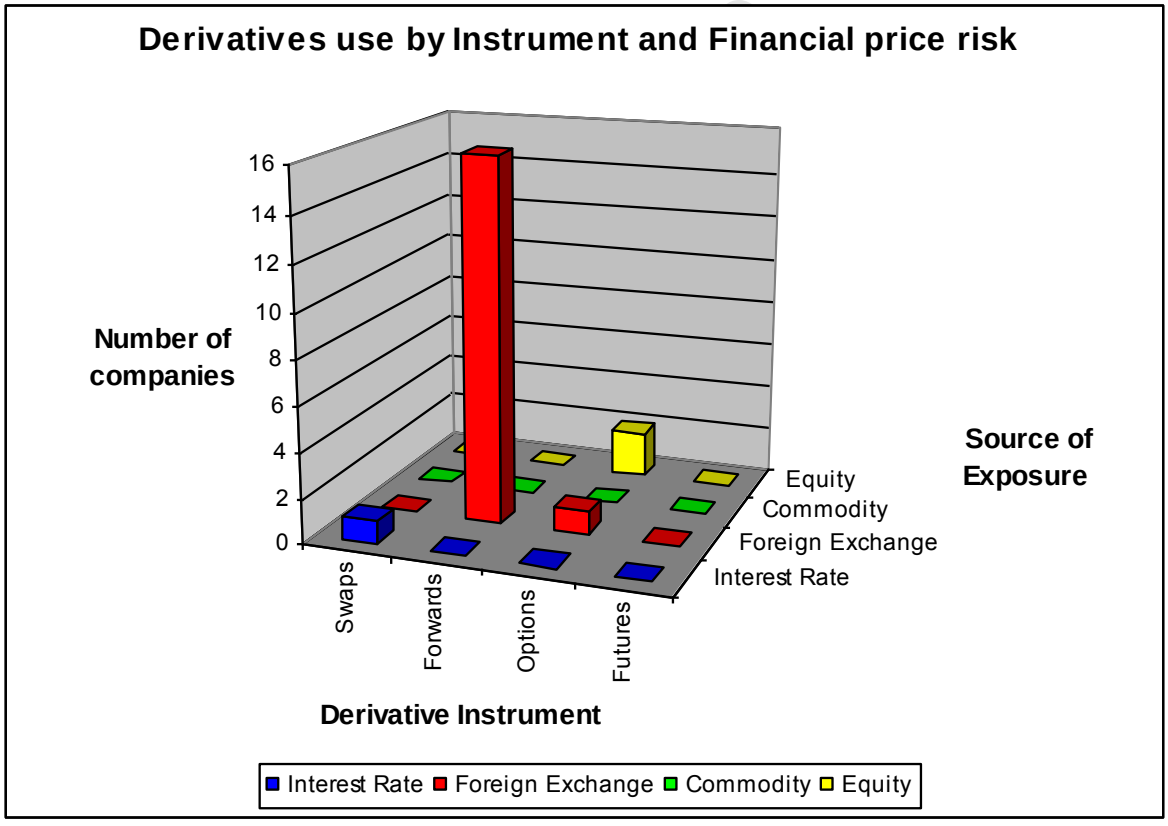

Figure 8

Of the companies that make use of derivatives to manage foreign exchange exposure 94% make use of Forwards and 6% make use of Options. Of those companies that make use of derivatives to manage Equity and Interest rate exposure, 100% make use of options and swaps respectively.

Of the companies engaged in the use of Forwards for the management of Foreign Exchange risk, 50% (8) are engaged in operations within the Manufacturing sector that is characterised by a degree import and export activity; 38% (6) are engaged in either Investment or Financial services of which there is a degree of off-shore activity. The high percentage demand for instruments to manage foreign exchange exposure is not surprising given the finding by Bodnar and Gerhardt (1999), Bodna Bodnar, Hayt, de Jong and Macrae (2003), Berkman, Bradbury, and Magan(1997), Sheedy (2002) and Alkeback, Hagelin, and Pramborg (2006) that the nature of the economies of the countries subjected to their study, being small and open economies, was a primary driver for the demand for derivatives to manage Foreign Exchange exposure. South Africa had an import and export ratio to GDP of 28.3% and 27.4% respectively at the end of 2009. These ratios were as high as 35.6% and 38.6% the year before ***(see figure 9.)*** 25% of South Africa's exports are destined to Germany, the UK and the USA and 24% of its imports come from these countries. It is therefore not surprising that the companies in the sample show the highest foreign exchange exposure to the US Dollar, the British Pound and the Euro (SARB Quarterly Bulletin, No 258 December, 2010). .

South Africa can therefore be considered to have a relatively open economy, and hence the high demand for derivative instruments to manage foreign exchange exposure. This is evident at among these small companies and may be more pronounced among medium and large companies.

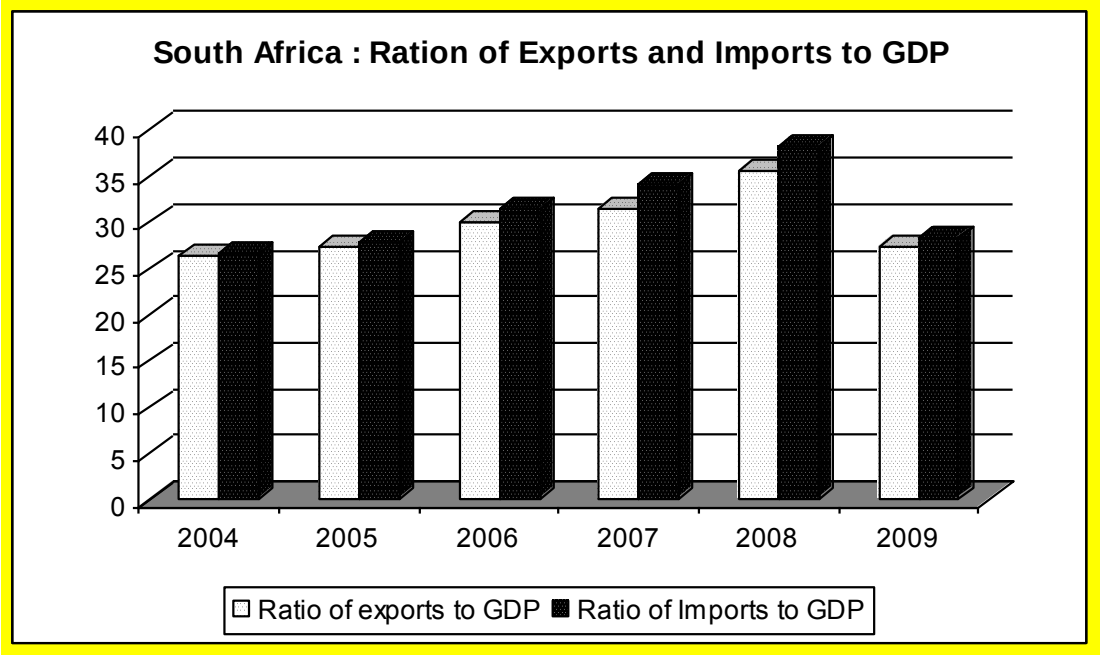

Figure 9

One of the surprising findings was the lack of derivatives use by **1 time Airlines** given the significant exposure to foreign exchange risk. Whilst the strengthening of the Rand against the US Dollar translated to a R16,6 million foreign exchange gain for the company during the 2009 financial year, the company also suffered a foreign currency based aircraft valuation impairment loss of R50,5 million which resulted in net loss on foreign exchange.

One biggest cost which the airlines are exposed to is the price of fuel. Many of the larger airlines are known to have hedging strategies in place to mitigate against adverse movements in the cost of fuel. A review of the trend in crude oil price versus the Rand / US Dollar exchange rate for 2009 as outlined in ***figure 10*** shows that the SA Rand has strengthened significantly in 2009. This would have softened the impact of the rising crude oil price for the same period. If this is a sustainable trend in crude oil price vs. the R/$ exchange rate, then the airline may have a natural hedge against adverse movements in the fuel price. However, there is no evidence to suggest that these trends are sustainable, so it

remains debatable why the airline would not have chosen to actively hedge its fuel price risk.

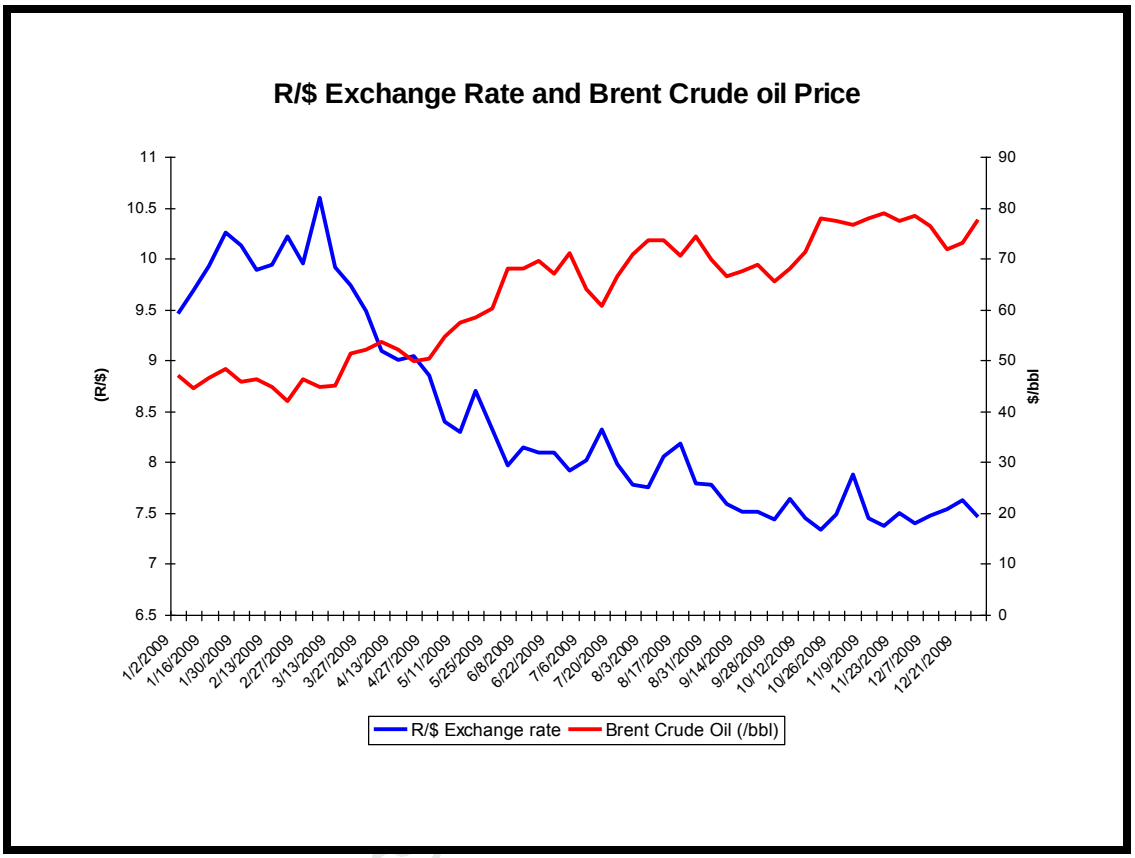

Figure 10

All companies reviewed, have reported on a sensitivity analysis with respect to interest rate exposure. The overwhelming majority of companies have considered the negative impact on earnings and cash flow emanating from adverse movements in interest rate to be insignificant. This could explain the low demand for derivative instruments to manage interest rate exposure.

The lack of demand for derivative instruments to measure commodity price exposure could be partially attributed to the fact that companies from this sector make up only 13% of the sample. However a review of the activity of the

companies in this sector shows that many of companies are engaged in the exploration end of mining activity rather than production. There is therefore no need at this early stage of the development of these companies to engage in extensive commodity price exposure management.

Companies using more than one derivative instrument

The review showed that 6 % of companies using derivatives use more than one derivative; all other companies using derivatives confine their use to one type of derivative instrument.

Companies issuing employee share options

20% of the companies under review have indicated in their Annual Financial Statements that they had issued an option to employees to purchase company shares. The dilutive impact of these shares is generally relatively small.

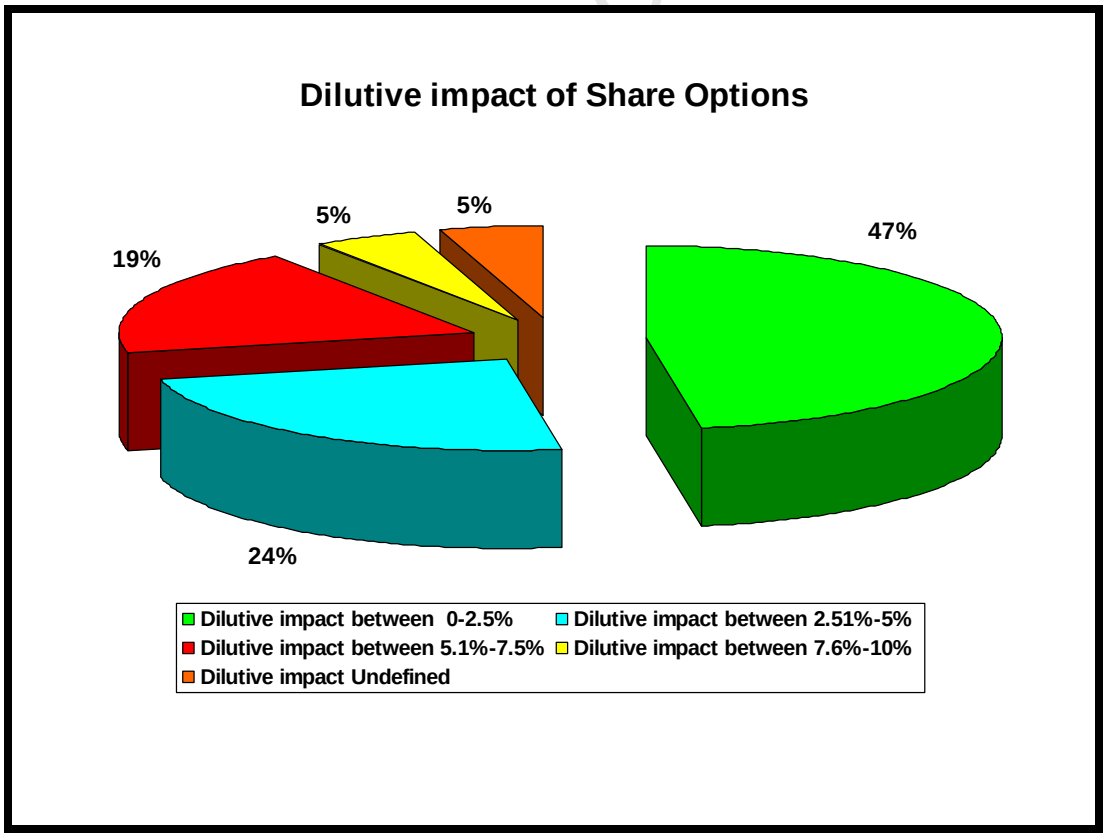

Figure 11

As shown in figure 9, 47% of companies who have issued these options show a dilutive impact below 2.5%, 24% show a dilutive impact between 2.51% and 5%, 19% show a dilutive impact between 5.1% and 7.5% and 5% show a dilutive impact between 7.6% and 10%. The dilutive impact for 1 company could not be ascertained due to lack of information.

7. CONCLUSION

The hypothesis adopted for this study set out to prove the following:

- That the percentage of companies reporting the use of derivatives for risk management purposes will be in line with the international experience of use among small companies.
- That those companies within the primary sector in the chosen sample that use derivatives will do so primarily for the purposes of hedge against commodity price risk exposure with the instrument of choice tending toward futures and forwards.
- That those companies reporting the use of derivatives within the manufacturing sector will show a do so primarily for the management of exchange rate exposure with the instrument of choice tending toward OTC forwards.
- That those companies reporting the use of derivatives for the management of interest rate exposure will record swaps as their instrument of choice.

The analysis shows that the percentage of companies reporting the use of derivatives for risk management purposes is in line with the international experience of use among small companies as indicated by Bodnar et al in their 1994, 1995 and 1998 surveys where between 12% and 13%. However, this is significantly lower than the percentage reported in other studies where percentage of small companies reporting the use of derivatives ranges between 34% and 68%. The percentage use of derivatives by small South African companies is therefore significantly lower than the general international trend.

The analysis does show that where derivatives are used the intensity of use is greatest within the manufacturing sector of the economy.

There is no evidence on the basis of this study to support the hypothesis that those companies within the primary sector in the chosen sample who use derivatives will do so primarily for the purposes of covering commodity price risk exposure with the instrument of choice tending toward futures and forwards.
However, this must be considered within context. The number of companies in the primary sector who would have been exposed to commodity price movement is limited. Of those companies in this sector that were theoretically exposed to commodity price risk, most companies operations were characterised by exploration rather than production activities. As a result, none of these companies reported a demand for derivatives to manage commodity price exposure.

This study supports the hypothesis that those companies reporting the use of derivatives within the manufacturing sector will do so primarily for the management of exchange rate exposure with the instrument of choice tending toward forwards. Of the companies that use derivatives, 89% use derivatives to manage foreign exchange exposure and 100% of these companies show a preference for Forwards as an instrument of choice.

The study shows that only a small percentage of companies use derivatives to manage interest rate risk (6%). 100% of these companies show a preference for swaps as an instrument of choice. Therefore, although the number of companies using derivatives to manage interest rate risk is relatively insignificant, the finding supports the hypothesis that 100% of these users will tend toward swaps as an instrument of choice.

8. REFERENCES

Alkeback, P. and Hagelin, N., (1999), Derivative usage by non-financial companies in Sweden with an international comparison, *Journal of International Financial Management and Accounting*, 10, 105-120

Alkeback, P., Hagelin, N. and Pramborg, B., (2006), Derivative usage by non-financial companies in Sweden 1996 and 2003: what has changed?, *Managerial Finance*, 32(2), 101-114

Bailly, N, Browne, D, Hick, E and Skerrat, L, (2003), "UK Corporate use of derivatives", The European Journal of Finance 9, 169-193

Bartram, S.M., Brown, G.W., and Fehle, F., (2009), International Evidence on Financial Derivatives Usage, *Financial Management*, 38(1), 185-206.

Berkman, H., Bradbury, M.E. and Magan, S., (1997), An international comparison of derivatives use, *Financial Management*, 26(4), 69-73

Bodnar, G.M. and Gebhardt, G., (1999), Derivatives usage in risk management by US and German non-financial companies: A comparative study, *Journal of International Financial Management and Accounting*, 10, 153-187

Bodnar, G.M., Hayt, G.S., Marston, R.C. and Smithson, C.W., (1995), Wharton survey of derivatives usage by US non-financial companies, *Financial Management,* 24(2), 104-114

Bodnar, G.M., Hayt, de Jong, A., and Macrae, V., (2003), The Impact of Institutional Differences on Derivatives Usage: a Comparative Study of US and Dutch Companies, *European Financial Management*, 9(3), 271-297.

Bodnar, G.M., Hayt, G.S. and Marston, R.C., (1996), 1995 Wharton survey of

derivatives usage by US non-financial companies, *Financial Management*, 25(4), 113-133.

Bodnar, G.M., Hayt, G.S. and Marston, R.C., (1998), 1998 Wharton survey of financial risk management by US non-financial companies, *Financial Management*, 27(4), 70-91.

De Ceuster, M.J.K., Durinck, E., Laveren, E. and Lodewyckx, J., (2000), ‘‘A survey into the use of derivatives by large non-financial companies operating in Belgium’’, *European Financial Management*, 6(3), 301-318

Earnest and Young, (2009) “US GAAP vs. IFRS: The Basics” November, 2009.

Erlend, K and Nobes, C, (2010) “International differences in IFRS policy choice: e research note” Accounting and Business Research, Vol.40.No. 2, p. 173-187.

GDP and Trade data extracted from http://www.reservebank.co.za/ on 19 February, 2011

Grant, K. and Marshall, A.P., (1997), Large UK companies and derivatives, *European Financial Management*, 3(2), 191-208

Hofstede, G, (1991), Cultures and Organisations: Software of the Mind, London: McGraw Hill, 1991.

Jalilvand, A. (1999), “Why Companies use derivatives: Evidence from Canada”, Canadian Journal of administrative Sciences, 1999, 213-227

Junior, J.L.R (2007), “The Use of Currency Derivatives by Brazilian Companies: An Empirical Investigation” Revista Brasileira de Financas 2007 Vol. 5, No. 2, pp. 205–232

Junior, J.L.R (2011), “Exchange Rate Exposure, Foreign Currency Debt, and the Use of Derivatives: Evidence from Brazil” Emerging Markets Finance & Trade / January–February 2011, Vol. 47, No. 1, pp. 67–89.

Lajili, K and Zeghal, D, (2005), “A Content Analysis of Risk management Disclosure in Canadian Annual Reports” Canadian journal of Administrative Sciences 22(2), p. 125-142

KPMG, (2006), “IFRS 7 for Corporates”, International Financial Reporting Standards, December 2006.

KPMG, (2009), “IFRS Practice Issues: Fair Value Hierarchy”, International Financial Reporting Standards, December 2009.

Mallin, C., Ow-Yong, K. and Reynolds, M., (2001), ‘‘Derivatives usage in UK non-financial listed companies’’, *European Journal of Finance*, 7(1), 63-91

Marsden, A and Prevost, A.K, (2005), “Derivatives use, corporate governance, and legislative change: An empirical analysis of new Zealand listed companies’, Journal of Business & Accounting, 32 (1) & (2), January/March 2005, p. 255-295

Prevost, A.K., Rose, L.C., and Miller, G., (2000), Derivatives Usage and Financial Risk Management in Large and Small Economies: A Comparative Analysis, *Journal of Business Finance & Accounting*, 27(5/6), 733-759

PWC, (2009), “Amendments to IFRS 7 – Guidance on Fair Value Hierarchy”, July 2009.

Schiozer R.F and Saito R, (2009), “The Determinants of Currency Risk Management in Latin American Nonfinancial Firms”, Emerging Markets Finance & Trade / January–February 2009, Vol. 45, No. 1, pp. 49–71.

Sheedy, E., (2006), “Corporate Risk Management in Hong Kong and Singapore”, *Managerial Finance*, 32(2), 89-100

Shu, P-G and Chen, H-C, (2003), ‘The determinants of derivatives use: evidence from non-financial companies in Taiwan”, Review of Pacific Basin Financial Marlkets and policies Vol 6, No. 4, 473-500.

SARB Quarterly Bulletin, No 258, December 2010.

Sprcic, D.M, (2007), “The use of derivatives as finacial risk management insruments; the case of Croatian and Slovenian non-finacila companies”, Finacial Theory and Practice 31 (4), 395-420

Stock Exchange Handbook, 2010 issue 1, Feb 2010 - May 2010, published by Profile media, Intrepid Printers, Pietermaritzburg, South Africa

Stock Exchange Handbook, 2010 issue 2, June 2010 – Sept 2010, published by Profile media, Intrepid Printers, Pietermaritzburg, South Africa

Stock Exchange Handbook, 2011 issue 1, Feb 2011 - May 2011, published by Profile media, Intrepid Printers, Pietermaritzburg, South Africa