

THE EFFECT OF EXPENSING SHARE-BASED PAYMENTS ON BASIC EARNINGS PER SHARE OF SOUTH AFRICAN LISTED COMPANIES

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ABSTRACT

Purpose – This study aims to investigate the post-implementation impact of expensing share-based payment transactions on basic earnings per share. In recent years, IFRS 2 was one of the most opposed and controversial standards issued by the IASB.

Design/methodology/approach – The sample relates to the period immediately after implementation (2006-2009) and consists of the 531 firm-year observations where share-based payments were present among Johannesburg Stock Exchange listed companies. The effect of share-based payments on basic earnings per share is assessed.

Findings – The findings of this study show a statistically significant impact on basic earnings per share, but the results are more modest than suggested by prior studies. The number of companies reporting a share-based payment expense increased over the five-year period 2005-2009.

Originality/value – The introduction of IFRS 2 caused small but not necessarily immaterial changes to the income profile of companies. This is important for analysts and general users of financial information who need to be aware of these changes. The results also suggest that IFRS 2 did not merely cause accounting policy changes, but has impacted on the way share-based payment transactions are used by companies.

KEY WORDS: basic earnings per share; earnings per share; IFRS 2; listed companies; share-based payment expense; share-based payment transaction; South Africa

1. Introduction

The accounting treatment of share-based payments (SBP), in particular employee share options, has been the cause of a debate among owners, investors, managers, auditors, capital market regulators and accounting standard setting bodies (Aboody, Barth and Kasznik, 2003). The debate focused on whether a SBP is an expense of the entity, whether it is a transaction among owners that needs to be expensed in the profit or loss, or whether it is a transaction among owners, warranting footnote disclosure only (Aboody *et al.*, 2003). The debate culminated in the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) in the United States of America (US) issuing IFRS 2: *Share-based Payment* (IFRS 2) and SFAS 123-R respectively during 2004. These standards determine that the value of a SBP is an expense of the entity and should therefore be expensed through profit or loss over the vesting period.

Entities often use shares or share options as compensation for goods or services received by the entity (equity-settled). The parties delivering the goods or services include employees (not only directors and executives, but all employees) and suppliers of goods or professional services. These transactions as well as the payment of cash in return for goods or services received by the entity, where the cash amount is based on the fair value of the equity instruments of the entity (cash-settled), constitute SBP transactions. The previous omission of this expense has caused corporate governance concerns. According to the basis for conclusions of IFRS 2 one of the reasons behind the change from disclosure to recognition of SBP transactions is to provide high quality transparent and comparable information to financial statement users.

The use of SBP, before the implementation of IFRS 2, gave managers and owners the ability to compensate employees at a rate higher than their normal remuneration package, without

diminishing profits and cash flows, in that the SBP transactions were not expensed. In line with the agency theory¹, share options serve as a tool to align the interests of shareholders and the efforts of the management and employees. Existing literature suggested that share options were used as a tool to align the interest of owners and management (Hall and Murphy, 2003; Watts and Zimmerman, 1990). If companies moved away from the use of share options it could reduce the effectiveness of compensation contracts as an incentive to achieve the goals of the company as set by management (Chalmers and Godfrey, 2005). Employee share options used as a compensation tool can also attract new employees or help to retain current employees (Basset, Koh and Tutticci, 2007).

Before the implementation of IFRS 2 companies had the opportunity to examine their equity incentive schemes to make sure that they have effectively linked the cost of these schemes for the company with the value perceived by the employees (recipients) (Landsberg, 2004). Managers had to reconsider how they communicated the negative effect of expensing SBP transactions according to the requirements of IFRS 2 on key performance ratios, to the market. Managers had to consider renegotiating their employment contracts with their employers (Chalmers and Godfrey, 2005).

Expensing the cost of SBP will diminish reported profits which, in turn will decrease earnings per share (EPS). When share options are issued to employees, potential claims on equity are given to employees with the result that existing shareholders' interests may be diluted (Aboody *et al.*, 2003). Existing shareholders of listed companies are concerned about the possible dilution of their ownership, as well as the possible dilutive effect on earnings per share (EPS) (Leahey and Zimmermann, 2007). IFRS 2 requires that SBP transactions should

¹ Agency theory focuses on the self interest of agents, which does not always align with the interests of principals. In accounting research, the agent is usually assumed to be the manager (e.g. CEO), whereas the principals are the shareholders. SBP plays a role in the alignment of manager and shareholder interests.

be expensed through profit or loss with a corresponding credit in equity if the transaction will be settled in equity instruments. According to IFRS 2 if the transaction will be settled using cash, the corresponding credit will be recognised as a liability. Equity instruments commonly used include equity shares and share options and are accounted for at grant date fair value (if the counter party is an employee) (Eaton and Prucyk, 2005). Commonly used liability instruments are share appreciation rights (SARs), mandatory redeemable shares and phantom shares.

The effect of expensing SBP transactions on EPS is twofold. The recognition of the SBP expense will reduce basic earnings that are used in the calculation of basic earnings per share (BEPS). The second effect is on the weighted average number of shares (WANOS) that is used in calculating BEPS. When the entity issues shares, the number of shares included in the BEPS calculation is increased. If, however, the entity issues share options or potential ordinary shares only those share options and potential ordinary shares that are regarded as dilutive will be included in the WANOS used in calculating diluted earnings per share (DEPS).

Crotty and Bonorchis (2006) conducted an executive pay survey in 2005 on South African companies. They found that on average chief executive officers of South African companies were on par or even better off than their counterparts in the US and the United Kingdom (UK) when comparing the size and value of their share option schemes. They also suggested that due to accounting rule changes (following IFRS 2 in future) the use of options would diminish in South Africa. This was also suggested by Balsam, O'Keefe and Wiedemer (2007) for companies in the US.

The fact that SBP now (under IFRS 2) reduce reported profits and EPS, may act as a disincentive for companies to continue with SBP. The objective of this study is to investigate

whether companies have continued to use share-based compensation since the implementation of IFRS 2 as well as to investigate the actual effect the mandatory expensing of SBP transactions had on BEPS. In the past managers could use options to enhance the remuneration of employees while simultaneously protecting operating cash flows and profits (Basset *et al.*, 2007). However, since the implementation of IFRS 2, both equity-settled and cash-settled SBP transactions affect profit or loss and therefore earnings used in the calculation of EPS. Pre-IFRS 2 implementation studies conducted in the US and Australia (Street and Cereola, 2004; Chalmers and Godfrey, 2005) suggested that the implementation of the expense requirement of IFRS 2 would have a negative impact on key performance measures, such as EPS, return on assets (ROA) and return on equity (ROE). It was therefore difficult to anticipate a positive or negative reaction by investors until further post-implementation studies had been performed. A post-implementation study conducted in Italy by Melis and Carta (2010) showed a material decrease in EPS because of the expense requirement during the 2004 and 2005 financial years. Street and Cereola (2004) stated that as post-implementation data became available more research would be needed to determine the impact of expense recognition on a broader range of companies and for more performance measures.

Previous studies focused only on options issued to senior management due to data constraints. This study looked at the full SBP expense recognised by listed companies in South Africa.

Expense recognition of SBP transactions has been mandatory for all constituents of the IASB and FASB for all financial periods starting on or after 1 January 2005. Therefore the SBP expense is available on financial databases. This study utilised the post-implementation IFRS 2 SBP expense data to determine the prevalence of the SBP expense and the impact of

the SBP expense on BEPS in the South African context. In this study, the authors used the SBP expense-item of companies listed on the All Share Index of the Johannesburg Securities Exchange (JSE) from 2005 to 2009, to determine the impact it had on BEPS. The authors calculated a pre-SBP BEPS figure and compared it with the BEPS figure disclosed by the company, which already included the SBP expense. We compared this actual effect with the effects forecast in prior literature, *i.e.* the Italian and British post-implementation studies performed by Melis and Carta (2010) and Shiwakoti and Rutherford (2010).

The current study, however, focused on BEPS only because the WANOS used in the calculation of DEPS had already been adjusted for the effect of potential ordinary shares and options due to SBP transactions. Due to data constraints it was not possible to eliminate the impact on WANOS used for DEPS. The pre-IFRS 2 implementation studies used DEPS to forecast the future effect due to SBP expense recognition on DEPS. However, the DEPS reported by the companies did not include the potentially dilutive effect on WANOS used for DEPS as these transactions were mostly treated off-balance sheet. Therefore the adjusted BEPS of this study are comparable to those performed before the implementation of IFRS 2.

The remainder of this article is structured as follows:

- Section 2 provides some background and information on the development of SBP related research both before and after the adoption of IFRS 2;
- Section 3 discusses the sample, methodology and variables;
- Section 4 discusses the results; and
- Section 5 summarises and concludes the article.

2. Literature review and theory development

2.1 Expensing SBP transactions

During 2004 the International Accounting Standards Board (IASB) issued the International Financial Reporting Standard 2: *Share-based Payment* (IFRS 2) effective for all annual financial periods beginning on or after 1 January 2005. IFRS 2 (2004) requires expense recognition for both equity-settled and cash-settled SBP transactions since the transactions are in essence the same. Both equity-settled and cash-settled SBP transactions to all employees are therefore conceptually treated equally: by recognising an expense through profit or loss that has an impact on the earnings used in the calculation of BEPS (Sacho and Wingard, 2004).

The opposition to the implementation of the expense requirement was due to the anticipated negative impact the SBP expense recognition would have on key performance measures. Previous research in the US suggested a material negative impact on key performance measures for large companies domiciled outside the US but with varying significance per country (Street and Cereola, 2004). Given the magnitude of the anticipated impact of expense recognition for non-US entities evident in the Street and Cereola (2004) research it was considered likely that investors would view the information regarding the SBP expense as relevant, but it was not clear whether their reaction would be positive or negative or to what extent the reaction would vary by industry or country. Aboody *et al.* (2004) however concluded that investors reacted positively after companies had announced that they were adopting the expensing of SBP transactions. Most of the existing literature (Aboody *et al.* (2004), Street and Cereola (2004) and Chalmers and Godfrey (2005)) on the SBP effect on EPS and other performance ratios focused on the period prior to the adoption of IFRS 2. These studies used assumed IFRS 2 expenses or amounts that were disclosed by companies in

the US to determine the possible future effect of IFRS 2. Melis and Carta (2010) suggested in a study conducted in Italy using post implementation SBP expense data that the average decrease in DEPS was 12.9% and that this represented a material decrease in DEPS for 28.3% of their sample firms. Listed companies in South Africa are on par with those in the US and the UK when comparing the use of SBP transactions (Crotty and Bonorchis, 2006), but the anticipated negative effect of expensing SBP transactions has not been determined through published research. This study aimed to add to the body of knowledge regarding the effect of implementing IFRS 2 in South Africa in that it investigate the full SBP expense recognised by listed companies in South Africa.

2.2 Pre-implementation studies in the US and Australia

During 2005 Chalmers and Godfrey extended the Street and Cereola (2004) study by investigating the impact of IFRS 2 on entities listed on the Australian Stock Exchange. The limitations of the disclosure requirements required by AASB 124 limited the study to only the effect of SBP transactions to directors and the top five executives (Chalmers and Godfrey, 2005) of Australian firms available on the Connect 4 database. The entities were from a diverse range of industries and growth stages in comparison with the Street and Cereola (2004) study that focused on non-US domiciled firms listed in the US and, as referenced by Chalmers and Godfrey (2005), the Botosan and Plumlee study that concentrated only on high growth companies in the US.

Australia, like South Africa, was one of the first countries to adopt International Financial Reporting Standards (IFRS) (Chalmers and Godfrey, 2005) and an assumption was made by Chalmers and Godfrey (2005) that Australian firms had had time to react to the then-impending implementation of IFRS 2. Chalmers and Godfrey (2005) had to rely on forecasted future SBP expenses, limited to the top five executives, to determine the effect

thereof on EPS. This study had the benefit of using the actual SBP expense recognised for all employees, including executives, to determine the effect expensing SBP transactions had on BEPS. The SBP expense used by the authors also included all equity-settled as well as cash-settled SBP transactions.

According to Chalmers and Godfrey (2005) a study in the US by Botosan and Plumlee found that expensing stock-based compensation would have a material effect on the key performance measures of the fastest growing US firms. Street and Cereola (2004) subsequently also used SFAS 123(R) to determine the average impact on non-US domiciled firms listed on US exchanges and found that the impact of expensing stock-based compensation schemes on DEPS would also be material and estimated the impact up to 40% on this measure. They also determined that the effect of expensing stock-based compensation transactions varied significantly by country.

Street and Cereola (2004) concluded that the effect of expensing stock options in accordance with the IFRS 2 requirements would have a median (mean) impact of 6.29% (41,19%) on DEPS if the requirements of IFRS 2 were to be applied. Chalmers and Godfrey (2005) found that the median impact of expensing share options on the Australian sample companies would be 3.18% on DEPS.

Chalmers and Godfrey (2005) suggested that the extent to which the results of their study applied to other countries was unclear and that future research could investigate the impact of IFRS 2 adoption across a range of countries.

South African companies like their US and UK counterparts make use of SBP transactions. This study therefore focused on the effects in South Africa as compared to those projected for Australia. The authors expected to find a significant impact on BEPS due to the mandatory expense recognition of SBP transactions in South Africa.

2.3 Post-implementation studies

In the US the Controllers' Leadership Roundtable, June 2006 survey (Leahey and Zimmermann, 2007) indicated that 39% of companies were changing how they used stock options since the introduction of SFAS 123. According to the Deloitte's 2005 Stock Compensation Survey 75% of public and private companies in the US, indicated that they planned to cut back on the use of share options in order to minimise the expense to be recognised in terms of SFAS 123 (Leahey and Zimmermann, 2007). In Australia, Chalmers and Godfrey (2005) also found that companies were moving away from using share options as a method of granting incentives to management and the top five executives.

According to Balsam *et al.* (2007) companies in the US reported an overall drop of 16% in the use of options for all employees since the introduction of SFAS 123. The effect on the use of options as a method of compensation in SBP transactions could result in a smaller than anticipated impact of IFRS 2 on performance measures, including the EPS, ROA and ROE, of an entity. It would therefore seem that although studies that were performed before the implementation of IFRS 2 had indicated that expensing SBP transactions would have a significantly negative impact on performance measures, like EPS, this effect could in fact be much smaller due to indications that companies were moving away from using these options due to the expense requirement of IFRS 2.

Melis and Carta (2010) investigated the impact of the mandatory adoption of IFRS 2 on Italian listed companies. Their findings suggested that the change in accounting regulation has helped to reveal the true cost of SBP transactions to non-controlling shareholders and other investors. The impact on listed Italian companies' DEPS was found to be moderate, although in some cases material. Expensing SBP transactions caused an average decrease in DEPS of 12.9% but the median change amounted to only 1.9%.

The above mentioned study was performed for the 2004 and 2005 annual reports and was impacted by the transitional provisions of IFRS 2 which allowed companies under certain circumstances to avoid the SBP expense. This caused a limitation on their sample and their results.

Financial companies were excluded from the sample and 28.3% of the 46 sample companies showed that the decline in DEPS was material. Melis and Carta (2010) however suggested that their results were underestimated due to a lack of disclosure. This notion is supported by previous studies by Street and Cereola (2004), Chalmers and Godfrey (2005) and Basset *et al.* (2007). The authors' study was similarly limited to the presentation and disclosure information available on the McGregor BFA data base.

In Britain a post-implementation study was performed by Shiwakoti and Rutherford (2010) which suggested that the actual impact of expensing SBP was less profound than predicted by the pre-implementation studies. They found that SBP expenses represented 4.10% of profit before tax which was a little below the materiality threshold of 5% used in previous studies. They did not find a reduction in the use of SBP as predicted by other pre-implementation studies. However, they cautioned the interpretation of trends in levels of option expense since stabilisation of the expense would only occur after a full cycle of option expense which is generally three years in the UK. Applying a traditional materiality threshold, their results showed a modest impact in 2005 and 2006 on EPS, ROA and ROE. In statistical terms, instead of a materiality threshold, their results show statistically significant differences on EPS and ROA only for 2005 and 2006. Overall their results showed a modest actual impact of expensing SBP as opposed to predictions made by studies before the mandatory implementation of IFRS 2. The differences between the results of pre- and post-

implementation studies as well as between countries suggested that there are differences in the way companies implemented IFRS 2 in different countries.

2.4 IFRS 2 development in South Africa

Like Australia, South Africa was one of the first countries to adopt IFRS 2. When the IASB issued IFRS 2 during 2004 it was approved for issue, without any changes, in South Africa during November 2004 by the Accounting Practices Board (APB) for annual financial periods beginning on or after 1 January 2005.

Like Australia, South Africa disclosed SBP transactions according to the requirements of IAS 19: *Employee Benefits* (IAS 19) before the implementation of IFRS 2. IAS 19 requirements were restricted to presentation and disclosure requirements of SBP transactions. These transactions were however mostly treated off-balance sheet.

Both the US and Australian studies suggested that the use of share-options as a tool of compensation has been replaced by other forms of equity compensation. In accordance with international trends share options and other equity instruments are also often used by South African companies for rewarding performance of employees. It is also possible that South African companies have, since the implementation of IFRS 2 for all financial periods commencing on or after 1 January 2005, changed their preference with regards to equity instruments used in compensation awards.

Although South Africa is a developing country Crotty and Bonorchis (2006) found that many South African chief executive officers enjoyed remuneration packages in 2005 on par with those in the US and the UK. Crotty and Bonorchis (2006) after conducting an executive pay survey in 2005 suggested that the average executive pay package after gains on shares have been included, amounted to R15.65 million per annum and the use of share options as part of

executive pay were on par with those of the US and the UK. However, according to them share option schemes were on their way out because of the change in accounting requirements, but would be replaced by appreciation schemes which, from an accounting perspective have the same IFRS 2 treatment as options. The effect on EPS and other performance measures would therefore still apply. This made South Africa an interesting setting in which to determine the post-implementation effect of SBP expensing. It would be interesting for managers, owners, especially non-controlling owners, investors and standard-setting bodies to compare whether the impact of expensing SBP transactions in a developing country meets the expected impact as suggested by the existing literature.

3. Method and sample

The population comprises the companies that form part of the JSE Limited All Share Index and includes eleven sectors for financial periods 2005 to 2009 (1995 observations in total). Since the use of SBP is not limited to a few sectors, the cross-sector population provided the authors with the opportunity to investigate the effect of SBP expensing on different business sectors (Street and Cereola, 2004; Chalmers and Godfrey, 2005; Shiwakoti and Rutherford, 2010). Companies that did not disclose the relevant information (no EPS information) required by this study was removed and the sample therefore consisted of 1617 observations. Due to a lack of information prior to the implementation of IFRS 2 this study is limited to those companies that recognised SBP transactions since implementation for all periods starting on or after 1 January 2005. All the financial data required, including the SBP expense were collected from the McGregor BFA data base. This study was therefore limited to the information available on the data base. The SBP expense included both equity-settled and cash-settled share-based payment transactions. According to the information available on the data base none of the companies recognised and disclosed a SBP expense for the 2005

financial period. This could be as a result of the transitional provisions of IFRS 2, avoidance tactics of management or failure of the data base to record the SBP expense separately for the 2005 financial period (data base error). The 2005 financial period was therefore removed from the original sample. The sample then consisted of 1354 observations for the period 2006 to 2009 and excluded listed companies that did not have sufficient information to perform this study (refer to table 1 for detail). Listed companies that did not report a SBP expense for a particular period were then eliminated from the original sample. The final sample therefore consists of only 531 observations over the 2006 to 2009 period. The 2009 period showed the highest number of observations (185) that reported a SBP expense in any particular year. The greatest number of observations in one sector is 127 in Basic Materials and the smallest number of observations is five in Oil and Gas over the period 2006 to 2009. Two other large sectors are Financials and Industrials with 108 and 111 observations respectively. Table 1 contains a breakdown of the original sample and the final sample over the four year period as follows:

Table 1: Breakdown per year

Year (excluding the 2005 financial period)	Number of observations in the sample N	Number of observations disclosing a SBP expense	Percentage of observations disclosing a SBP expense
2006	281	49	17.44%
2007	326	131	40.18%
2008	374	166	44.39%
2009	373	185	49.60%
Total	1354	531	

This study extended the Italian study by Melis and Carta (2010) (who used only 2004 and 2005 – see section 2.3 above) because the authors used all the financial years available since the adoption of IFRS 2 to determine the actual impact of the SBP expense recognition on BEPS. In doing so the authors increased the internal validity of the study, because the effect

of the transitional period was less prominent than in the Melis and Carta (2010) study and they also focused on one country only (Shiwakoti and Rutherford, 2010).

IFRS 2 was issued with an effective date for all financial periods starting on or after 1 January 2005. Therefore all companies with a 31 December year-end had to apply IFRS 2 in their 2005-financial report. Companies that use a different year-end date only had to apply IFRS 2 in their 2006-financial report. This study therefore has at least four years and for some entities five years, of post-implementation data available.

The variable used in this study to examine the effect SBP expensing has on reported earnings, is BEPS. This is comparable to previous studies which also used EPS (Chalmers and Godfrey, 2005; Street and Cereola, 2004; Melis and Carta, 2010; Shiwakoti and Rutherford, 2010). The pre-IFRS 2 implementation studies used DEPS as reported and then only adjusted this factor with a projected SBP expense, based on certain assumptions which led to projecting the effect expensing SBP transactions would have on future DEPS. However, they did not make mention of adjusting WANOS, used in the calculation of DEPS, with the potential shares and options that were regarded as dilutive (Chalmers and Godfrey, 2005; Street and Cereola, 2004). Post-implementation studies (Melis and Carta, 2010; Shiwakoti and Rutherford, 2010) also used DEPS and again no mention was made as to how they eliminated the effect potential shares and options had on the WANOS used in the reported DEPS, used in their studies. Due to data constraints and for comparability purposes this study therefore limited itself to the effect of expensing SBP transactions on BEPS only and not on DEPS.

Relevant reported data was collected for the 2006, 2007, 2008 and 2009 periods. The data was winsorised at the 99 and 1 percentile in order to eliminate the effect of outliers. The 2005 financial period was eliminated from the sample because 2005 was the first financial period

of mandatory adoption of IFRS 2 for companies with a 31 December year-end and none of these companies reported a SBP expense according to the data base used. Companies with a 31 December year-end comprised only 15.97% of all the companies in the 2005 period. None of the companies included in the sample reported a loss solely as a result of the SBP expense recognised by them. The listed companies in the samples are shown in Table 2 per industry.

Table 2: Industry breakdown

Industry	All observations		SBP expense disclosed		Percentage of observations per industry disclosing a SBP expense
	Frequency	Percentage of total	Frequency	Percentage of total	
Additional	2	0.1	-	0.0	0%
Basic Materials	266	19.6	127	23.9	48%
Consumer Goods	112	8.3	52	9.8	46%
Consumer Services	173	12.8	74	13.9	43%
Financials	304	22.5	108	20.3	36%
Health Care	28	2.1	19	3.6	68%
Industrials	324	23.9	111	20.9	34%
Oil and Gas	12	0.9	5	0.9	42%
Technology	103	7.6	23	4.3	22%
Telecommunication	22	1.6	12	2.3	55%
Utilities	8	0.6	-	-	0%
Total	1354	100.0	531	100.0	

Data were analysed by comparing BEPS reported by the company (that already included the SBP expense) with an adjusted BEPS (excluding the SBP expense) figure. The SBP expense as reported by the company was divided by the reported weighted average number of ordinary shares (used in the calculations of BEPS) to determine the actual effect that expensing SBP had on BEPS. The reported BEPS were then adjusted with the SBP expense per share in order to arrive at a BEPS amount excluding the SBP expense. This was done to isolate the effect of the SBP expense on BEPS given that all other circumstances remained unchanged. Means were compared using an independent sample t-test.

4. Results and discussion

Table 1 shows an increase in the number of companies that report a SBP expense from 17.44% (2006) to 49.60% (2009). The number of companies recognising a SBP expense increased, suggesting that more companies are using SBP transactions. Given the increase in the number of companies recognising a SBP expense it would seem that South African companies are not wary of the effect of expensing SBP transactions. It is however not in the scope of this study to determine the reasons why South African companies did not seem to follow the downward trend in using SBP transactions predicted by prior studies. Due to the lack of SBP expense recognition in profit or loss during the 2005 (2004 comparative year) financial period it would seem as if none of the South African companies opted for voluntary early adoption of IFRS 2 before the effective date of all periods starting on or after 1 January 2005. In the authors' sample only 42 (15.97%) companies have a December year-end for the 2005-financial period and there is no evidence of these companies recognising a SBP expense for the 2005-financial period in the data base. This could be due to the companies' not using SBP transactions, avoidance tactics as suggested by Choudhary *et al.* (2009) or a deficiency of the data base used. The answer to this cannot be supplied by this study and more research is required in this regard. Except for the 2005 financial period it would therefore seem that South African companies have continued to use SBP transactions as a form of compensation despite the implementation of IFRS 2.

SBP expenses reduced total profits on average with R30 million per annum (refer to table 3) over the four years from 2006 to 2009 for the companies that actually disclosed/recognised the expense (and were included in the sample for this research). Although the number of companies that reported a SBP expense has increased, the total value of the SBP expense per annum has decreased from 2006 to 2009 (refer to table 3 for detail). The average SBP

expense per weighted average number of share amounted to R10.862 over the same period, resulting in an average negative impact on BEPS of R10.862 per share per annum (refer to table 3).

Table 3: Average SBP expense per share per annum and the average SBP expense per annum (for SBP disclosing companies only)

Year	Average SBP expense per share per annum	Average SBP expense per annum R'000
2006	13.412	34 397
2007	10.921	31 059
2008	11.269	30 870
2009	9.779	28 518
Total	10.862	30 423

Negative SBP expenses were not eliminated from the sample as companies might have to make a cumulative adjustment to their original estimates at grant date which can cause a negative expense in a particular year. According to Shiwakoti and Rutherford (2010) it takes a complete cycle for SBP to stabilise because the recognised expense will fluctuate until the vesting period (cycle) is complete. Their study alleviated this problem because of the longer period used (2004 to 2006) compared to prior studies. The authors' study further alleviates this problem in that the period covered is even longer than the British study (four years). This study however, did not specifically address the impact that the vesting period could have had on the reported SBP expense of South African companies included in this study.

The impact of SBP expensing on BEPS is shown in Table 4. Impact is assessed on the basis of a paired sample t-test of the difference between BEPS including SBP expense and without SBP expense. The difference is statistically highly significant at the 0.1% level. The economic significance of the difference may be a more useful number to focus on. The economic significance is that the SBP expense has decreased basic earnings, on average with R11.957 million (not tabulated) per annum (annual average of R4.26 SBP expense per share

over the four year period) under the new treatment of expensing SBP transactions. The impact was also considered separately for each of the four years and per industry. Results are reported in Tables 5 and 6. The average impact of expensing SBP on BEPS is a 3.69% reduction in the ratio. In absolute terms the impact was a reduction in BEPS of 4.84% over the four year period. The highest impact on a single company was for Eastern Platinum at 132.81% (2007), Wits Gold at 9.80% (2008) and Liberty Holdings at 1.62% for the 2009-financial year. The lowest impact of 0.01% on a single company was for Racec Group (2007), Pioneer Food Group (2008) and MTN for the 2009-financial year.

Table 4: BEPS with and without adjustment for SBP expenses

	<i>n</i>	Mean	Std deviation
BEPS	531	340.015	610.680
BEPS adjusted	531	350.876	620.156
Result of paired sample t-test: t-statistic		-13.861	
p-value		0.000	

Where:

BEPS represent the EPS figure disclosed by the company.

BEPS adjusted represent the EPS figure disclosed by the company adjusted for the SBP expense per share – therefore the EPS figure without the expense.

Table 5: BEPS with and without adjustment for SBP expenses per year (for SBP disclosing companies only)

Year	Average BEPS	Average BEPS adjusted	Percentage impact
2006	604.33	617.75	2.17
2007	346.54	357.46	3.06
2008	351.47	362.74	3.11
2009	255.11	264.89	3.69
Total	350.88	340.02	

Table 6: BEPS with and without adjustment for SBP expenses per industry (for SBP disclosing companies only) for the four year period

Industry	Average BEPS	Average BEPS adjusted	Percentage impact
Basic Materials	374.86	390.25	3.94
Consumer Goods	310.23	318.085	2.48
Consumer Services	306.78	318.70	3.74
Financials	374.58	385.17	2.75
Health Care	132.54	136.62	2.99
Industrials	310.37	319.64	2.90
Oil and Gas	1728.68	1733.76	0.29
Technology	15.74	16.63	5.36
Telecommunications	639.84	658.68	2.86
Total	340.02	350.88	

The percentage impact of SBP on BEPS has increased steadily from 2.17% in 2006 to 3.69% in 2009. This increase corresponds with the increase in the number of companies that report a share-based payment expense (see Table 1). The industry with the highest SBP measured by the impact of SBP on EPS is the Technology sector with a decline in EPS due to the expensing of SBP of 5.36%. Other industries with high SBP expenses are Basic Materials and Consumer Services with impacts of 3.94% and 3.74% respectively. The industry that shows the least impact is the Oil and Gas sector at only 0.29%.

5. Conclusion

This study investigated the impact of the mandatory implementation of IFRS 2 on BEPS of the companies listed on the All Shares Index of the JSE Limited. Overall the mean impact of expensing SBP transactions was statistically significant suggesting a material impact on BEPS. The overall reduction in BEPS over the four year period amounted to 4.84% (absolute terms) or close to R11 million.

Earlier studies performed in the US and Australia before the implementation of IFRS 2 predicted an adverse impact on EPS and other performance measures. The results of this study indicate a more modest impact on BEPS due to the expense recognition of SBP expenses, as were predicted in these prior studies. This study is however limited to only those companies that recognised a SBP expense. Due to a lack of data prior to the implementation of IFRS 2 it is possible that companies with higher SBP transactions prior to the implementation of IFRS 2 have, since the implementation of IFRS 2, discontinued their use of SBP transactions. Further research will be necessary to determine this effect.

The modest results of this study are similar to the results reported by Shiwakoti and Rutherford (2010) in their UK post-implementation study. They also found that the post-implementation impact was more modest than anticipated by prior studies. It is therefore possible that companies, in anticipation of the implementation of IFRS 2, reduced their use of SBP transactions, prior to the 2004-financial year. According to Shiwakoti and Rutherford (2010) it is plausible that companies exaggerated the possible impact of expensing SBP transactions in order to add to the opposition to the implementation of the standard.

Further research is needed to determine whether South African companies changed their remuneration packages in anticipation of the implementation of IFRS 2. Balsam *et al.*, (2007) reported that in the US many companies changed the SBP instrument from share options to

share awards. Future research will have to be conducted to determine whether the introduction of IFRS 2 has brought about not only a change in the way SBP transactions are accounted for but also the way in which companies use SBP transactions. This would imply changing the way business is conducted, which is generally not the intention of the standard setters.

The introduction of IFRS 2 caused small but not necessarily immaterial changes to the income profile of companies. This is important for analysts and general users of financial statements who need to be aware of these changes. It is also important for the companies themselves when revising the structure of their remuneration packages. It is further more important for companies to know how other companies have responded to the mandatory expensing of SBP transactions due to the implementation of IFRS 2.

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