

**Substance and Form adoption of International Financial Reporting Standards and
Financial Statement Comparability: Evidence from South Africa**

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ABSTRACT: We investigate whether the comparability of the financial statements change following the switch from International Financial Reporting Standards (IFRS) in substance (the content of IFRS) to IFRS in substance and form (IFRS as issued by the IASB). Therefore, while the substance of the accounting standards remain the same, form is added to the adoption in that it is now formally referred to as IFRS as issued by the IASB. We use data from South Africa, a country whose local Generally Accepted Accounting Practices (GAAP) was word-for-word the same as IFRS prior to the adoption of IFRS as issued by the IASB in 2005. We compare South African firms with two different groups, namely other mandatory IFRS adopters and non-adopters. We find evidence of an increase in comparability of financial statements of South African firms with both adopters and non-adopters. In addition, we find a global increase in comparability of firms' financial statements consistent with market changes unrelated to IFRS adoption. However, an incremental increase in the comparability of financial statements of South African firms with the adoption of IFRS relative to non-adopting firms is consistent with benefits from South Africa's addition of form to its existing in-substance adoption of IFRS. This increased comparability is also consistent with benefits from the accounting amounts of firms from other adopting countries becoming more comparable to the accounting amounts of South African firms.

Keywords: IFRS adoption; comparability; substance; form; accounting quality

1 INTRODUCTION

We investigate whether the comparability of financial statements change following the switch from International Financial Reporting Standards (IFRS) in substance to IFRS in substance and form. The adoption of IFRS in substance refers to the adoption of the content of IFRS and the adoption of IFRS in substance and form refers to the adoption of IFRS as issued by the International Accounting Standards Board (IASB). Therefore, while the substance of the adoption remains the same, form is added to the adoption in that it is now formally referred to as IFRS as issued by the IASB.

We focus on comparability because standard setters assert that one of the most important reasons that accounting standards are needed is to increase the comparability of reported financial information (IASB, 2010). Proponents of IFRS believe that its adoption would improve the global comparability of financial statements (European Council, 2002). According to the conceptual framework for financial reporting, comparability is the characteristic of information that allows users of financial statements to identify similarities in and differences between economic phenomena (IASB, 2010).

The literature suggests that comparability benefits arise from the adoption of IFRS and identifies accounting quality as a potential source of the increase in the comparability of financial statements following the mandatory adoption of IFRS.¹ This raises the question of whether it is beneficial for a country with local Generally Accepted Accounting Practices (GAAP) that is word-for-word the same as IFRS (IFRS in substance) to formally adopt IFRS as issued by the IASB (IFRS in substance and form)? Based on the studies by Joos and Leung (2012) and Brochet, Jagolinzer, and Riedl (2013) one can argue that for countries with local GAAP that is

¹ For example, Daske, Hail, Leuz, & Verdi (2008); Armstrong, Barth, Jagolinzer, & Riedl (2010); Li (2010); Barth, Landsman, Lang, & Williams (2012); Yip & Young (2012); Cascino & Gassen (2015).

in substance based on IFRS, the adoption of IFRS in substance and form is unlikely to affect accounting quality.

South Africa provides a suitable setting for this study. Even though the Johannesburg Stock Exchange (JSE) formally adopted IFRS as issued by the IASB in 2005, South African Generally Accepted Accounting Practice (SA GAAP) was word-for-word the same as IFRS since 2003 (SAICA, 2004). As such, South Africa is an excellent setting to examine a switch from an in-substance adoption of IFRS to adoption of IFRS in substance and form.

Our study includes all South African firms listed on the main board of the JSE with available data in the pre- and post-adoption periods. We determine the comparability of the financial statements of South African firms with firms from both mandatory IFRS adopting countries and non-adopting countries that form part of the G20. Using two comparison groups (other adopters and non-adopters) to assess comparability changes for South African firms allow us to distinguish between the likely sources of changes in comparability.

To address our research question we establish whether the comparability of the financial statements between South African firms and those of both adopters and non-adopters increased following the addition of form to its existing in-substance adoption of IFRS. We find evidence of an increase in comparability of financial statements of South African firms with both adopters and non-adopters. While this evidence is consistent with benefits associated with the addition of form to its existing in-substance adoption of IFRS, it is also consistent with other countries' adoption of IFRS, non-adopting countries' convergence with IFRS, changes to the enforcement of standards of comparative countries, and other concurrent market changes not related to the IFRS adoption decision.

We conduct a number of additional analyses to provide further insights into our main findings. Firstly, since our main results suggests that other concurrent market changes is a possible explanation for the increase in the comparability of the financial statements of South

African firms with both adopters and non-adopters, we provide direct empirical evidence whether this is the case. To consider the possibility of unrelated market changes, we prepare a new sample to test changes in comparability of financial statements of non-adopters with both adopters and other non-adopters. We find an increase in the comparability of the financial statements of non-adopter firms with firms from both adopting and other non-adopting countries. This provides evidence that there was a global increase in the comparability of financial statements around the IFRS event that cannot be attributed to the adoption of IFRS *per se*.

Secondly, we determine whether there was an incremental benefit for South African firms to switch from an in-substance adoption of IFRS to an adoption in substance and form that cannot be attributed to other concurrent market changes. To examine this possibility, we evaluate comparability of South African firms with adopters relative to comparability of non-adopter firms with adopters (excluding South African firms) using a difference-in-differences design. We find that the comparability of the financial statements of South African firms with firms from other adopting countries increased at a significantly higher level than the comparability of firms from non-adopting countries with firms from adopting countries. This suggests an incremental benefit to South African firms that cannot be attributed to other concurrent market changes.

Thirdly, we provide empirical evidence that supports that SA GAAP was word-for-word the same as IFRS (IFRS in substance) and that there were no significant changes in enforcement in South Africa that occurred concurrently with the adoption of IFRS as issued by the IASB. Specifically, we find that, in comparison to firms in the United Kingdom (UK) that applied one of the highest quality sets of local GAAP, namely UK GAAP, South African firms made significantly smaller adjustments on the transition to IFRS as issued by the IASB. Many of the IFRS adoption reconciling adjustments of South African firms do not reflect differences

between SA GAAP and IFRS, but rather differences between IFRS in existence at the time and revised IFRS that became effective concurrent with IFRS adoption. In addition, we find no significant change in the accounting quality of South African firms following the adoption of IFRS as issued by the IASB. In conjunction with our IFRS 1 reconciliation tests, this evidence suggests that changes to IFRS which became effective concurrent with the adoption of IFRS or enforcement changes, did not significantly affect the accounting quality of South African firms.

Overall, our evidence suggests an increase in the comparability of the financial statements of South African firms with those of both adopters and non-adopters that cannot be attributed to other non-IFRS related concurrent market changes or improvements in the accounting quality of South African firms. Hence, our evidence suggests that South African firms benefited through increased comparability from the switch of adopting IFRS in substance to adopting IFRS in substance and form.

Our study contributes to the growing literature on the benefits of IFRS adoption. Our study extends previous comparability studies by focusing on a single country that changed from an in-substance adoption of IFRS to IFRS adoption in substance and form (Barth et al., 2012; Yip & Young, 2012; Cascino & Gassen, 2015; Neel, 2017). In addition, using a different setting than previous single country studies, our study complements studies that investigated expected and actual comparability benefits with the adoption of IFRS in a country where accounting quality is already considered to be high (Joos & Leung, 2012; Brochet et al. 2013). In particular, our study identifies likely sources of such comparability benefits and considers both sources related to IFRS adoption and sources unrelated to IFRS adoption.

Our study contributes to the literature by providing evidence that other concurrent market changes around the time of the adoption of IFRS likely contributed to an increase in comparability globally. This evidence supports the possibility that market changes unrelated to the IFRS decision could explain the inconsistencies found in the IFRS adoption literature

between financial reporting effects and capital market effects (Brüggemann, Hitz, & Sellhorn, 2013; Leuz & Wysocki, 2016). However, an incremental increase in the comparability of financial statements of South African firms with the adoption of IFRS relative to non-adopting firms is consistent with benefits from adding form to its existing in-substance adoption of IFRS.

The remainder of this study is organized as follows. Section 2 discusses the South African setting. Section 3 discusses prior literature and develops our hypotheses. Section 4 explains the research design. Section 5 discusses the results. Section 6 presents additional analyses and Section 7 offers concluding remarks.

2 SOUTH AFRICAN SETTING

South Africa's accounting standards were harmonized with IFRS since 1995 (IFRS Foundation, 2015). Bae, Tan, and Welker (2008) found that in 2001 South Africa had zero differences between its local GAAP and IFRS based on 21 key accounting rules. In 2003, the South African Institute of Chartered Accountants (SAICA) announced that IFRS would be issued without any amendments as SA GAAP (SAICA, 2003). The differences that existed at that time were mostly editorial differences, implementation dates and additional disclosures. Statements that were not going to be revised were re-issued to ensure that the text was the same as that in the IFRS. At that stage, a dual numbering system was used, indicating both the IFRS and SA GAAP number (SAICA, 2003), resulting in SA GAAP being word-for-word the same as IFRS.² Hence, South Africa has historically adopted IFRS in substance. Since 2005, the JSE requires the use of IFRS as issued by the IASB for all listed companies (SAICA, 2003; IFRS Foundation, 2015). Therefore in 2005, South Africa, switched from an in-substance IFRS regime to IFRS in substance and form.

The South African case is therefore different from most other countries that have adopted IFRS because these countries have replaced lower quality domestic standards with higher

² South Africa moved to IFRS in 2003 by incorporating it in domestic standards. This is similar to the approach Canada currently follows (Zeff & Nobes, 2010).

quality IFRS.³ This limits the possibility of extending the results of prior studies of IFRS adoption in such countries to countries that already applied IFRS in substance prior to the adoption of IFRS in substance and form. This study provides an opportunity to distinguish between the quality of standards and comparability, because the quality of the standards is held constant across the IFRS adoption period (refer to Section 6.3 for supporting evidence).

3 PRIOR LITERATURE AND HYPOTHESES DEVELOPMENT

3.1 Prior literature

Our study relates directly to the financial statement comparability studies of Barth et al. (2012), Yip and Young (2012), Cascino and Gassen (2015) and Lin, Riccardi, and Wang (2019). Barth et al. (2012) find that comparability increased between United States (US) firms and non-US firms across 27 countries following the adoption of IFRS by non-US firms. Their evidence suggests that convergence efforts of the IASB and the Financial Accounting Standards Board (FASB) in the US has improved comparability between US and non-US firms. Yip and Young (2012) find that the mandatory adoption of IFRS is associated with increased financial statement comparability across 17 European Union countries. Cascino and Gassen (2015) investigate the change in financial statement comparability following the mandatory adoption of IFRS in 29 countries. They find that increases in comparability is greater for firms that face high compliance incentives. Finally, Lin et al. (2019) use the German setting where firms could choose between German GAAP, US GAAP and IFRS prior to the mandatory adoption of IFRS in 2005. They find that while both adoption of IFRS and convergence between IFRS and US GAAP is associated with increases in financial statement comparability, adoption is not associated with an incremental increase in comparability beyond convergence. None of these studies investigates the adoption of IFRS in substance and form.

Most IFRS adoption studies' samples are from multiple countries. Chen and Schipper

³ In general, the adoption of IFRS in Europe was viewed as replacing lower quality local GAAP with higher quality IFRS (Armstrong et al., 2010).

(2016) argue that country-specific analyses could benefit the IFRS adoption literature, as it can provide a better understanding of the mechanisms that provide the observed results. Our study is one of the first to focus on a country-specific analysis and we are able to rule out changes in accounting quality and enforcement for South African firms as mechanisms that drive our results.

3.2 *Hypotheses development*

We make separate predictions for the change in comparability between South African firms and other adopters versus the change in comparability between South African firms and non-adopters.

With the addition of form to South Africa's existing in-substance adoption of IFRS in 2005, one would expect financial statements of South African firms to become more comparable with financial statements of firms in countries that adopted IFRS at the same time (for example, the European Union) and whose local GAAP differed from IFRS before the adoption. There are at least two reasons why comparability with adopters may increase for South African firms after 2005. Firstly, we expect the changes that firms from countries that adopted IFRS in 2005 made to their financial statements to result in accounting amounts that are more comparable with those of South African firms.

Secondly, the market could assess the comparability of financial statements of South African firms differently following the change in adoption status (i.e. adding "form" to the existing "substance" by formally adopting IFRS as issued by the IASB).⁴ The IASB follows a rigorous and transparent due process in setting standards.⁵

Adopting IFRS as issued by the IASB has the potential to increase the salience that South African firms are applying IFRS. This could reduce investor uncertainty regarding a number of

⁴ Adopting IFRS as issued by the IASB means that local regulations or laws adopt the IASB's standard setting process and thereby automatically accepts the standards produced through that process without exception. Hence, a standard issued by the IASB requires no further local regulatory interference.

⁵ The IASB's due process is detailed in the *Due Process Handbook* (IFRS Foundation, 2016).

country-specific amendments often made to IFRS as issued by the IASB. These differences between IFRS applied within a country and IFRS as issued by the IASB result from changes such as carve-outs, additional disclosure, elimination of choices, translation differences and implementation delays (Zeff & Nobes, 2010; Felski, 2017). Countries may carve out provisions of IFRS as issued by the IASB, for example, in 2004 the European Commission endorsed IAS 39, *Financial Instruments Recognition and Measurement*, but deleted the provisions on the use of the full fair value option and on hedge accounting. Countries may also add provisions to IFRS as issued by the IASB, for example, the New Zealand equivalents of IFRS include additional country-specific domestic requirements (IFRS Foundation, 2019). Countries may also exclude some of the options available in terms of IFRS as issued by the IASB, for example, the Australian equivalent standards to IFRS allow firms in the extractive industry to use only the area of interest method to account for exploration and evaluation costs, while IFRS as issued by the IASB allow various other alternatives. In addition, IFRS are issued in English and subsequently translated into various languages to make them accessible to non-English-speaking users. Such translation could introduce differences between the text originally intended by the IASB and the translated text. For example, before IFRS become binding under EU law, they are translated into 22 non-English languages (IFRS Foundation, 2018). The translation only covers the standards and the mandatory guidance, which means that other guidance, such as the basis for conclusions, which are integral to the understanding of IFRS are not translated (IFRS Foundation, 2018). Finally, as a result of local legislative processes of endorsing IFRS, individual pieces of content of IFRS have implementation dates that differ from IFRS as issued by the IASB. By adopting IFRS in substance and form (i.e. adopting IFRS as issued by the IASB) it is transparent to investors that none of these potential sources of differences between country-specific versions of IFRS and IFRS as issued by the IASB exist.

Adding form to countries' existing in-substance adoption of IFRS could reduce investors' information acquisition and processing costs since they do not have to establish how countries' adoption of IFRS deviates from IFRS as issued by the IASB. Arguably, this is useful to investors who would like to include firms from smaller and emerging economies in their portfolio, because investors may be more familiar with IFRS and the IASB's due process than with country-specific GAAPs that are based on IFRS in substance. This argument is consistent with the home bias literature that shows that the cost of information has a significant effect on investors' bias mainly to include firms from their home country in their portfolio (Ahearne, Grierer, & Warnock, 2004). However, the adoption of IFRS reduces foreign investors' cost in processing information and making decisions and attenuate the home bias effect (Covrig, DeFond, & Hung, 2007; Yu, 2010; Khurana & Michas, 2011). Hence, investor biases do not necessarily reflect irrationality.

Even though SA GAAP was identical to IFRS, investors and analysts may include South African firms more readily for review following the adoption of IFRS as issued by the IASB, which could result in comparability benefits. However, sophisticated users of financial statements such as institutional investors and analysts that have the time and resources to analyze and interpret financial statements, may be aware that SA GAAP and IFRS were the same at the time of the adoption of IFRS as issued by the IASB (Bradshaw, Bushee, & Miller, 2004; Florou & Pope, 2012). This may reduce the effect of the adoption of IFRS as issued by the IASB in South Africa on comparability.

We have discussed two reasons above why we expect an increase in the comparability of financial statements of South African firms and firms from adopting countries. Firstly, the accounting amounts becoming comparable resulting from other countries adopting IFRS. Secondly, an increase in the salience of South Africa's adoption of IFRS by adding form to its existing in-substance adoption of IFRS. It is difficult to disentangle the effect of these two, but

they both predict increased comparability. Therefore, Hypothesis 1, stated in the alternative form, is the following:

H1: On average, comparability between the financial statements of firms in South Africa and those of other mandatory IFRS adopters increased after the adoption of IFRS as issued by the IASB in South Africa.

Next, we turn to our prediction for the comparability of the financial statements of South African firms with those of firms in other countries that continued to use non-IFRS accounting standards (non-adopters) before and after the addition of form to South Africa's existing in-substance adoption of IFRS. One would not expect to see any change in the comparability of the accounting amounts, because firms in both countries continued to prepare financial statements using the same accounting frameworks. This is because the financial statement amounts of South African firms would have been determined in a similar way, whether they used SA GAAP or IFRS, and there would be no changes in respect of the accounting amounts of the non-adopters.

However, there are at least two reasons why comparability benefits could arise for South African firms. Firstly, non-adopting countries' convergence with IFRS could increase the comparability with South African firms' financial statements (Barth et al., 2012; Lin et al., 2019). Secondly, similar to Hypothesis 1, comparability benefits could arise for South African firms from adding form to its existing in-substance adoption of IFRS, because it reduces uncertainty regarding the nature of South Africa's adoption of IFRS. However, one could argue that institutional investors would be aware of the fact that SA GAAP and IFRS were word-for-word the same at the time of the addition of form to South Africa's existing in-substance adoption of IFRS. Institutional investors are sophisticated users that have the time and resources to analyse and interpret financial statements (Bradshaw et al., 2004; Florou & Pope, 2012). The same would apply to analysts who have to understand and analyse financial statements. One

can further argue that the increased salience of South Africa's adoption of IFRS may not increase the comparability of financial statements of South African firms relative to those of firms in non-adopting countries. This is because the application of the accounting frameworks of the non-adopting countries may not result in amounts comparable to those determined in accordance with IFRS. Based on this discussion, we make no prediction regarding comparability with non-adopters and state the second hypothesis in the null form:

H2: On average, comparability between the financial statements of firms in South Africa and those of non-adopters did not change after the adoption of IFRS as issued by the IASB in South Africa.

There are factors other than the addition of form to South Africa's existing in-substance adoption of IFRS that could also affect comparability between South African firms and both adopters and non-adopters, that should be considered in evaluating Hypotheses 1 and 2. One of these factors is changes in enforcement, which could affect the comparability of financial statements even if the reporting standards did not change. Christensen, Hail, and Leuz (2013) document that South Africa did not make any substantive changes in enforcement between 2001 and 2009. However, enforcement could have changed in the country of a comparable firm. Lastly, other concurrent market changes such as increased globalisation, other regulatory changes, changes in technology, and market shocks that occur concurrently with the adoption of IFRS can affect comparability changes (Barth et al., 2012; Leuz & Wysocki, 2016). While it is difficult to disentangle these separate effects, in additional analyses in Section 6, we attempt to address some of these issues.

4 RESEARCH DESIGN

4.1 Estimation equation

To address our research question of whether the comparability of the financial statements of South African firms changed following the adoption IFRS as issued by the IASB in 2005, we estimate the following equation (firm and period subscripts omitted),

$$Comp = \gamma_0 + \gamma_1(Post) + \gamma_2(Adopter) + \gamma_3(Post \times Adopter) + \sum \gamma_j(Controls) + \varepsilon \quad (1)$$

where *Comp* is a South African firm-foreign country measure of comparability (in other words, it represents an average measure of comparability for each South African firm with each foreign country in the sample — refer Section 4.2 below); *Post* refers to the period after 2005 (the year that South Africa added form to its existing in-substance adoption of IFRS and other countries adopted IFRS in substance) and takes a value of one for the post-adoption period (2006 to 2008), and zero for the pre-adoption period (2002 to 2004); and *Adopter* equals one if the foreign country included in *Comp* is an IFRS-adopting country and zero if it is a non-adopting country. We identified countries that have adopted IFRS from the jurisdictional profiles prepared by the IFRS Foundation (2015) and a document prepared by PricewaterhouseCoopers (2013).

We regress our comparability measure (*Comp*) on an indicator variable *Post* to distinguish between the pre- and the post-adoption periods, an indicator variable *Adopter* to distinguish between the comparability with other adopters and the comparability with non-adopters, the interaction between these two indicator variables (*Post x Adopter*) and a number of control variables. The indicator variables allow us to perform a two-by-two analysis of the effect of the adoption of IFRS as issued by the IASB in South Africa on the comparability of financial statements between South African firms and other adopters relative to the comparability of financial statements between South African firms and non-adopters across the pre- and the post-adoption periods, as illustrated in Table 1. As indicated in Table 1, γ_0 captures the average

comparability between South African firms and firms from non-adopting countries in the pre-adoption period, γ_1 measures the change in comparability between South African firms and firms from non-adopting countries from the pre- to the post-adoption period, γ_2 measures the difference in comparability between South African firms and adopters relative to South African firms and non-adopters in the pre-adoption period, γ_3 measures the difference in the change in comparability from the pre- to the post-adoption period between the South African firms and the adopter and non-adopter groups. A significant positive (or negative) value for γ_3 suggests that the comparability of the financial statements of South African firms with those of adopters increased (or decreased) significantly more (or less) from the pre- to the post-adoption periods, relative to the comparability of the financial statements of South African firms with those of non-adopters.

For the purposes of testing Hypothesis 1, a significant positive value for the sum of γ_1 and γ_3 indicates that comparability of financial statements of South African firms with other adopter firms have increased significantly following the adoption of IFRS as issued by the IASB in South Africa. Regarding Hypothesis 2, a significant positive value for γ_1 indicates that the comparability of financial statements of South African firms with non-adopter firms have increased significantly following the adoption of IFRS as issued by the IASB in South Africa.

Using Table 1 also allow us to perform additional comparisons on the comparability of South African firms' financial statements with those of adopters and non-adopters in the pre- and the post-adoption periods for which we did not develop specific hypotheses. A significant positive (or negative) value for the sum of γ_2 and γ_3 indicates that the financial statements of South African firms were more (or less) comparable to the financial statements of adopters than to the financial statements of non-adopters in the post-adoption period.

4.2 Comparability Measure

Our comparability measure is based on an established literature.⁶ Following prior literature, our comparability measure is based on the notion that financial statement comparability is achieved when two firms that face similar economic events, produce similar accounting amounts (De Franco, Kothari, & Verdi, 2011; Barth et al., 2012; Yip & Young, 2012; Neel, 2017). De Franco et al. (2011: 899) define the accounting function as “a mapping from economic events to financial statements” which they illustrated as follows:

$$\text{Financial statements}_i = f_i(\text{Economic Event}_i) \quad (2)$$

Following De Franco et al. (2011) our comparability measure, *Comp*, uses stock returns as a proxy for the economic event and earnings as a proxy for the financial statements. Stock returns are often used in accounting studies as a proxy for the net effects of a firm’s economic events and provides a measure of a firm’s equity value whilst earnings provides a summary measure of the income statement of a firm (De Franco et al., 2011; Barth et al., 2012). Stock returns (*Returns*) are measured as the percentage change in the share price from nine months before the financial year-end to three months after and adjusted for any dividends or share splits or consolidations.⁷ *Earnings* is measured as the net income before extraordinary items for the financial year divided by the market value of common shareholders’ equity nine months before the financial year-end. Based on Equation (2), our equation to estimate firm *i*’s accounting function is as follows:

$$\text{Earnings}_{it} = \alpha^i + \beta^i \text{Returns}_{it} + \varepsilon_{it} \quad (3)$$

⁶ De Franco et al. (2011) was the first to operationalize comparability. Subsequently their measure of comparability has been used and adapted by various other researchers, including Barth et al. (2012), Yip and Young (2012), Cascino and Gassen (2015), Chen, Collins, Kravet, and Mergenthaler (2018), Zhang (2018) and Lin et al. (2019). We follow suite.

⁷ The JSE requires firms to publish their financial statements three months after the firm’s year-end (JSE, 2015). As our study examines comparability of financial statements we use the share price that also reflects the financial statement information. Although the other countries that South African firms are compared to might have other requirements, Barth et al. (2012) and Neel (2017) that examined comparability around the mandatory adoption of firms worldwide also measured returns as the percentage change in the share price from nine months before the financial year-end to three months after.

The accounting function of firm i is represented by α^i and β^i and similarly α^j and β^j represent the accounting function of firm j . By applying the accounting functions of both firm i and firm j to the same economic event ($Returns_{it}$), the estimated earnings will be similar, if the two accounting functions are comparable. Therefore, smaller differences in the estimated amounts will represent more comparable accounting functions.

We compare South African firms with both IFRS adopters and non-adopters. The adopters and non-adopters are selected from countries that form part of the G20.⁸ Our matching criteria follow prior literature. Firms are matched based on size (total asset value measured in United States dollars on 31 December 2005⁹), industry (based on the two-digit SIC code) and similar year-ends. Matching the firms based on size and industry reduces the effect that differences in cost of capital due to size and industry can have on economic outcomes and other differences that is unrelated to financial reporting (Barth et al., 2012). Matching firms based on year-end ensures that the two firms are compared over the same period (Yip & Young, 2012). Similar to Yip and Young (2012), a match is made only if the value of total assets of the smaller firm is at least 50% of the total assets of the largest firm.¹⁰

We construct our comparability measure using four steps.

Step 1: Estimation of Accounting Function

Following Yip and Young (2012), we estimate the accounting functions for each of the South African firms (SA) and all the matched foreign firms (FOR) using the firm-specific ordinary least squares regression in Equation (3). Using annual firm data, we estimate the

⁸ The G20 consists of 19 countries plus the European Union. The members of the G20 represent the world's largest advanced and emerging economies and makes up 75% of international trade (G20, 2015).

⁹ We use 31 December 2005, the date of the mandatory adoption of IFRS in South Africa. As this is a date between our pre- and post-adoption periods, it serves as a proxy for the average size of the firms in both periods.

¹⁰ De Franco et al. (2011) created pairs by randomly selecting 10% of the possible firm i - j pairs whereas Yip and Young (2012) matched each firm with only one foreign firm based on size and industry. We match each of our South African firms with all possible foreign firms that meet our matching criteria (size, industry and year-end) and in a subsequent step collapse the South African firm-foreign firm pairs into a South African firm-foreign country measure.

accounting functions separately for the pre- and the post-adoption period for each firm.¹¹ This process generates coefficients α^{SA} and β^{SA} for each South African firm and coefficients α^{FOR} and β^{FOR} for each foreign matched firm separately for the pre- and the post-adoption periods. These coefficients represent the accounting function of each firm.

Step 2: Calculation of Financial Statement Effect

For each South African (SA) and foreign firm (FOR) pair, we calculate the earnings ($E(Earnings)$) for both the SA and FOR firm for each firm-year (t) based on its own parameters derived from Equation (3) and the Equation (3) parameters of its matched firm:

$$E(Earnings_{SSAt}^{SA}) = \alpha^{SA} + \beta^{SA}Returns_{SSAt} \quad (4)$$

$$E(Earnings_{SSAt}^{FOR}) = \alpha^{FOR} + \beta^{FOR}Returns_{SSAt} \quad (5)$$

$$E(Earnings_{SFORt}^{FOR}) = \alpha^{FOR} + \beta^{FOR}Returns_{SFORt} \quad (6)$$

$$E(Earnings_{SFORt}^{SA}) = \alpha^{SA} + \beta^{SA}Returns_{SFORt} \quad (7)$$

Step 3: Calculation of Firm-pair Comparability Measure

For each year, we calculate the absolute difference between Equations (4) and (5) and Equations (6) and (7) for each firm-pair. The mean of these two differences is the comparability measure, $CompPair_{SA,FORt}$ for the pair for the year. The closer the value is to zero, the more comparable the accounting amounts of the pair are. We multiply these values by negative one so that greater values represent greater comparability. To calculate our comparability measure for the SA and FOR pair in each of the pre- and post-adoption periods (periods p), $CompPair_{SA,FORp}$, we calculate the mean of $CompPair_{SA,FORt}$ for the three years in the pre- and post-adoption periods respectively.

¹¹ De Franco et al. (2011) used quarterly data in the United States setting. As quarterly data is not available in an international setting, we use annual data similar to Barth et al. (2012), Cascino and Gassen (2015) and Neel (2017). In additional tests, Cascino and Gassen (2015) and Neel (2017) found that using semi-annual data for a reduced sample did not affect their inferences.

Step 4: Calculation of Firm-country Comparability Measure

The three steps above create a firm-pair measure of comparability in each of the pre- and post-adoption periods. Individual firms can be included in more than one pair, which could increase dependence between observations and exaggerate outlier effects. Despite each firm-pair being unique, we calculate a firm-country measure of comparability to overcome the potential problem of dependence and outliers.¹² Since accounting standards vary across countries and the IFRS adoption decision is at a country level, we create a firm-country level of comparability where we measure comparability for each South African firm with all matched peers in each foreign country. To do this, we calculate for each period (p), $Comp$ which represents a firm's (firm A's) comparability with a foreign country (country B) calculated as the mean $CompPair_{SA,FORp}$ of all matches made between that South African firm (firm A) and all matched firms in that foreign country (country B). This produces a firm-country measure of comparability for firm A with foreign country B.

4.3 Control variables

In an attempt to control for other factors that could possibly affect comparability, we include additional variables in Equation (1). Data is obtained from Thomson Reuters Datastream (including Worldscope).

In an attempt to control for differences in the institutional and reporting environments across countries, we include *Legal*, an indicator variable that equals one if the foreign country included in *Comp* has the same legal origin as South Africa, which is common law and zero otherwise (Yip & Young, 2012).¹³ To control for size differences between South African firms and the foreign firms, we include a firm-country *Size_ratio*. The ratio calculation commences

¹² Various combinations and aggregations of firm-pairs have been used in the literature to calculate firm-level comparability measures (De Franco et al., 2011; Cascino & Gassen, 2015; Neel, 2017). We used combinations of these methods to create our firm-country measure of comparability.

¹³ South Africa's classification as common law is consistent with other studies that use legal tradition as a proxy for the institutional environment (La Porta, López de Silanes, Shleifer, & Vishny, 1998; Ball, Kothari, & Robin, 2000; Leuz, Nanda, & Wysocki, 2003; Barth et al., 2012).

with the size ratio of each firm-pair, measured as the proportion of the smallest firm's total assets to the largest firm's total assets at the end of the firm's 2005 financial year-end (Yip & Young, 2012). However, since *Comp* is a firm-country proxy, *Size_ratio* is measured as the mean size ratio of all firm-pairs included in the firm-country comparability measure. We include book-to-market differences (*BTM_diff*) to control for differences in the economic characteristics of firms such as growth opportunities (De Franco et al., 2011). The calculation commences with the book-to-market differences of all firm-pairs included in the firm-country comparability measure. The book-to-market differences of each firm-pair is measured as the absolute value of the difference in the book-to-market ratio of the two firms in the firm-pair (De Franco et al., 2011). The book-to-market ratio is measured as the book value of equity divided by the market value of equity at the 2005 financial year-end. However, since *Comp* is a firm-country proxy, *BTM_diff* is measured as the mean book-to-market differences of all firm-pairs included in the firm-country comparability measure.

We include industry fixed effects based on the SIC divisional classifications.¹⁴ Standard errors are clustered by foreign country. Consistent with Cascino and Gassen (2015), we do not cluster standard errors by year as our comparability measure is averaged in the pre- and the post-adoption period.¹⁵ Similar to Barth et al. (2012), we winsorize our continuous variables at the top and bottom five percent to reduce the effect of outliers.

4.4 Sample

We obtain our samples from the Thomson Reuters Datastream database (including Worldscope). We require firms to have data available for all three years in both the pre- (2002

¹⁴ Both Cascino and Gassen (2015) and Neel (2017) included fixed effects based on the two-digit SIC codes. As we have small samples we have few observations for some industry classifications and hence limited cross-sectional variation for many of the two-digit codes. As a result, we use a coarser industry classification. Another possibility is to include country fixed effects, but there are linear combinations of other variables (specifically *Legal* and *Adopter*) already in the model that capture their effect. As a result, country fixed effects are not included in the model.

¹⁵ Bertrand, Duflo, and Mullainathan (2004) showed that collapsing data into pre- and post-periods reduces serial correlation problems that lead to inconsistent standard errors when performing difference-in-differences analysis.

to 2004) and the post-adoption periods (2006 to 2008).¹⁶ For our South African sample, we only include firms for which the “market” is indicated as “South Africa” and the “primary quote” is indicated as “Johannesburg” in Worldscope. These requirements ensure that the South African firm is not influenced by other markets or other countries’ regulatory requirements. Further, as our firms are matched based on year-end, we exclude any firms that changed their year-ends during the sample period.

From a South African point of view, we are only interested in firms that mandatorily adopted IFRS for year-ends beginning on or after 1 January 2005. Therefore, we exclude all voluntary adopters and firms that did not report under SA GAAP for any of the years before 2005. For all other adopting countries, we exclude voluntary adopters and firms that did not report under that countries’ local GAAP for any of the three years before 2005.¹⁷ Lastly, we exclude firms that had missing accounting standards data in Worldscope. For non-adopters, we exclude all firms that did not report under that country’s local GAAP for the entire period of our study (2002 to 2008) and any firms with missing accounting standards data. The process generates 163 unique South African firms with all the information available to perform our analysis.

Table 2 describes our sample. As is evident from Table 2, our sample includes 272 firm-country observations from adopting countries and 258 firm-country observations from non-adopting countries. We generated these observations as follows: We match the 163 South African firms with available data with all possible foreign firms (adopters and non-adopters) based on size, industry and year-end. In total, of the 163 South African firms, we find matches

¹⁶ We commence our sample period in 2002 in order to obtain a reasonable sample size for our tests in the pre-adoption period. Although SA GAAP was word-for-word the same as IFRS since 2003, the differences that existed between SA GAAP and IFRS at that time were mostly editorial differences, implementation dates and additional disclosures. To ensure consistent application of accounting standards by the listed firms, we exclude 2005 from our sample period as some firms applied SA GAAP and others IFRS. Firms listed on the JSE were required to report in terms of IFRS for all financial years ending on or after 31 December 2005. As a result, firms with a December year-end reported in terms of IFRS for the first time in 2005 and all other firms in 2006.

¹⁷ We also exclude firms from the adopting countries that did not report under IFRS for all three years in the post-adoption period.

for 126 with 605 adopter firms and 1 483 non-adopter firms. We estimate Equation (3) separately for 2 214 firms (126 + 605 + 1 483). Since a South African firm could be matched more than once, a total of 2 421 unique firm-pair matches were made of which 757 were between South African firms and other IFRS adopting firms and 1 664 between South African firms and non-IFRS adopting firms. From these we calculate a firm-country measure of comparability with each foreign country. The process generated 530 firm-foreign country observations in each of the pre- and the post- adoption periods. Of these 272 are between South African firms and other IFRS adopters and 258 between South African firms and non-adopters. As there is an observation in each of the pre- and the post- adoption periods the total firm-foreign country observations are 1 060.

5 RESULTS

5.1 Descriptive Statistics

Table 3, Panel A, reports the descriptive statistics for the input data required to calculate our comparability measure as well as the control variables for the 2 214 unique firms. Recall that we estimate Equation (3) using three years of annual data in each of the pre- and post-adoption periods for each of the 2 214 firms, therefore, a total of 13 284 annual observations (2 214 firms x 6 years). As is evident from Table 3, Panel A, the mean (median) earnings expressed as a percentage of market capitalization at the beginning of the period is 3.1 percent (4.75 percent), while the mean (median) share return is 16.61 percent (0 percent).

We obtain the parameter estimates of Equation (3) for 4 428 estimations (2 214 firms x 2 periods each). The mean (median) β -coefficient is 0.1179 (0.0340), while the mean (median) is R^2 of 58.57% (66.85%). Compared to Neel's (2017) mean (median) β -coefficient of 0.05 (0.03) and R^2 of 44.10% (42.05%), our data suggests sufficient explanatory power to estimate the accounting functions of the firms.

The mean (median) total assets of the 2 214 firms is US\$ 3 576.95 million (US\$ 240.12 million). The mean (median) book-to-market ratio is 0.8647 (0.5965).

In Table 3, Panel B, we report descriptive statistics for our dependent and control variables for Equation (1) separately for our two groups – South African firms and adopters and South African firms and non-adopters.

Table 3, Panel C, compares the means of the variables between South African firms and adopters, and South African firms and non-adopters, respectively, and the comparability measure between the pre- and the post-adoption periods. The number of observations is 544 (272 firms x 2 periods) for the adopter group and 516 (258 firms x 2 periods) observations for the non-adopter group. This univariate results show a significant increase in comparability between South African firms and adopters (0.1227) as well as between South African firms and non-adopters (0.1192) following the addition of form to South Africa's existing in-substance adoption of IFRS and the adoption of IFRS in other countries. It further shows that South African firms' financial statements were significantly more comparable to those of adopters relative to those of non-adopters in both the pre- (0.0776) and the post-adoption periods (0.0811). There is no significant difference between the two groups based on *Size_ratio*, but the *BTM_diff* is significantly higher for the non-adopter group relative to the adopter group.

Table 3, Panel D, reports the Spearman (Pearson) correlations above (below) the diagonal for the dependent and control variables. In both the Spearman and the Pearson correlations *Comp* is negatively and significantly correlated with *BTM_diff*. The negative *BTM_diff* is as expected, because firms with larger differences in economic characteristics are expected to be less comparable. The lack of significant correlation between *Comp* and *Size_ratio* could be due to the matching of firms based on size.

5.2 Multivariate Results

Table 4 reports the multivariate regression results for Equation (1). Panel A reports the coefficients with t-statistics in parentheses. The results reported in Panel A for *Intercept*, *Post*, *Adopter*, *Post x Adopter* and certain combination of these variables are used to prepare Panel B of Table 4 (the format of Panel B is based on Table 1). For ease of reference, the results of these variables are discussed by referring to this reconstructed panel.

In Table 4, Panel A we find a significant negative coefficient for *BTM_diff* indicating that firms with higher book-to-market differences tend to be less comparable. However, similar to Yip and Young (2012) the coefficient for *Size_ratio* is not significant, likely because firms are matched based on size. We find a negative, but insignificant coefficient for *Legal*.

Table 4, Panel B, shows that the comparability of the financial statements of South African firms with those of adopters increased significantly from the pre- to the post-adoption period. The increase in comparability of 0.1227 from -0.2660 in the pre-adoption period to -0.1433 in the post-adoption period is statistically significant at the 1% level (F-statistic = 40.08). This finding is consistent with our prediction for Hypothesis 1. However, the source of the increased comparability is unclear. The increase in comparability could be explained by numerous factors such as the accounting amounts of firms from adopting countries becoming more comparable to those of South African firms, South Africa's addition of form to its existing in-substance adoption of IFRS which increased the salience of their reporting framework, enforcement changes by other adopting countries and / or other concurrent market changes.

Next, we assess the change in the comparability of the financial statements of South African firms with those of non-adopting firms from the pre- to the post-adoption period. While we did not formally make a prediction in Hypothesis 2, the evidence suggests that comparability increased between South African firms and non-adopters after 2005. Similar to adopters, Table 4, Panel B, shows that the comparability of the financial statements of South African

firms and those of non-adopter firms increased significantly from the pre- to the post-adoption periods (difference = 0.1192; t-statistic = 4.60). Once again, numerous potential sources could explain this increase. The evidence is consistent with changes resulting from the convergence of non-adopting countries' local GAAP with IFRS, South Africa's addition of form to its existing in-substance adoption of IFRS, enforcement changes by other non-adopting countries, and / or other market changes that are unrelated to the IFRS adoption decision.

A number of additional observations can be made from Table 4, Panel B. Comparing adopters and non-adopters in the post-adoption period, the evidence suggests that South African firms' financial statements are significantly more comparable to the financial statements of adopters relative to the financial statements of non-adopters (difference = 0.0546; F-statistic = 4.56). In comparison, there is no significant difference between the two groups in the pre-adoption period (difference = 0.0511; t-statistic = 1.41). However, we find no significant difference in the comparability change in financial statements for South African firms with adopters compared to South African firms with non-adopters (difference-in-difference = 0.0035; t-statistic= 0.11).

6 ADDITIONAL ANALYSES

6.1 Concurrent market changes

In Section 5.2, we identified the possibility that concurrent market changes that are unrelated to the IFRS adoption decision could be a possible source of the change in the comparability of financial statements of South African firms. This is plausible as the comparability of financial statements of South African firms increased significantly with both adopters and non-adopters even though the accounting standards South African firms applied remained, in substance, the same. To consider the possibility of unrelated market changes, we test changes in comparability of financial statements of non-adopters with both adopters and other non-adopters. Any increase in the comparability of financial statements of non-adopters

might suggest that the source of such increase is unrelated concurrent market changes, rather than IFRS adoption.

To generate our sample to evaluate comparability of non-adopter firms, we match the non-adopting firms with available data with all possible non-South African firms (adopters and non-adopters) based on size, industry and year-end. The firms that we include are limited to the firms that are matched with South African firms in our previous samples.¹⁸ We do not match firms with firms from the same country as we want to evaluate cross-country comparability. We alter Equation (1) and Steps 1 to 4 to create a firm-country measure of comparability between foreign firms. All other variables are the same as in Equation (1), except for *Legal* that we replace with *Same_legal*. *Same_legal* is an indicator variable that equals one if the foreign firms come from countries with the same legal origins, and zero otherwise (Yip & Young, 2012). All continuous variables are winsorized at the top and bottom five percent. We include industry fixed effects and standard errors are clustered by the matched foreign country.

The results reported in Table 5, Panel B, suggest a global shift in the comparability of financial statements following the mandatory adoption of IFRS in 2005 by a number of countries. Comparability of financial statements increased significantly between non-adopters and both adopters (difference = 0.0610; F-statistic = 6.29) and other non-adopters (difference = 0.0980; t-statistic = 3.10) from the pre- to the post-adoption period. Changes in accounting standards (for example, IFRS adoption or convergence) and enforcement are possible explanations for this increase in comparability. However, given that the difference in differences of -0.0370 (t-statistic = -0.93) is insignificant, it is unlikely, since it would require that these forces equally affect both the adopters and non-adopters group. A plausible explanation is other concurrent market changes that are not related to the IFRS adoption

¹⁸ We exclude mining firms since in untabulated results we find that the change in comparability of financial statements of firms in the mining industry following IFRS adoption is different compared to firms in other industries. Although the untabulated results show differences for mining firms, excluding it from the sample does not alter our inferences made in Section 5.2.

decision as such changes are likely to affect both groups more equally. Hence, this evidence suggests that other market changes could also be a strong driver of our results in Table 4.

6.2 Incremental benefit for South African firms

Non-adopters experienced an increase in the comparability of their financial statements with both those of adopters and those of other non-adopters after 2005. One could therefore argue that even if South Africa did not add form to its existing in-substance adoption of IFRS in 2005, the increase in the comparability of the financial statements of South African firms reported in Section 5.2 may have been evident. To investigate whether there was an incremental benefit for South Africa to adopt IFRS compared to non-adopters, we perform further tests where we evaluate comparability of South African firms with adopters relative to comparability of non-adopter firms with adopters (excluding South African firms). These tests could provide evidence on whether it was beneficial for South Africa to adopt IFRS in substance and form when it changed from IFRS-based local GAAP to IFRS as issued by the IASB. If comparability for South African firms with adopters increased more than comparability of firms from non-adopting countries with adopters it would suggest that there were benefits for South African firms to add form to its existing in-substance adoption of IFRS.

We follow a similar process to that described in Section 4 to calculate the comparability measure.¹⁹ We estimate Equation (8) to evaluate the differences in comparability of South African firms relative to non adopting firms (firm and period subscripts omitted),

$$Comp = \gamma_0 + \gamma_1(Post) + \gamma_2(SA) + \gamma_3(Post \times SA) + \sum \gamma_j(Controls) + \varepsilon \quad (8)$$

We regress the comparability measure (*Comp*) on an indicator variable *Post* to distinguish between the pre- and the post-IFRS adoption periods, an indicator variable *SA* to distinguish between comparability of South African firms with adopters and comparability of non-adopter

¹⁹ Consistent with Section 6.1, we exclude the mining firms.

firms with adopters, the interaction between these two indicator variables (*Post x SA*) and a number of control variables.

The results reported in Table 6, Panel B show, consistent with previous results, a statistically significant increase in comparability of financial statements of IFRS adopter firms with both South African firms (difference = 0.1140; F-statistic = 44.24) and firms from non-IFRS adopting countries (difference = 0.0578; t-statistic = 2.48) following the adoption of IFRS in 2005. The difference in the differences shows a significant difference in the increase in comparability of financial statements between South African firms and adopters compared to non-adopter firms and adopters. The difference of 0.0563 is significant at the 1% level (t-statistic = 3.28). Hence, while firms from non-adopting countries became more comparable to firms from adopting countries following the mandatory adoption of IFRS in 2005, there was an even greater increase in comparability between South African firms and firms from other adopting countries.²⁰ This incremental benefit for South African firms is unlikely to be attributable to convergence of accounting standards of non-adopting countries with IFRS, enforcement changes of IFRS adopting countries, or other concurrent market changes, as these changes likely affected both comparison groups. The incremental benefit is consistent with firms' from other adopting countries accounting amounts becoming more comparable with South African firms and South Africa's addition of form to its existing in-substance adoption of IFRS.

Taken together our results presented in Sections 5.2 to 6.2 suggest a global increase in the comparability of financial statements that are unrelated to the IFRS adoption decision. However, we find an increase in comparability for South African firms that cannot be explained

²⁰ One possible explanation is that our results are attributable to changes in country-level economic development between the pre- and post-adoption periods. To test for this explanation, we include a variable *GDP_ratio* in the equation which is measured as the proportion of the smallest country's GDP per capita to the largest country's GDP per capita in each firm-pair. The ratio is based on the means of GDP per capita in the pre- and post-adoption periods, respectively. GDP data is from the World Development Bank Indicators. Our inferences remain unaffected to the inclusion of this variable in the equation (not tabulated).

completely by these unrelated factors. While South Africa did not make significant changes in enforcement across the IFRS adoption periods, we are unable to rule out enforcement changes of comparison countries as a potential source of the increase in comparability. Regardless, we provide evidence that changes in the accounting amounts by comparative IFRS adopting firms and benefits associated with South Africa's addition of form to its existing in-substance adoption of IFRS are likely sources of the increase in comparability for South African firms.

6.3 Accounting quality of South African firms

In this section, we present evidence that the accounting amounts of South African firms did not change significantly following the addition of form to its existing in-substance adoption of IFRS. We do so to rule out the possibility that the increase in comparability for South African firms that we document in Section 6.2 could be attributable to increased accounting quality of South African firms following 2005. We present two sets of results. Firstly, IFRS requires firms to present a reconciliation of accounting amounts from local GAAP to IFRS in their first set of IFRS financial statements. We compare the reconciling adjustments of South African firms to firms from the UK. We select the UK for comparison since UK GAAP is regarded as one of the highest quality sets of national GAAP (Horton & Serafeim, 2010). Hence, this comparison provides context to the quality of SA GAAP relative to another set of high quality standards. Secondly, we examine whether the accounting quality of South African firms changed following the adoption of IFRS as issued by the IASB. To the extent that the substance of the accounting standards and enforcement remained unchanged in South Africa, we do not expect to find a significant change in accounting quality for South African firms following the adoption of IFRS.

In terms of IFRS 1, *First time adoption of International Financial Reporting Standards*, firms are required to disclose a reconciliation from local GAAP to IFRS of earnings, book value of equity, and cash flows in their first set of IFRS financial statements. We focus on the earnings

adjustments for two reasons. Firstly, cash flows are unlikely to be affected by IFRS adoption. Secondly, the reconciliation of book value of equity is affected by a number of transitional choices. IFRS 1 offers firms transitional choices to deviate from the general principle of full retrospective application of IFRSs in issue at the adoption date in an attempt to lower the cost of the transition. Hence, the change in net equity on the transition date does not reflect the change in equity from local GAAP to IFRSs in issue at the adoption date, but rather the change from local GAAP to what the IASB deems an acceptable starting point for future IFRS reporting (Christensen, Lee, & Walker, 2009). Earnings is less affected by these transitional choices since it does not reflect cumulative retrospective changes in equity.

To compare the IFRS earnings reconciliation adjustments of SA firms to those of UK firms, we identify all SA and UK firms that are included in our comparability sample — 51 SA firms and 70 UK firms. We hand-collect the first set of IFRS financial statements for these firms by searching their websites and www.portalchemy.com. Through this process, we gather the IFRS 1 reconciliations for 50 SA firms and 51 UK firms.

We analyse the IFRS 1 reconciliations and allocate the adjustments to the applicable IFRS standard. Adjustments that are firm-specific or cannot be allocated to a standard are grouped together as “other”. For our analyses, we calculate the absolute value of the adjustments divided by local GAAP net income for each SA and UK firm, in total and for each standard. We divide by local GAAP net income to show the magnitude of the deviation of local GAAP earnings from IFRS earnings. All adjustments are winsorized at the top and bottom five per cent.

Table 7 presents the comparison of the IFRS 1 reconciliation adjustments between South African and UK firms. On average, the absolute value of adjustments made by South African firms represented 14,4% of local GAAP earnings, while adjustments made by UK firms amounted to 69% of local GAAP earnings. Hence, on average, the adjustments made by UK firms were significantly larger than those made by South African firms (difference = -0.5458;

t-statistic = -3.32). These differences between South African and UK firms emanated mainly from business combinations (difference = -0.1819; t-statistic = -4.33), property, plant and equipment (difference = 0.0098; t-statistic = 3.75), employee benefits (difference = -0.0181; t-statistic = -3.43), investment properties (difference = -0.0274; t-statistic = -2.60) and other items (difference = -0.0007; t-statistic = -2.39). Except for property, plant and equipment, the adjustments made by UK firms were significantly larger than those by their South African counterparts. Hence, to the extent that UK GAAP was regarded as high quality local GAAP, SA GAAP was even closer to IFRS.

Many of the adjustments relate to new or revised IFRS standards that became effective concurrent with the IFRS adoption date. Leading up to the adoption of IFRS in Europe in 2005, the IASB worked towards a “stable platform” of high quality standards resulting in revisions to existing standards and the issuance of new standards by March 2004. Regardless of South Africa’s decision to adopt IFRS as issued by the IASB, these changes to IFRS were also made to SA GAAP. Hence, many of the IFRS adoption reconciling adjustments of South African firms do not reflect differences between SA GAAP and IFRS, but rather differences between IFRS in existence at the time and revised IFRS that became effective concurrent with IFRS adoption.

Next, we examine whether accounting quality changed for the South African firms included in our comparability sample following the adoption of IFRS. We base our accounting quality proxies on those previously used in the literature (Barth, Landsman, & Lang, 2008; Chen, Tang, Jiang, & Lin, 2010; Zeghal, Chtourou, & Fourati, 2012; Ahmed, Neel, & Wang, 2013; Capkun, Collins, & Jeanjean, 2016). Table 8 presents the results of the three earnings smoothing proxies, namely (1) the variability of the change in net income, (2) the mean ratio of the variability of the change in net income to the variability of the change in operating cash

flows, and (3) the Spearman correlation between accruals and cash flows. We find no significant change in any of these earnings smoothing proxies from the pre- to the post-adoption period.

Table 9 presents the results of managing towards positive earnings (*SPOS*) and timely loss recognition (*LNEG*). In both regressions, the coefficient of *Post* is insignificant, which suggests that there is no difference in these accounting quality proxies from the pre- to the post-adoption periods.

Overall, Tables 8 and 9 suggest that accounting quality did not change significantly for South African firms following the addition of form to its existing in-substance IFRS adoption. This is consistent with the notion that SA GAAP was word-for-word the same as IFRS (IFRS in substance) at the time South Africa added form to its existing in-substance adoption of IFRS. Hence, changes in the accounting quality of South African firms resulting from the switch from IFRS in substance to IFRS in substance and form or as a result of changes made to IFRS standards that became effective with adoption are not the likely sources of changes in comparability we document in Sections 5.2 and 6.2. In addition, the evidence in this section also supports the inference from Christensen et al. (2013) that South Africa did not make any substantive changes in enforcement across the IFRS adoption period.

7 CONCLUSION

The objective of this study is to determine whether there was a change in the comparability of the financial statements of firms from a country with local GAAP that was word-for-word the same as IFRS before the adoption of IFRS as issued by the IASB, in that country. Hence, we investigate a switch from IFRS in substance to IFRS in substance and form.

We investigate South Africa, since the local GAAP in that country was word-for-word the same as IFRS prior to the switch to IFRS as issued by the IASB. This setting allows us to keep the quality of standards and enforcement constant and to address other potential sources that

could drive our comparability results. We operationalize comparability with an earnings-returns measure that is well established in the literature.

In our main analysis, we find an increase in the comparability of financial statements of South African firms with adopters and non-adopters. This result can be attributed to numerous potential sources, namely South Africa's addition of form to its existing in-substance adoption of IFRS, firms from other adopting countries preparing financial statements under IFRS that is more comparable to South African firms, convergence of accounting standards of non-adopting countries with IFRS, changes in enforcement of comparative firms, and other concurrent market changes.

To provide further insights to our main findings we conduct three additional analyses. Firstly, to establish whether other concurrent market changes is a plausible explanation for our main findings, we compare the comparability of non-adopters with both adopters and other non-adopters across the IFRS switch. We find a global increase in comparability of financial statements around the time of the adoption of IFRS that cannot be attributed to the adoption of IFRS per se.

Secondly, to determine whether there was an incremental benefit for South African firms across the IFRS switch periods, we compare the comparability of South African firms with adopters relative to non-adopters with adopters. We find an incremental increase in comparability of South African firms that is unlikely to be attributable to convergence of accounting standards of non-adopting countries with IFRS, enforcement changes of IFRS adopting countries, or other concurrent market changes.

Thirdly, we provide empirical evidence that the IFRS transition adjustments made by South African firms are significantly smaller than those made by firms from the UK, a country that had one of the highest quality sets of local GAAP. In addition, we show that accounting quality of South African firms did not change significantly from the pre- to the post-adoption periods.

Taken together, this evidence is consistent with SA GAAP being word-for-word the same as IFRS.

We provide evidence consistent with a stated objective in the IASB and IFRS Foundation's (2015) mission statement to increase transparency of financial markets through increased comparability of financial statements and identify potential sources of such increases. Our findings may be useful to regulators from countries that have converged local GAAP with IFRS, but have not formally adopted IFRS as issued by the IASB.

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Table 1:
Research design to evaluate Hypotheses 1 and 2

		Pre-adoption (2002 – 2004)	Post-adoption (2006 - 2008)	Difference	
		(a)	(b)	(b) - (a)	
Adopters	(i)	$\gamma_0 + \gamma_2$	$\gamma_0 + \gamma_1 + \gamma_2 + \gamma_3$	$\gamma_1 + \gamma_3$	(H1)
Non-adopters	(ii)	γ_0	$\gamma_0 + \gamma_1$	γ_1	(H2)
Difference	(i) - (ii)	γ_2	$\gamma_2 + \gamma_3$	γ_3	

TABLE 2
Sample

Panel A: Sample distribution by adopting country

Adopters	Legal tradition	Comp n
Australia	Common	47
Austria	Code	2
Belgium	Code	10
Denmark	Code	13
Finland	Code	12
France	Code	33
Germany	Code	14
Greece	Code	17
Ireland	Common	9
Italy	Code	19
Luxembourg	Code	3
Netherlands	Code	11
Poland	Code	7
Portugal	Code	4
Slovenia	Code	1
Spain	Code	11
Sweden	Code	12
United Kingdom	Common	47
Totals		272

Panel B: Sample distribution by non-adopting country

Non-adopters	Legal tradition	Comp n
Argentina	Code	9
Brazil	Code	6
Canada	Common	30
China	Code	17
India	Common	15
Indonesia	Code	11
Japan	Code	60
Mexico	Code	7
South Korea	Code	25
United States	Common	78
Totals		258

Table 2 reports our sample. Panel A and B reports the number of unique firm-country matches by country for all IFRS and non-IFRS adoption countries. We include each country's legal tradition. The classification of each country's legal tradition is based on prior research (La Porta et al. 1998; Leuz et al. 2003; Barth et al. 2012) and where it was not available based on the classification by the Central Intelligence Agency (n.d.). The IFRS adopting countries only include European countries that were members of the European Union in 2005, the date of mandatory adoption of IFRS in the European Union. We exclude Cyprus and Malta that adopted IFRS before 2005 (IFRS Foundation 2015). We exclude Turkey from the list of non-adopters since Turkey adopted IFRS in 2008 (PricewaterhouseCoopers 2013). There were no matches between South African firms and firms from Czech Republic, Estonia, Hungary, Latvia, Lithuania, Slovakia, Russia and Saudi Arabia.

TABLE 3**Descriptive statistics***Panel A: Descriptive statistics: Input, estimation and firm characteristic variables*

Variable	n	Mean	Standard deviation	Lower quartile	Median	Upper quartile
Input variables						
<i>Earnings</i>	13 284	0.0310	1.8919	-0.0053	0.0475	0.0873
<i>Returns</i>	13 284	0.1661	1.4527	-0.2727	0.0000	0.3256
Estimation of <i>Comp</i>						
α -coefficient	4 428	0.0342	1.7418	-0.0077	0.0471	0.0825
β -coefficient	4 428	0.1179	1.8555	-0.0173	0.0340	0.1167
<i>Regression R² (%)</i>	4 428	58.57	34.72	25.62	66.85	92.06
Firm characteristics variables						
<i>Total Assets (US \$ millions)</i>	2 214	3 576.95	18 446.59	52.49	240.12	622.87
<i>BTM</i>	2 214	0.8647	8.4403	0.3450	0.5965	0.8968

Panel B: Descriptive statistics: Dependent and control variables

Variable	n	Mean	Standard deviation	Lower quartile	Median	Upper quartile
<i>SA and adopters</i>						
<i>Comp</i> (pre-adoption)	272	-0.2959	0.3378	-0.3452	-0.1779	-0.0710
<i>Comp</i> (post-adoption)	272	-0.1732	0.2192	-0.1896	-0.0930	-0.0580
<i>Legal</i>	272	0.3787	0.4855	0.0000	0.0000	1.0000
<i>Size_ratio</i>	272	0.7318	0.1222	0.6310	0.7259	0.8256
<i>BTM_diff</i>	272	0.5045	0.6292	0.1688	0.2916	0.5340
<i>SA and non-adopters</i>						
<i>Comp</i> (pre-adoption)	258	-0.3735	0.3874	-0.4912	-0.2163	-0.1060
<i>Comp</i> (post-adoption)	258	-0.2543	0.2990	-0.3072	-0.1418	-0.0740
<i>Legal</i>	258	0.4767	0.4999	0.0000	0.0000	1.0000
<i>Size_ratio</i>	258	0.7212	0.1052	0.6555	0.7205	0.7835
<i>BTM_diff</i>	258	0.6859	0.7584	0.2346	0.4205	0.7810

Panel C: Comparison of means

	n	Pre-adoption <i>Comp</i>	Post-adoption <i>Comp</i>	Difference	t- test	<i>Size_ratio</i>	<i>BTM_diff</i>
SA and adopters (i)	544	-0.2959	-0.1732	0.1227	***	0.7318	0.5045
SA and non-adopters (ii)	516	-0.3735	-0.2543	0.1192	***	0.7212	0.6859
(i) - (ii)		0.0776	0.0811		**	0.0106	-0.1814

Panel D: Correlations

	<i>Comp</i>	<i>Legal</i>	<i>Size_ratio</i>	<i>BTM_diff</i>
<i>Comp</i>	1	-0.0513	-0.0035	-0.2755
<i>Legal</i>	-0.0712	1	0.0354	0.0536
<i>Size_ratio</i>	0.0130	0.0263	1	0.0134
<i>BTM_diff</i>	-0.3920	0.0754	-0.0379	1

*. **. *** denotes significance at the 10%, 5% and 1% levels, respectively, all two-tailed.

Table 3 reports the descriptive statistics. Panel A reports the descriptive statistics for the variables used to estimate *Comp* as well as the firm characteristics variables. Panel B reports the descriptive statistics for the dependent and control variables. Panel C reports the sample distribution of all matches made between South African firms and foreign countries by group (adopters and non-adopters) as well as the group-level descriptive statistics. The t-test determines whether the mean *Comp* values between the pre- and the post-adoption periods differ significantly from each other. Panel D reports the Spearman (Pearson) correlations above (below) the diagonal for the dependent and control variables. Significant correlations at the 1% level appear in bold.

Earnings is net income before extraordinary items scaled by market value of equity nine months before the financial year-end; *Returns* is the percentage change in share price from nine months before the financial year-end to three months after; α and β is the coefficients generated from the estimation of each firms accounting function (Equation 3); *Regression R²* is the *R²* generated from the estimation of the firms' accounting function (Equation 3); *Total Assets* is the total asset value in millions of United States dollars at the 2005 financial year-end; *BTM* is the book-to-market ratio, measured as the book value of equity divided by the market value of equity at the 2005 financial year-end; *Comp* is a comparability measure using returns as the economic event and earnings as the proxy for the financial statements; *Adopter* is an indicator variable equal to one if the foreign country adopted IFRS in 2005, and zero otherwise; *Legal* is an indicator variable equal to one if the foreign country's legal origin is common law, and zero otherwise; *Size_ratio* is the mean size ratio of all firm-pairs included in the firm-country comparability measure, where the size ratio of each firm-pair is measured as the proportion of the smallest firm's total assets to the largest firm's total assets; *BTM_diff* is the mean book-to-market differences of all firm-pairs included in the firm-country comparability measure where the book-to-market differences of each firm-pair is measured as the absolute value of the difference in the book-to-market ratio.

All continuous variables are winsorized at the top and bottom five percent.

TABLE 4

South African Firms' Comparability with Adopters and non-Adopters

$$Comp = \gamma_0 + \gamma_1(Post) + \gamma_2(Adopter) + \gamma_3(Post \times Adopter) + \sum \gamma_j(Controls_j) + \varepsilon \quad (1)$$

Panel A: Regression

	<i>Comp</i> (n=1 060)	
<i>Intercept</i>	-0.3171 (-5.01)	***
<i>Post</i>	0.1192 (4.60)	***
<i>Adopter</i>	0.0511 (1.41)	
<i>Post x Adopter</i>	0.0035 (0.11)	
<i>Legal</i>	-0.0131 (-0.52)	
<i>Size_ratio</i>	-0.0199 (-0.22)	
<i>BTM_diff</i>	-0.1784 (-13.39)	***
Fixed effects		Industry
F-statistic		
Overall model	(303.47)	***
<i>Post + Post x Adopter = 0</i>	(40.08)	***
<i>Adopter + Post x Adopter = 0</i>	(4.56)	**
Adjusted R ²	0.2058	

Panel B: Difference-in-differences analysis — *Comp* (n=1 060)

	Pre-adoption (2002 - 2004)	Post-adoption (2006 - 2008)	Difference
Comparability between:			
SA and adopters (n=544)	-0.2660	-0.1433	0.1227 (40.08) ***
SA and non-adopters (n=576)	-0.3171	-0.1979	0.1192 (4.60) ***
Difference	0.0511 (1.41)	0.0546 (4.56) **	0.0035 (0.11)

*, **, *** denotes significance at the 10%, 5% and 1% levels, respectively, all two-tailed.

Table 4 reports the multivariate regression results for Equation (1) with comparability measured between South African firms and firms from both adopting and non-adopting countries. Panel A reports the regression coefficients with t-statistics reported in parentheses for the coefficient estimates. Standard errors are clustered by foreign country. Panel B reports the difference-in-differences analysis of comparability of South African firms (SA) with adopters versus non-adopters. Panel B was prepared using the coefficients as reported in Panel A. The amounts in parentheses are either the t-statistics or F-statistics as per Panel A.

Comp is a comparability measure using returns as the economic event and earnings as the proxy for the financial statements; *Post* is an indicator variable equal to one for the post-adoption period, and zero otherwise; *Adopter* is an indicator variable equal to one if the foreign country adopted IFRS in 2005, and zero otherwise; *Post x Adopter* is an interaction term between the two indicator variables, *Post* and *Adopter*; *Legal* is an indicator variable equal to one if the foreign country's legal origin is common law, and zero otherwise; *Size_ratio* is the mean size ratio of all firm-pairs included in the firm-country comparability measure, where the size ratio of each firm-pair is measured as the proportion of the smallest firm's total assets to the largest firm's total assets; *BTM_diff* is the mean book-to-market differences of all firm-pairs included in the firm-country comparability measure where the book-to-market differences of each firm-pair is measured as the absolute value of the difference in the book-to-market ratio.

All continuous variables are winsorized at the top and bottom five percent.

TABLE 5

Non-Adopting Firms' Comparability with Adopters and Other non-Adopters

$$Comp = \gamma_0 + \gamma_1(Post) + \gamma_2(Adopter) + \gamma_3(Post \times Adopter) + \sum \gamma_j(Controls_j) + \varepsilon \quad (1)$$

Panel A: Regression

	<i>CompEarn</i> (n= 24 134)
<i>Intercept</i>	-0.2962 (-8.78) ***
<i>Post</i>	0.0980 (3.10) ***
<i>Adopter</i>	0.0392 (1.23)
<i>Post x Adopter</i>	-0.0370 (-0.93)
<i>Same_legal</i>	0.0035 (0.24)
<i>Size_ratio</i>	-0.0169 (-0.50)
<i>BTM_diff</i>	-0.1946 (-13.04) ***
Fixed effects	Industry
F-statistic	
Overall	(91.54) ***
<i>Post + Post x Adopter = 0</i>	(6.29) **
<i>Adopter + Post x Adopter = 0</i>	(0.01)
Adjusted R ²	0.1436

Panel B: Difference-in-differences analysis — *Comp* (n=24 134)

	Pre-adoption (2002 - 2004)	Post-adoption (2006 - 2008)	Difference
Comparability between:			
Non-adopters and adopters (n=13 872)	-0.2571	-0.1961	0.0610 (6.29) **
Non-adopters and non-adopters (n=10 262)	-0.2962	-0.1982	0.0980 (3.10) ***
Difference	0.0392 (1.23)	0.0021 (0.01)	-0.0370 (-0.93)

*, **, *** denotes significance at the 10%, 5% and 1% levels, respectively, all two-tailed.

Table 5 reports the multivariate regression results for Equation (8) with comparability measured between firms from non-adopting countries and firms from both adopting and non-adopting countries. Panel A reports the regression coefficients with t-statistics reported in parentheses for the coefficient estimates. Standard errors are clustered by the matched foreign country. Panel B reports the difference-in-differences analysis of comparability of non-adopting firms with adopter firms versus non-adopter firms. Panel B was prepared using the coefficients as reported in Panel A. The amounts in parentheses are either the t-statistics or F-statistics (all two-tailed) as per Panel A.

Comp is a comparability measure using returns as the economic event and earnings as the proxy for the financial statements; *Post* is an indicator variable equal to one for the post-adoption period, and zero otherwise; *Adopter* is an indicator variable equal to one if the foreign country adopted IFRS in 2005, and zero otherwise; *Post x Adopter* is an interaction term between the two indicator variables, *Post* and *Adopter*; *Same_legal* is an indicator variable equal to one if the two foreign countries have the same legal origin, and zero otherwise; *Size_ratio* is the mean size ratio of all firm-pairs included in the firm-country comparability measure, where the size ratio of each firm-pair is measured as the proportion of the smallest firm's total assets to the largest firm's total assets; *BTM_diff* is the mean book-to-market differences of all firm-pairs included in the firm-country comparability measure where the book-to-market differences of each firm-pair is measured as the absolute value of the difference in the book-to-market ratio.

All continuous variables are winsorized at the top and bottom five percent.

TABLE 6

South African Firms' Comparability with Adopters versus non-Adopting Firms'

Comparability with Adopters

$$Comp = \gamma_0 + \gamma_1(Post) + \gamma_2(SA) + \gamma_3(Post \times SA) + \sum \gamma_j(Controls_j) + \varepsilon \quad (8)$$

Panel A: Regression

	<i>Comp</i>
	n = 14 400
<i>Intercept</i>	-0.1456 (-3.42) ***
<i>Post</i>	0.0578 (2.48) **
<i>SA</i>	-0.0278 (-1.3)
<i>Post x SA</i>	0.0563 (3.28) ***
<i>Same_legal</i>	0.0131 (0.87)
<i>Size_ratio</i>	-0.0158 (-0.33)
<i>BTM_diff</i>	-0.1958 (-10.37) ***
Fixed effects	Industry
F-statistic	
Overall	(2615.22) ***
<i>Post + Post x SA = 0</i>	(44.24) ***
<i>SA + Post x SA = 0</i>	(6.22) **
Adjusted R ²	0.1418

Panel B: Difference-in-differences analysis — *Comp* (n=14 400)

	Pre-adoption (2002 - 2004)	Post-adoption (2006 - 2008)	Difference
Comparability between:			
SA and adopters (n=528)	-0.1734	-0.0594	0.1140 (44.24) ***
Non-adopters and adopters (n=12 872)	-0.1456	-0.0878	0.0578 (2.48) **
Difference	-0.0278 (-1.3)	0.0284 (6.22) **	0.0563 (3.28) ***

*, **, *** denotes significance at the 10%, 5% and 1% levels, respectively, all two-tailed.

Table 6 reports the multivariate regression results for Equation (9) with comparability (*Comp*) measured between South African firms and adopters and between firms from non-adopting countries and adopters. Panel A reports the regression coefficients with t-statistics reported in parentheses for the coefficient estimates. Standard errors are clustered by matched foreign country. Panel B reports the difference-in-differences analysis of comparability of South African firms (SA) with adopters versus comparability of non-adopter firms with adopters. Panel B was prepared using the coefficients as reported in Panel A. The amounts in parentheses are either the t-statistics or F-statistics as per Panel A.

Comp is a comparability measure using returns as the economic event and earnings as the proxy for the financial statements; *Post* is an indicator variable equal to one for the post-adoption period, and zero otherwise; *SA* is an indicator variable equal to one if the firm is from South Africa, and zero otherwise; *Post x SA* is an interaction term between the two indicator variables, *Post* and *SA*; *Same_legal* is an indicator variable equal to one if the two foreign countries have the same legal origin, and zero otherwise; *Size_ratio* is the mean size ratio of all firm-pairs included in the firm-country comparability measure, where the size ratio of each firm-pair is measured as the proportion of the smallest firm's total assets to the largest firm's total assets; *BTM_diff* is the mean book-to-market differences of all firm-pairs included in the firm-country comparability measure where the book-to-market differences of each firm-pair is measured as the absolute value of the difference in the book-to-market ratio.

All continuous variables are winsorized at the top and bottom five percent.

TABLE 7

Comparison of South African and United Kingdom firms' IFRS adoption adjustments

IFRS 1 adjustments to net income	SA (n=50)	UK (n=51)	Diff	t-value	
<i>Total</i>	0.1440	0.6898	-0.5458	-3.32	***
<i>IFRS 2 - Share-based Payments</i>	0.0323	0.0359	-0.0036	-0.26	
<i>IFRS 3 - Business Combinations</i>	0.0118	0.1936	-0.1819	-4.33	***
<i>IFRS 4 - Insurance Contracts</i>	0.0009	0.0015	-0.0006	-0.65	
<i>IAS 12 - Income Taxes</i>	0.0086	0.0192	-0.0107	-1.36	
<i>IAS 16 - Property, Plant and Equipment</i>	0.0111	0.0013	0.0098	3.75	***
<i>IAS 17 - Leases</i>	0.0046	0.0022	0.0024	1.42	
<i>IAS 18 - Revenue</i>	0.0037	0.0066	-0.0029	-0.80	
<i>IAS 19 - Employee Benefits</i>	0.0023	0.0204	-0.0181	-3.43	***
<i>IAS 21 - The Effects of Changes in Foreign Exchange Rates</i>	0.0034	0.0073	-0.0039	-1.08	
<i>IAS 38 - Intangible assets</i>	0.0030	0.0074	-0.0044	-1.35	
<i>IAS 39 - Financial Instruments</i>	0.0146	0.0146	0.0000	0.01	
<i>IAS 40 - Investment Properties</i>	0.0000	0.0274	-0.0274	-2.60	**
<i>Other</i>	0.0001	0.0008	-0.0007	-2.39	**

*, **, *** denotes significance at a ten, five and one per cent level, respectively, all two-tailed.

Table 7 reports the mean of the IFRS 1 reconciliation adjustments reported by SA and UK firms and the difference between the two groups. The t-test determines whether the mean values differ significantly between SA and UK firms.

Total is the absolute value of the sum of all IFRS 1 reconciliation adjustments divided by local GAAP net income; The adjustments per IFRS standard reflect the absolute value of the adjustment relating to the adoption of the applicable standard (as indicated in the above table) divided by local GAAP net income. *Other* relates to adjustments that were firm specific or could not be allocated to a specific standard.

All adjustments are winsorized at the top and bottom five per cent.

TABLE 8

Comparison of earnings smoothing measures for South African firms following IFRS

Adoption

$$ESV_{it} = \beta_0 + \beta_1 Lev_{it} + \beta_2 Growth_{it} + \beta_3 Eissue_{it} + \beta_4 Dissue_{it} + \beta_5 Turn_{it} + \beta_6 Size_{it} + \beta_7 CF_{it} + \varepsilon_{it}$$

	Pre- adoption (n=495)	Post- adoption (n=495)	Difference (Post – Pre)	p-values
Variability of ΔNI^r	0.0135	0.0091	-0.0044	0.1350
Variability of ΔNI^r over ΔCF^r	10.5008	7.1173	-3.3835	0.6760
Correlation of ACC^r and CF^r	-0.5261	-0.5265	-0.0004	0.5620

*, **, *** denotes significance between the pre- and post-adoption periods at a ten, five and one per cent level, respectively, all two-tailed. Table 8 reports the earnings smoothing measures for South African firms separately for the pre-adoption (2002 to 2004) and post-adoption (2006 to 2008) periods. Variables indicated with a (°) are the residuals from the regression of the earnings smoothing variables (ESV) on a number of control variables including industry fixed effects, using the equation above. Variability of ΔNI^r (ΔCF^r) is the variance of the residuals from the equation above. Variability of ΔNI^r over ΔCF^r is the variability of ΔNI^r divided by variability of ΔCF^r . Correlation of ACC^r and CF^r is the Spearman correlation between the residuals from the equation above with ACC and CF as the ESV , respectively. Using a bootstrapping approach, replicated 1 000 times, we used a t-test based on the empirical distribution of the differences to test for significant differences between the pre-adoption and post-adoption periods. The p-values are reported in Column 5.

ESV is the earnings smoothing variables that is either ΔNI , ΔCF , CF or ACC ; ΔNI is the change in net income before extraordinary items, where net income is scaled by total assets at the end of the year; ΔCF is the change in operating cash flows, where cash flows are scaled by total assets at the end of the year; CF is operating cash flows scaled by total assets at the end of the year; ACC is net income before extraordinary items less operating cash flows scaled by total assets at the end of the year.

Lev is total liabilities at the end of the year divided by total book value of equity at the end of the year; $Growth$ is annual percentage change in sales; $Eissue$ is annual percentage change in common stock; $Dissue$ is annual percentage change in total liabilities; $Turn$ is sales divided by total assets at the end of the year; $Size$ is the natural logarithm of market value of equity (in millions) at the end of the year.

All continuous variables are winsorized at the top and bottom five per cent.

TABLE 9

Managing towards a target and timely loss recognition

$$SPOS_{it} = \beta_0 + \beta_1 Post_{it} + \beta_2 Lev_{it} + \beta_3 Growth_{it} + \beta_4 Eissue_{it} + \beta_5 Dissue_{it} + \beta_6 Turn_{it} + \beta_7 Size_{it} + \beta_8 CF_{it} + \varepsilon_{it}$$

$$LNEG_{it} = \beta_0 + \beta_1 Post_{it} + \beta_2 Lev_{it} + \beta_3 Growth_{it} + \beta_4 Eissue_{it} + \beta_5 Dissue_{it} + \beta_6 Turn_{it} + \beta_7 Size_{it} + \beta_8 CF_{it} + \varepsilon_{it}$$

	<i>SPOS</i> <i>n=990</i>	<i>LNEG</i> <i>n=990</i>
<i>Intercept</i>	0.0174 (0.83)	0.3349 (4.34) ***
<i>Post</i>	-0.0099 (-0.93)	-0.1173 (-0.78)
<i>Lev</i>	0.0194 (3.24) ***	0.0079 (2.35) **
<i>Growth</i>	0.0254 (0.87)	-0.0889 (-2.98) ***
<i>Eissue</i>	-0.0009 (-0.02)	0.0002 (0.00)
<i>Dissue</i>	-0.0246 (-3.84) ***	-0.0004 (-0.01)
<i>Turn</i>	-0.0167 (-1.73) *	-0.0001 (-0.01)
<i>Size</i>	-0.0030 (-1.03)	-0.0194 (-4.38) ***
<i>CF</i>	-0.1136 (-1.92) *	-0.3429 (-3.34) ***
Fixed effects	Industry	Industry
Overall F-statistic	(2.93) ***	(4.23) ***
Adjusted R ²	0.1232	0.1616

*, **, *** denotes significance at a ten, five and one per cent level, respectively, all two-tailed.

Table 9 reports the ordinary least squares regression results for the equations using *SPOS* and *LNEG* as the dependent variables, respectively. *SPOS* is an indicator variable equal to one if net income before extraordinary items scaled by total assets at the end of the year is between 0 and 0.01, and zero otherwise. *LNEG* is an indicator variable equal to one if the net income before extraordinary items scaled by total assets at the end of the year is less than -0.2, and zero otherwise. *Post* is an indicator variable equal to one for the post-IFRS adoption period (2006 to 2008), and zero otherwise. *Lev* is total liabilities at the end of the year divided by total book value of equity at the end of the year; *Growth* is annual percentage change in sales; *Eissue* is annual percentage change in common stock; *Dissue* is annual percentage change in total liabilities; *Turn* is sales divided by total assets at the end of the year; *Size* is the natural logarithm of market value of equity (in millions) at the end of the year; *CF* is operating cash flows scaled by total assets at the end of the year. The t-statistics are reported in parentheses for the coefficient estimates. Standard errors are clustered by firm and year.

All continuous variables are winsorized at the top and bottom five per cent.