Analyses of unintended consequences of IAS 12 on deferred income taxes

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Abstract

Purpose – An intractable effect of revenue and expense recognition based on tax regulation and accounting rules is unresolved and may be manageable only by reducing the value of deferred taxes. Therefore, in this study, the authors examined the relationship between the International Accounting Standard 12 (IAS 12) and deferred income taxes associated with tax and accounting rules.

Design/methodology/approach – The authors used a large sample of balanced data from 144 firms across 1992–2019. To mitigate the problem of superfluous results, the authors used the same number of firms and years for pre- and post-IAS 12 periods. The authors employed robust econometric estimations to establish the impact of IAS 12 on deferred tax.

Findings – The regression results show that deferred tax assets decreased significantly, whereas deferred tax liabilities increased significantly, in the post-IAS 12 period. These contrasting results imply that IAS 12 implementation has increased conservatism and prudence in financial reporting. However, the authors find that the increase in deferred tax assets post-IAS 12 is value destructive, suggesting that its implementation has unintended consequences. The results are robust to alternative measurements and econometric identification strategies.

Originality/value – While prior studies have explored topics such as deferred tax measurement and the impact of income and expense recognition, the authors specifically analyzed how IAS 12 affects deferred taxes and their effect on the market valuation. The authors find that certain accounting standards may not be relevant to the capital market.

Keywords Accounting rules, Tax rules, Accounting standards, Financial statements

Paper type Research paper

1. Introduction

Accounting for income tax remains one of the most complex reporting items in financial statements because of the timing difference in accounting and tax reporting (Görlitz & Dobler, 2023). Fundamental to the complex income tax accounting framework is an understanding of deferred tax accounting. Deferred tax is a future tax consequence of accounting transactions (Mear, 2011). This study is motivated by the significance of deferred tax in financial reporting. It is relevant in financial reporting because it enables firms to recognize current and future tax consequences of events within the same reporting period,

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providing a complete measure of the firm's assets and liabilities (Karampinis & Hevas, 2013). Although deferred tax is temporary, it has a long-time horizon to reverse. For instance, Mear, Bradbury, and Hooks (2020) report that about 70% of the deferred tax balance persists over a four-year horizon. Nevertheless, this horizon varies between the two main components of deferred tax: deferred tax assets and deferred tax liabilities. The former is likely to reverse more quickly than the latter (Chludek, 2011), and this difference in the reversal periods raises the possibility of differential effects on financial statements. Consequently, some scholars highlight the significant impact of deferred tax assets and liabilities on earnings management and its concomitant effect on accounting information quality (Cazier, Rego, Tian, & Wilson, 2015; Karampinis & Hevas, 2013 and Phillips, Pincus, & Rego, 2003). Further, to the extent that deferred tax assets and liabilities are both balance sheet items that affect firms' financial position (Chludek, 2011), their accounting will be of significant interest to investors because of the associated effects on valuation (Mear *et al.*, 2020).

The impact of deferred tax accounting on financial reporting varies according to the approach adopted for the recognition and measurement of the tax payable to the tax authority. In this context, the aim underlying the introduction of International Accounting Standard 12 (IAS 12)–Income tax is to provide an improved accounting framework for deferred taxes that will present value-relevant information to investors and other users. Despite this laudable objective, as with other International Financial Reporting Standards (IFRS), IAS 12 provides a variety of optimistic accounting policies for preparers of financial statements (Edeigba, 2017 and Edeigba, Gan, & Amenkhienan, 2020), which could lead to unintended consequences. For instance, a fundamental aim in standard setting is to make accounting information value relevant for investors (Laux, 2013). Consequently, changes in accounting standards are expected to result in improvements in the value relevance of accounting numbers. Thus, instances where new standards result in less value relevance constitute an unintended consequence to the extent that it deviates from the objective of standard setters. Therefore, we are motivated to examine the unintended consequences (if any) of deferred tax, following the adoption of IAS 12–Income taxes in New Zealand.

New Zealand is one of the few non-European Union early adopters of IFRS, including IAS 12. Before it adopted IAS 12, the country was still practicing deferred tax accounting under the Statements of Standard Accounting Practice 12 (SSAP 12). However, IAS 12 brought some significant changes in the recognition and measurement of deferred tax, which are expected to have some consequences.

First, there are differences and similarities between IAS 12 and SSAP 12. That is, IAS 12 introduces the balance sheet approach of calculating deferred tax, as against the income approach prescribed in SSAP 12. However, this newly introduced balance sheet approach also includes a deferred tax on revaluation, similar to the prescription in SSAP 12. However, although Mear (2011) argues anecdotally about possible increases in deferred tax liabilities induced by IAS 12, there is little (if any) empirical evidence on the effect of IAS 12 on deferred tax assets. Thus, the present study addresses this gap.

Second, SSAP 12 allowed both partial and comprehensive computation of deferred tax. However, IAS 12 allows only comprehensive tax computation. Prior studies suggest that these changes should lead to high deferred tax liabilities (Mear, 2011). Third, under SSAP 12, firms were allowed to recognize deferred tax assets on virtual certainty, but under IAS 12, deferred tax assets can only be recognized when it is probable that the firm will recover the assets in the future. Unlike IAS 12, which provides comprehensive guidance on how firms should conclude on the probable recovery of deferred tax assets, SSAP 12 does not offer clear guidance on how firms should test or determine virtual certainty. Therefore, virtual certainty provides preparers of financial statements an opportunity to claim deferred tax assets on the perception that the deferred tax assets will be recovered in an unpredictable future. Fourth, whereas SSAP 12 provides basic guidance on accounting for income taxes, IAS 12 provides a

more comprehensive, up-to-date framework that entities in countries adopting IFRS can use to ensure that their accounting for income taxes complies with international standards (Deloitte, 2005). As with any international accounting standard, IAS 12 aims to increase the quality of financial information through conservatism and prudence recognition and measurement (Tawiah, 2020), resulting in an increase in deferred tax liabilities and a decrease in deferred tax assets.

Notwithstanding the perceived high quality of IAS 12, the principle-based nature of the standard creates room for potential unintended consequences. For instance, unlike SSAP 12, IAS 12 requires some subjective judgment in measurement and disclosure, which allows measuring accounting value without any strict rules and thus may affect the reliability of accounting measurement. This aspect could affect firms' market valuation.

To explore these intriguing intended and unintended consequences of IAS 12 adoption, we use data on 144 firms for 1992–2019 to examine the effects of IAS 12 on deferred tax in New Zealand. Our results are as follows. We find a significant increase in deferred tax liabilities post-IAS 12 adoption. In contrast, deferred tax assets decreased significantly around the same period. However, before IAS 12 adoption, in most firms, the recognition of deferred tax assets exceeded that of deferred tax liabilities. In addition, our results suggest that the post-IAS 12 increase in deferred tax liabilities is a value decreasing. Conversely, the reduction in deferred tax assets after IAS 12 adoption is not value relevant. These results are contrary to the perceived intended consequences of IAS 12. Given that IAS 12 uses a balance sheet approach that includes the revaluation of deferred taxes, it is expected to capture more temporary differences and future tax assets. Our finding—that the comprehensive computation approach yields higher deferred tax liabilities than the partial computation approach that was dominant under SSAP 12—are consistent with those of Mear (2011). We expected deferred tax assets to be higher under IAS 12 than under SSAP 12 because of the virtual certainty concept in SSAP 12 as against the robust guidance in IAS 12 on how firms should recognize deferred tax assets. On the contrary, we report a significant increase in deferred tax liabilities post-IAS 12 implementation. Further, the fact that the reduction in deferred tax assets after IAS 12 adoption has no value implications means that investors do not value the decrease in deferred tax assets following

IAS 12 adoption. This is in contrast to the standard setters' objective of improving the value relevance of accounting numbers.

Accordingly, this study offers important contributions to the literature. First, despite the various studies on IFRS adoption, little is known about the unintended consequences of IFRS adoption on the tax measurement for financial reporting and tax filing for tax authorities. Thus, our study contributes to the literature by investigating whether there are intractable issues associated with deferred taxes in the IFRS accounting regime. Second, this study contributes to the literature by documenting that IAS 12 has unintended consequences on the capital market. This is an important finding because temporary tax differences can increase firm assets and liabilities without necessarily guaranteeing cash flow from deferred tax assets or liabilities in the future. This increase can be misleading when financial statement users make decisions based on firms' balance sheet accounting items, such as assets, liabilities or equity.

The remainder of this paper is structured as follows. In Section 2, we present a literature review and our hypotheses. In Section 3, we describe the data and analysis method, and in Section 4, we present the results of our empirical analysis. We discuss the results in Section 5. Finally, Section 6 concludes the study.

2. Literature review and hypothesis development

The objective of financial reporting is to provide investors and regulatory authorities with financial information that will support their decisions. Hence, the development of accounting

standards is expected to create comparability and enhance the substance of financial information such that investors can understand and rely on the contents of the financial report (Edeigba, 2017; Edeigba & Amenkhienan, 2017 and Edeigba *et al.,* 2020). Meanwhile, the reporting firms have the responsibility to recognize, measure and disclose income and expenses, according to tax regulations (Bank, 2001 and Xiao & Shao, 2020).

The rules set for taxes and financial reporting are mutually exclusive. The differences in accounting and tax rules result in a significant gap between tax amounts calculated based on tax rules and tax amounts calculated based on accounting standards. This implies that the use of only one of these tax amounts in decision-making could result in a dysfunctional decision, if the decision-maker does not select the appropriate tax value (Allingham & Sandmo, 1972; Chen & Chu, 2005; Radhakrishnan & Janakiraman, 2020 and Wills, Bird, & Sinkey, 2014).

The gap between accounting and tax rules emerges from two sources: recognition and measurement. For example, the case of *Thor Power,* has established fundamental legal principles for the differentiation of accounting and tax calculations of income. These principles are based on the definition of income and the approach adopted for income recognition that has been used since late 1969 (Wills *et al.*, 2014). The principles have not changed, particularly in Anglo-Saxon countries.

In the *Thor Power* case, accounting income tax and inland revenue tax are viewed as two distinct systems that aim to achieve two objectives. That is, the view in the *Thor Power* case is that the principle of income tax is to collect revenue for the government, whereas the principle of accounting income tax is to provide information to investors on business performance.

However, the difference between accounting income tax and inland revenue tax can be traced to the gap associated with the recognition and measurement of accounting values. The recognition and measurement of taxes in accounting are based on the accrual accounting system and the future flow of economic resources, such as the capitalization of asset costs (IAS 16), the research and development expenses (IAS 38) and the recognition of revenue from contracts with customers (IAS 15). In contrast, the tax accounting for income is based on the concept or principle of realization of income or expense with more certainty (Gee, Haller, & Nobes, 2010).

A further source of deferred taxes could be traced to the choices of accounting policies for the recognition, measurement, and disclosure of income and expenses. These choices are available in both tax and accounting standards. For example, under the tax law, income and expense can be recognized on a cash or invoice basis (accrual), whereas under the accounting standards, there are multiple choices of accounting policies from which financial statement preparers can adopt particular policies as opposed to others.

Significantly, the choices of a financial statement preparer could be driven by earnings aggressiveness, which could result in a significant gap between the taxable income and taxes for financial reporting purposes (Radhakrishnan & Janakiraman, 2020; Saudagaran & Diga, 1998 and Shackelford & Shevlin, 2001). The tax rule is stricter where there are limited choices for the tax payable. For example, there are strict compliance requirements for the depreciation of assets, and a taxpayer can adopt one method (straight line or diminishing value) for a given asset throughout the its taxable life. This implies that the tax rules have limited exceptions or choices, unlike accounting standards, which have multiple recognition, measurement and disclosure policies.

The tax accounting model is based on a transaction approach [1] for tax calculation, while accounting standards mainly adopt a value-based accounting system [2] that focuses on rational accounting value calculations (Chaudhary, 2019 and Norberg, 2008). Hence, the rationale behind tax rules and accounting standards is ensuring the fair representation of the economic value of accounting items (Deegan, 2020 and Deegan & Unerman, 2011). Therefore, a reduction in deferred taxes is expected, following an improvement in accounting standards and tax regulation (Gee *et al.*, 2010 and Shackelford & Shevlin, 2001).

A reduction in the tax gap between accounting for income tax and for financial reporting in relation to accounting standard requirements is an unintended consequence. However, a tax gap reduction could result from firms' level of compliance with the tax regulations as well as the accounting rules central to the prevention of "unintentional neglect, a misinterpretation of disclosure requirements, or an intention not to comply with accounting recognition, measurement and disclosure rules" (Boujelben & Kobbi-Fakhfakh, 2020).

Nevertheless, a reduction in the tax gap in association with IAS 12 in a large number of firms is unlikely to be a consequence of compliance and misrepresentation issues. IAS 12 tends to enhance financial reporting through timely recognition of the effects of tax assets and liabilities on firms' financial performance (Mohsin *et al.*, 2021). This is not different from the objectives of tax rules. The tax regulation is aimed at achieving the timely collection of tax revenue and the reasonableness of tax requirements (Mahdavi, 2008 and Tsindeliani *et al.*, 2021). The accounting standards framework of the International Accounting Standards Board (IASB), which is based on the qualitative characteristics of financial statements, resonates with tax regulation from the perspective of the reasonableness of tax requirements. Therefore, improvement in tax and accounting rules could lead to unintended consequences in accounting values (Edeigba, 2017).

The adoption of IAS 12 involves the use of intuitive accounting processes, such as the recognition of tax assets and liabilities and the subsequent reconciliation or deletion of unrealizable future tax assets or liabilities (Ebrahim & Fattah, 2015). This approach reinforces efforts by accounting standard setters to address the lack of reliability in accounting for income tax that existed before the development of IAS 12. However, temporary tax differences resulting from accounting and tax rules cannot be attributed to measurement differences alone. Therefore, the responsiveness of financial statement preparers to tax and accounting rules could influence the level of temporary tax differences (Alkurdi & Mardini, 2020 and Alsaadi, 2020).

The development of international accounting standards, and in particular, the improvement to earlier versions of IFRS that were developed in 1973, has resulted in several changes to firms' performance and the informativeness and reliability of financial statements, and in significant improvement in the qualitative characteristics of financial statements. This improvement in IFRS has several unintended consequences, such as the increase in firms' level of disclosure, wider societal uses of accounting information, increased transparency of financial statements and other positive effects that are not yet understood, including the effects on temporary tax difference (Barth, Landsman, Lang, & Williams, 2012 and Edeigba & Amenkhienan, 2017).

The temporary tax difference has wider effects beyond reporting firms. Choi, Hu, and Karim (2020) noted that the accuracy of measurement and disclosure of temporary tax differences improves the accuracy of analyst forecasts regarding firms, which many decision-makers rely on for investment, public policies and other managerial decisions. Thus, the wider the gap in income tax calculated according to tax regulations and accounting rules, the more difficult it is to forecast firms' financial performance and the less reliable the decisions made based on such analyst forecasts (Choi *et al.*, 2020).

The development of IAS 12 addresses not only the needs of stakeholders directly associated with the reporting firm but also the needs of those that do not have such a relationship but tend to make decisions using the information provided by the firm. Therefore, the form and substance of financial reports could be influenced by the perceived need to ensure conservatism and information objectivity in order to meet the requirements of the firm's stakeholders (Barth, 2018). Nevertheless, without improvement in accounting standards, the needs of other users of financial statements who cannot request specific accounting information from the firms cannot be met. Consequently, an intuitive approach must be adopted in accounting standards, such as for the recognition of income and expenses

and the measurement and disclosure of retrospective accounting events. The case for IAS 12 is not different. However, there is scarce evidence on the unintended consequences of IAS 12 in addressing the intractable issues associated with tax and accounting rules. Hence, the present study addresses this gap.

2.1 Hypotheses

Accounting standard setters and tax authorities both aim to enhance the recognition, measurement and disclosure of accounting income and expenses in order to bring about the fair representation of the economic value of the entity (Edeigba & Amenkhienan, 2017 and Shackelford & Shevlin, 2001). Therefore, accounting standard setters and tax authorities both have similar objectives, which include consistency in the recognition and measurement of income tax. However, because accounting standard setters and tax regulators work independently from each other, the gap between the tax calculated according to accounting rules and tax regulations is unresolved, and is likely to continue as long as the regulatory bodies for accounting standards and taxes are mutually exclusive (Blake, Akerfeldt, Fortes, & Gowthorpe, 1997; Edeigba, 2017 and Porcano & Tran, 1998).

Nevertheless, this gap could reduce as the conceptualization of accounting standards and tax rules becomes intuitive or more fundamentally reasonable in terms of the qualitative characteristics of financial statements (Porcano & Tran, 1998). For example, under the tax rule, tax revenue will be recognized if a lease asset is acquired by the lessee at the end of the lease term. In this case, tax liabilities apply to the seller of the assets based on the revenue generated, whereas the buyer makes tax deductions based on the asset acquisition cost and depreciation. Similarly, in line with accounting rules for leases, the preparers of financial statements recognize assets or liabilities as a result of this acquisition. From this cogent treatment of leases under both rules, the temporary tax difference is expected to reduce as a result of the adoption of IAS 12 and other IFRS, such as IAS 16 (accounting for property, plant and equipment) and IFRS 16 (accounting for leases). Therefore, in this study, we examine whether the improvement in accounting standards following IAS 12 adoption has reduced the gap between the taxes calculated on the basis of accounting standards and those calculated according to tax rules. Prior studies have noted that IFRS is an improvement in the accounting standards setting, which enhances the value relevance of accounting information to capital market participants (Bradbury & Scott, 2021 and Edeigba & Amenkhienan, 2017). Given that IAS 12 prescribes the recognition, measurement and disclosure of deferred tax assets and deferred tax liabilities, our first hypothesis examines the effects of its adoption on deferred taxes:

H1. There is a significant change in deferred tax assets and liabilities post-IAS 12 adoption.

2.1.1 The value relevance of deferred tax post-IAS 12. The primary goal of accounting standards, particularly the IFRS of which IAS 12 is a part, is to enhance the measurement and disclosure of accounting information, in order to ensure that capital market participants can rely on the value reported in financial statements for decision-making (Ayers, 1998 and Mear *et al.*, 2020).

Deferred tax assets and deferred tax liabilities can affect investor decisions in various ways, depending on the specific circumstances of the company and the criteria used by investors for evaluating financial information. In general, investors may view deferred tax assets as a positive indicator of a company's future profitability, as it suggests that the company may have more tax benefits to offset future tax liabilities, which increases future earnings potential. In contrast, they may view deferred tax liabilities as a sign of conservative accounting practices, which may indicate a lower level of risk but may also suggest lower future earnings potential.

Nevertheless, the impact of deferred tax assets and liabilities on investor decisions can be complex and depends on multi-factorial outcomes (Ayers, 1998 and Edwards, 2018), such as the overall financial health of the company, industry trends, investor risk tolerance and perceived future risks based on the value and composition of the company's assets and liabilities. For example, investors who are more risk-averse may view deferred tax assets as a sign of risk, as these assets may be vulnerable to changes in tax laws or future financial difficulties, which could reduce their value. Similarly, investors who are more focused on short-term earnings may view deferred tax liabilities as a negative indicator, as these may increase tax expenses and reduce earnings in the short term.

In addition, the impact of deferred tax assets and liabilities on investor decisions may also depend on the specific financial reporting standards used by the company. For example, companies that use IFRS have different rules for recognizing deferred tax assets and liabilities compared with companies that use generally accepted accounting principles (GAAP), which could affect how investors evaluate these items, and consequently affect the companies' market value (Edwards, 2018).

The value relevance of deferred tax assets and liabilities may be influenced by the way that investors use accounting information to assess risk (Ayers, 1998 and Bauman, Bauman, & Halsey, 2001). Investors who are more risk-averse may perceive deferred tax assets as a sign of risk, reflecting the potential for future losses that could offset the tax benefits. In contrast, investors who are more willing to take on risk may view deferred tax assets as a positive indicator of future earnings. Following this discussion, we specify our second hypothesis as follows:

H2. The post-IAS 12 changes in deferred tax have a significant impact on the market valuation.

3. Data and method

In this section, we describe the data and the model that we use in this study.

3.1 Data

The target population of this study is companies listed on the New Zealand Stock Exchange. At the time of this study, 180 firms were available on DataStream as listed companies during 1992–2019. However, 144 firms were active, and 36 firms were inactive. The analyses include 13 years of data post-IFRS adoption (2007–2019) and 13 years of data pre-IFRS adoption (1992–2004). The data from 2005 to 2006 were excluded because these financial years were a transition from the GAAP to IFRS and may include different forms of first-time adoption adjustment, which could bias the results.

The sample consists of 129 firms randomly selected in a balanced panel from 1992–2019. This sample comprises about 70% of the 184 firms listed on the New Zealand Stock Exchange at the time of data collection. The remaining firms were excluded from the study owing to missing data, given that the firms were listed only in either the pre- or post-IAS 12 adoption period.

The expected number of annual reports is 3,744. However, because of the firms' listing dates, some data were not available for the years in which some firms were unlisted. Therefore, 1,130 annual reports for deferred tax assets and 316 for deferred tax liabilities were included (see Table 1). The proportion [3] of firms that recognized deferred tax assets in the pre-IAS 12 adoption period is greater than that in the post-IAS 12 adoption period. To control for skewness, an equal sample of firms was included in the analysis for the two periods. In sum, we used data on 144 firms across 26 years.

Table 1.
Summary statistics

DFTA	*N*	*Mean*	*SD*	*P25*	*P50*	*P75*	*N*	*Mean*	*SD*	*DFTL* *P25*	*P50*	*P75*
DFTA	2017	193,338,668.639	56,320,981.229	183,648,684.539	190,046,479.035	237,275,607.771	1337	190,243,162.513	96,175,884.725	179,849,940.632	203,747,831.617	215,152,498.069
CURAS	2017	217,630,104.806	33,655,780.740	188,447,030.411	213,661,043.403	242,844,117.798	1337	227,144,745.623	57,051,633.019	197,773,358.871	209,450,164.843	238,821,551.595
NCURAS	2017	211,081,603.817	35,497,894.968	186,847,381.787	190,046,479.035	224,798,063.456	1337	231,142,161.474	69,184,226.846	191,798,886.124	203,747,831.617	256,788,271.896
CURLIA	2017	186,847,581.787	4,927,238.555	185,248,133.163	186,847,581.787	188,447,030.411	1337	191,798,886.124	16,898,360.772	185,824,413.378	191,798,886.124	197,773,358.871
NCURLIA	2017	190,046,479.035	2,327,929.594	190,046,479.035	190,046,479.035	190,046,479.035	1337	203,747,831.617	9,549,243.101	203,747,831.617	203,747,831.617	203,747,831.617
A_REG	2017	0.827	0.378	0.000	1.000	1.000	1337	0.643	0.480	0.000	1.000	1.000

Source(s): Created by author

3.2 Empirical models

The empirical analysis focuses on changes in deferred taxes post-IAS 12 adoption. Therefore, the purpose of the measurement models is more objectively driven than a research methodological discourse. The dependent variables are deferred tax assets and deferred tax liabilities. First, we use the *Z*-score to compare deferred taxes and the explanatory variables in the pre- and post-IAS 12 adoption periods. Second, we tested the hypotheses to identify the relationship between the covariates and the dependent variables.

The independent variables included in the empirical model are IAS 12 adoption, assets and liabilities. The variables for assets and liabilities were defined under two categories: current assets and non-current assets and current liabilities and non-current liabilities. The notations and descriptions of the variables are presented in Appendix 1.

The *Z*-score follows an *ex-post* stochastic analysis, which is a relevant and useful approach to address issues of serial correlation and time-dependent heteroscedasticity (Agarwal & Taffler, 2007; Perron, 1988 and Sharma & Dhakal, 1994). A *Z*-score is the outcome of the difference between a score and the mean of the scores divided by the standard deviation for the scores. This is an important measure in inferential statistics to identify a proportion of the population that has a given score and helps to address outliers in the data (Clark-Carter, 2014). To operationalize the *Z*-score analysis, we consider the original score of each variable referred to as *Y*, which we obtained from the sample, and then calculate the mean value and standard deviation. This theoretical calculation of the *Z*-score is summarized in Equation 3.1.

$$Z = \frac{Y - My}{Sy} \tag{3.1}$$

For the purpose of this study, Equation 3.1 is rewritten for deferred tax assets as Equation 3.2:

$$ZDFTA = \frac{DFTA - x_{barDFTA}}{\sigma DFTA} \tag{3.2}$$

where $DFTA$ represents the sample scores obtained from the deferred tax assets, and $x_{barDFTA}$ and $\sigma DFTA$ are the mean and the standard deviation of the deferred tax assets, respectively. For deferred tax liabilities, Equation 3.1 is rewritten as follows:

$$ZDFTL = \frac{DFTL - x_{barDFTL}}{\sigma DFTL} \tag{3.3}$$

where $DFTL$ represents the sample scores obtained from the deferred tax liabilities, and $x_{barDFTL}$ and $\sigma DFTL$ are the mean and the standard deviation of the deferred tax liabilities, respectively.

Econometric modeling: Although the Z-score indicates the changes in deferred tax assets and liabilities, it is limited to explaining the relationship between the changes and the implementation of IAS 12 because of its univariate nature. Further, it does not control for other factors. Therefore, we use pooled regression to estimate the impact of IAS 12 adoption on deferred tax assets and liabilities. We specify the measurement model as follows:

$$DFTA = \beta_0 + \beta_1 IAS\_12 + \beta_2 CURAS + \beta_3 NCURAS + \beta_4 CURLIA + \beta_5 NCURLIA + \varepsilon \tag{3.4}$$

$$DFTL = \beta_0 + \beta_1 IAS\_12 + \beta_2 CURAS + \beta_3 NCURAS + \beta_4 CURLIA + \beta_5 NCURLIA + \varepsilon \tag{3.5}$$

Equations 3.4 and 3.5 are the specifications of the regression models. These models test the impact of IAS 12 on deferred tax assets and liabilities. After establishing the relationship between IAS 12 implementation and changes in deferred tax, we specify the following equation to examine the impact of these changes on the market valuation.

$$Market\ value = \beta_0 + \beta_1 DFTA + \beta_2 DFTA * IAS\_12 + \beta_3 IAS\_12 + \beta_4 CURAS + \beta_5 NCURAS + \beta_6 CURLIA + \beta_7 NCURLIA + \varepsilon \quad (3.6)$$

$$Market\ value = \beta_0 + \beta_1 DFTL + \beta_2 DFTA * IAS\_12 + \beta_3 IAS\_12 + \beta_4 CURAS + \beta_5 NCURAS + \beta_6 CURLIA + \beta_7 NCURLIA + \varepsilon \quad (3.7)$$

4. Results

4.1 Summary statistics

The average deferred tax assets during the study period amounted to 193,338,668.64 [4], versus 190,243,162.51 deferred tax liabilities. Further, the 25th percentile of deferred tax assets is 183,648,684.54 and the 75th percentile is 237,275,607.77, with a standard deviation of 56,320,981.23. Meanwhile, the 25th percentile for deferred tax liabilities is 179,849,940.63 and the 75th percentile is 215,152,498.07, with a standard deviation of 96,175,884.73 (see Table 1). These results show that firms' deferred taxes differ to some extent.

Firms reporting deferred tax assets have average current assets of 217,630,104.81, and those reporting deferred tax liabilities have average current assets of 227,144,745.62. Further, firms that reported deferred tax assets reported average non-current assets of 211,081,603.82, and firms that reported deferred tax liabilities reported average non-current assets of 231,142,161.474.

The average current liabilities for firms reporting deferred tax assets are 186,847,581.79 compared with 191,798,886.12 for firms reporting deferred tax liabilities. Some variation is similarly noticed for non-current liabilities. For example, the average non-current liabilities for firms reporting deferred tax assets are 190,046,479.04, whereas it is 203,747,831.62 for those reporting deferred tax liabilities. Interestingly, the firms reporting deferred tax liabilities also reported a large amount of non-current liabilities.

The correlation matrix shows the independence of the covariates with no sign of multicollinearity concerns. Most of the correlations of the variables do not exceed the threshold value of 0.8 (see Table 2). Nonetheless, to control for any issues of heteroscedasticity, we confirm the robustness of our results through regression analysis. Next, we examine the differences in deferred taxes pre- and post-IAS 12 adoption, using *Z*-value estimation.

4.2 Z-score analyses

The results of the *Z*-score analyses are presented in Table 3. The total *z*-value of deferred tax assets are −0.345 in 1992–2004 (i.e. the pre-IAS 12 adoption period). This result shows that across the firms, the value of deferred tax assets before IAS 12 adoption was 35 points less than the average deferred tax assets. The sample mean of the deferred tax assets is 10,783.283. However, the *z*-values of deferred tax assets decreased from −0.345 to −0.050 in the post-IAS 12 adoption period (see Table 3 Panel A). This result shows that there is a reduction in the deferred tax assets when IAS 12 is adopted. Regarding deferred tax liabilities, the *Z*-score of 0.185 during the pre-IAS 12 period suggests that the value of deferred tax liabilities of the firms was higher than the average value. However, the *Z*-score of 0.303 was in the post-IAS 12 period, which exceeds the average, suggesting a significant increase in deferred tax liabilities post-IAS 12 implementation.

4.3 Baseline results

In this section, we present the regression estimations for testing the hypothesis. As stated in Section 3.2, we use the pooled regression method. To check the robustness of the results, we

DFTA	*DFTA*	*CURAS*	*NCURAS*	*CURLIA*	*NCURLIA*	*IAS 12*	*DFTL*	*CURAS*	*NCURAS*	*CURLIA*	*NCURLIA*	*IAS 12*
DFTA	1						1					
CURAS	0.566	1					0.730	1				
NCURAS	0.626	0.686	1				0.732	0.757	1			
CURLIA	0.732	0.711	0.551	1			0.732	0.800	0.814	1		
NCURLIA	0.720	0.592	0.694	0.818	1		0.714	0.667	0.821	0.785	1	
A_REG	0.179	0.121	0.106	0.130	0.079	1	0.077	0.004	0.004	0.003	−0.008	1

Source(s): Created by author

Table 2.
Correlation matrix

Table 3.
Z-score analyses

Year	x-bar of DFTA	ZDFTA	x-bar of CURAS	ZCURAS	x-bar of NCURAS	ZNCURAS	x-bar of CURLIA	ZCURLIA	x-bar of NCURLIA	ZNCURLIA
Panel A: Deferred tax asset pre-IAS 12 adoption										
1992	18,027.667	−0.302	353,342.333	0.150	1,442,093.000	0.139	399,822.000	0.209	387,421.000	−0.196
1993	9,751.000	−0.338	166,299.000	−0.120	211,401.000	−0.531	66,140.000	−0.333	69,539.000	−0.515
1994	6,298.000	−0.354	63,475.333	−0.268	164,013.000	−0.557	34,377.000	−0.384	55,624.333	−0.529
1995	2,964.333	−0.368	9,313.500	−0.351	134,112.000	−0.598	11,340.000	−0.428	47,594.500	−0.553
1996	5,133.857	−0.359	270,168.600	−0.082	970,680.800	−0.269	250,482.400	−0.150	410,521.000	−0.291
1997	3,355.833	−0.367	28,451.250	−0.332	319,187.500	−0.531	29,780.000	−0.408	156,544.750	−0.480
1998	4,002.167	−0.366	52,000.200	−0.306	298,470.600	−0.530	47,874.400	−0.385	128,161.400	−0.493
1999	12,588.714	−0.338	153,295.286	−0.188	844,817.429	−0.289	340,475.286	−0.010	376,397.429	−0.291
2000	46,968.167	−0.341	323,541.000	−0.274	1,327,057.462	−0.544	552,090.077	−0.314	752,596.769	−0.478
2001	25,400.050	−0.356	215,872.348	−0.278	994,827.667	−0.536	431,980.667	−0.297	521,186.778	−0.478
2002	24,897.444	−0.348	155,673.120	−0.296	794,035.667	−0.543	205,153.619	−0.361	408,129.524	−0.487
2003	27,349.033	−0.339	176,684.929	−0.277	919,368.652	−0.513	176,922.696	−0.363	480,450.348	−0.456
2004	25,473.031	−0.337	192,485.719	−0.250	821,481.000	−0.503	176,734.923	−0.348	381,264.038	−0.462
Total	24,055.791	−0.345	191,592.935	−0.269	863,904.969	−0.517	254,282.649	−0.326	428,605.344	−0.466
Panel B: Deferred tax asset post-IAS 12 adoption										
2007	59,173.979	−0.234	308,135.833	−0.103	1,096,207.970	−0.409	269,520.121	−0.266	555,835.455	−0.363
2008	79,224.358	−0.156	353,392.283	−0.030	1,198,050.472	−0.360	410,092.778	−0.148	621,332.667	−0.311
2009	80,104.160	−0.152	314,004.096	−0.054	1,235,776.278	−0.332	332,443.278	−0.188	631,533.833	−0.289
2010	104,204.772	−0.054	268,696.153	−0.074	1,233,273.953	−0.285	276,592.767	−0.199	609,341.116	−0.256
2011	96,628.984	−0.065	257,063.033	−0.084	1,228,276.477	−0.288	314,752.432	−0.166	582,038.705	−0.272
2012	88,670.746	−0.070	290,983.045	−0.025	1,184,871.060	−0.262	276,281.480	−0.173	594,279.360	−0.230
2013	99,351.533	−0.057	268,890.130	−0.030	1,147,514.241	−0.230	298,169.093	−0.118	538,587.444	−0.225
2014	105,814.070	−0.045	225,590.424	−0.088	1,154,356.577	−0.233	218,785.077	−0.206	563,750.231	−0.213
2015	117,499.333	0.002	202,495.652	−0.096	1,255,664.294	−0.169	228,464.373	−0.181	634,156.157	−0.141
2016	126,726.098	0.026	231,555.806	−0.040	1,358,581.154	−0.097	227,730.865	−0.166	669,392.385	−0.086
2017	132,906.164	0.060	219,022.400	−0.079	1,366,342.075	−0.106	231,894.698	−0.167	662,724.943	−0.102
2018	133,342.339	0.069	253,791.242	−0.029	1,412,765.055	−0.067	237,383.564	−0.150	686,116.673	−0.066
2019	133,072.088	0.070	223,907.597	−0.067	1,542,207.130	−0.034	292,624.148	−0.094	750,382.944	−0.036
Total	104,721.192	−0.050	259,538.625	−0.061	1,272,733.976	−0.226	272,923.318	−0.171	626,267.085	−0.204

(*continued*)

Table 3.

Year	x-bar of DFTA	ZDFTA	x-bar of CURAS	ZCURAS	x-bar of NCURAS	ZNCURAS	x-bar of CURLIA	ZCURLIA	x-bar of NCURLIA	ZNCURLIA
Panel A: Deferred Tax Liabilities Pre-IAS 12 Adoption										
1992	538.000	−0.291	21,172.000	−0.464	26,955	−0.326	13,128.000	−0.348	538.000	−0.319
1993	24,043.333	0.801	234,499.667	0.384	1,426,751.333	2.353	403,374.667	1.389	346,687.000	1.510
1994	8,992.750	0.102	234,089.667	0.150	1,394,660	1.625	414,038.000	0.976	445,740.000	1.444
1995	4,804.833	−0.093	276,082.200	0.367	887,675.2	1.038	316,247.000	0.767	289,659.200	0.954
1996	2,217.667	−0.213	88,739.000	−0.195	136,293	−0.117	78,941.333	−0.055	8,256.333	−0.278
1997	4,330.625	−0.115	187,072.500	0.196	594,010.125	0.759	239,142.500	0.658	221,892.625	0.851
1998	4,459.500	−0.109	273,400.714	0.403	661,884.4286	0.731	298,886.143	0.758	380,155.571	1.435
1999	2,355.667	−0.206	103,057.250	−0.184	142,531.375	−0.135	52,455.375	−0.199	59,411.500	−0.042
2000	31,210.000	1.134	165,151.182	0.054	189,331.1818	−0.045	75,624.545	−0.098	50,089.000	−0.079
2001	13,213.625	0.298	156,553.000	−0.003	259,969.4286	0.058	110,479.857	0.024	105,875.714	0.168
2002	12,049.750	0.244	132,108.429	−0.088	196,866.4286	−0.048	92,633.286	−0.046	64,790.357	−0.022
2003	10,583.056	0.176	136,331.063	−0.066	153,853.1875	−0.116	74,213.938	−0.113	71,046.188	0.012
2004	7,156.739	0.017	125,824.286	−0.091	141,099.3333	−0.131	78,796.095	−0.086	57,178.238	−0.046
Total	10,783.283	0.185	157,806.500	0.015	331,289.904	0.192	133,561.456	0.127	123,159.579	0.263
Panel B: Deferred tax liabilities post-IAS 12 adoption										
2007	3,211.143	−0.167	213,999.111	0.181	234,714.056	0.007	138,752.944	0.123	65,752.333	−0.024
2008	3,317.455	−0.162	117,991.235	−0.185	127,627.294	−0.189	76,939.000	−0.142	43,231.059	−0.145
2009	3,794.296	−0.139	105,595.087	−0.190	136,823.043	−0.155	78,645.348	−0.108	44,694.522	−0.120
2010	2,755.458	−0.188	95,322.895	−0.248	115,554.526	−0.203	54,259.947	−0.215	31,468.895	−0.190
2011	2,969.773	−0.178	272,753.947	0.388	334,567.632	0.175	155,172.105	0.190	134,156.789	0.291
2012	4,262.850	−0.118	89,293.833	−0.228	114,766.278	−0.180	42,507.111	−0.236	30,063.722	−0.178
2013	5,586.304	−0.056	100,956.278	−0.234	97,291.778	−0.232	52,864.389	−0.222	24,587.000	−0.220
2014	14,195.480	0.344	400,705.952	0.790	504,641.381	0.434	282,782.476	0.651	191,862.762	0.530
2015	24,884.323	0.840	348,857.520	0.570	585,374.400	0.526	230,860.800	0.422	268,453.880	0.822
2016	16,987.529	0.473	365,776.037	0.607	567,687.333	0.485	250,691.000	0.480	249,537.926	0.725
2017	17,539.355	0.499	472,585.423	1.027	683,383.308	0.719	295,785.462	0.698	309,672.654	1.050
2018	28,529.710	1.009	548,933.125	1.141	762,618.833	0.753	346,809.833	0.789	351,119.833	1.114
2019	27,391.633	0.956	552,165.708	1.208	719,635.750	0.724	349,008.042	0.836	307,679.417	0.979
Total	13,319.176	0.303	302,617.538	0.436	415,097.763	0.272	194,189.659	0.301	173,540.161	0.429

Source(s): Created by author

deflate the value of deferred tax assets and liabilities with total assets to control for firm size. The results are presented in Table 5 along with the pooled regression results. We run separate regressions for deferred tax assets and deferred tax liabilities. The results for deferred tax assets are presented in columns 1 and 2. The coefficient of IAS 12 (−0.194***) is negative and significant in both log ratio and deflation by assets, suggesting a decrease in deferred tax assets following the implementation of IAS 12. The results for deferred tax liabilities are presented in columns 3 and 4 of Table 4. The coefficient of IAS 12 (0.230***) is positive and at a high significance level of 1%. Contrary to the results for deferred tax assets, the results for deferred tax liabilities suggest an increase in deferred tax liabilities post-IAS 12 implementation. These results are consistent with the conservatism principles of IFRS.

The results of most control variables are consistent with standard assumptions and the literature. For example, consistent with Mear *et al.* (2020), we find a positive and significant association between non-current assets and deferred tax. The results in columns 2 and 4 confirm the robustness of the findings to alternative measurements of the dependent variable.

4.4 Value relevance of changes in deferred tax post-IAS 12 adoption

After finding significant changes in deferred tax assets and liabilities post-IAS 12, we test whether these changes affect the capital market valuation. Arguably, as a high-quality standard, the implementation of IAS 12 is intended to increase transparency, and hence create value relevance for users of financial information. In essence, we expect that the implementation of IAS 12 will lead to an increase in the market valuation of the firm. Given the principle-based nature of IAS 12, it is also probable that its implementation may result in no change or a decrease in the market valuation (Hail, 2013). To test these competing arguments, we introduce an interaction term between deferred tax assets/liabilities and IAS 12 in the model and test its

Variable	*DFTA* *Pooled OLS (log ratio)* *(1)*	*DFTA* *Pooled OLS (deflated by assets)* *(2)*	*DFTL* *Pooled OLS (log ratio)* *(3)*	*DFTL* *Pooled OLS (deflated by assets)* *(4)*
IAS 12	−0.194***	−0.159***	0.230***	0.217***
	(0.051)	(0.046)	(0.052)	(0.043)
CURAS	0.070	0.019	0.289***	0.242***
	(0.056)	(0.017)	(0.080)	(0.017)
NCURAS	0.437***	0.296**	0.321***	0.336***
	(0.074)	(0.136)	(0.087)	(0.119)
CURLIA	−0.111	0.316	0.100	0.028*
	(0.071)	(0.288)	(0.101)	(0.014)
NCURLIA	0.580***	0.471***	0.158**	0.075*
	(0.049)	(0.110)	(0.064)	(0.041)
Constant	−1.280***	−1.668***	−0.780	−0.881
	(0.366)	(0.596)	(0.586)	(0.662)
Observations	3354	3354	3354	3354
Year effect	Yes	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes	Yes
R-squared	0.766	0.692	0.746	0.762
p-value *(F*-statistic*)*	<0.001	<0.001	<0.001	<0.001
	Standard errors in parentheses	Robust standard errors in parentheses	Standard errors in parentheses	Robust standard errors in parentheses

Note(s): ***$p < 0.01$, **$p < 0.05$ and *$p < 0.1$
Source(s): Created by author

Table 4.
Impact of IAS 12 on deferred tax assets and liabilities

Variable	*DFTA* *Random effects* *(log ratio)* *(1)*	*DFTA* *Random effects* *(deflated by assets)* *(2)*	*DFTL* *Random effects* *(log ratio)* *(3)*	*DFTL* *Random effects* *(deflated by assets)* *(4)*
DFT	0.115***	0.189***	−0.075***	−0.099***
	(0.027)	(0.043)	(0.015)	(0.022)
DFTA/ *DFTL*IAS 12*	0.122	0.084	−0.101***	−0.167***
	(0.079)	(0.051)	(0.021)	(0.019)
IAS 12	0.167***	0.181***	0.051**	0.103***
	(0.061)	(0.033)	(0.022)	(0.019)
CURAS	0.072***	0.094***	0.182***	0.052***
	(0.015)	(0.019)	(0.054)	(0.018)
NCURAS	0.054***	0.041***	0.163***	0.149**
	(0.021)	(0.013)	(0.051)	(0.062)
CURLIA	−0.171	−0.182	−0.074	−0.092
	(0.157)	(0.137)	(0.055)	(0.078)
NCURLIA	−0.219***	−0.198***	−0.031**	−0.116**
	(0.053)	(0.034)	(0.014)	(0.053)
Constant	−1.742***	−1.493***	−0.984	0.852
	(0.684)	(0.452)	(0.163)	(0.615)
Observations	3354	3354	3354	3354
Year effect	Yes	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes	Yes
R-squared	0.766	0.716	0.696	0.772
p-value *(F-statistic)*	<0.001	<0.001	<0.001	<0.001
	Standard errors in parentheses	Robust standard errors in parentheses	Standard errors in parentheses	Robust standard errors in parentheses

Note(s): ***$p < 0.01$, **$p < 0.05$ and *$p < 0.1$
Source(s): Created by author

Table 5.
Value relevance of IAS 12

effect on the market valuation. Consistent with prior studies, we measure market valuation using Tobin's *q* (Nadeem, 2022; Shahbaz, Karaman, Kilic, & Uyar, 2020).

The results are presented in Table 5. The results for deferred tax assets are presented in columns 1 and 2. The coefficient of the interaction term in column DFT*IAS 12 is positive but insignificant (0.122 in column 1), which suggests that the decrease in deferred tax assets following the implementation of IAS 12, is not value-relevant to the capital market users. In other words, the capital market does not place significant value in the post-IFRS implementation changes in deferred tax assets. This result is contrary to our expectation and the objective of IASB in the issuing of IAS 12 because the aim of implementing IAS/IFRS is to increase the value relevance of accounting information through conservatism (Edeigba, 2017; Edeigba *et al.*, 2020; Mear *et al.*, 2020).

The results for deferred tax liabilities are presented in columns 3 and 4 of Table 5 .The coefficient of the interaction term in column 3 DFT*IAS 12 (−0.101***), is negative and highly significant at the 1% level. This result implies that the increase in deferred tax liabilities following the implementation of IAS 12 has a negative impact on firms' market valuation. The result is consistent across columns 2 and 4, confirming that our findings are not driven by the measurement of the deferred tax liabilities.

4.5 Robustness check: alternative econometric identification strategy

As part of the robustness check, we present the results of an alternative econometric identification strategy using the random effect. We include year and firm effects to mitigate

potential bias from firm time-variable characteristics. The results, presented in Tables 6 and 7 in addition to Appendix 2, are qualitatively similar to the pooled regression results, confirming the robustness of our findings.

5. Discussions of results and implications of the study

On one hand, accounting standards have different effects on accounting values owing to income and expense recognition, measurement and disclosure policies. On the other hand, tax rules have effects on income or expense recognition and measurement because of the tax legislation that focuses on fairness in the tax system. The rationale for the setting of these rules creates differences in the measurement of income tax. Hence, the implementation of IAS 12 leads to a decrease in deferred tax assets and an increase in deferred tax liabilities. These changes in the deferred taxes have some unintended consequences on the firm's financial performance and valuation.

To some extent, our analysis shows that the adoption of IAS 12 has addressed the inherent issues associated with tax rules and accounting standards. Following IAS 12 adoption, the deferred tax liabilities that the majority of firms recognize are higher than their deferred tax assets. Despite a few firms reporting deferred tax liabilities, the dollar amount is greater than that of firms that recognize deferred tax assets. Certainly, the significant increase in deferred tax liabilities as opposed to deferred tax assets has addressed some opportunities for earnings management that may have been available under SSAP 12 before IAS 12 was adopted (Karampinis & Hevas, 2013). An increase in deferred tax liabilities post-IAS 12 implies that firms are anticipating and making necessary provisions to pay high tax in the future compared with under the SSAP 12 regime. The decrease in the deferred tax assets

Variable	Robustness check – Alternative identification strategy (random effects)			
	DFTA *Random effects (log ratio)* *(1)*	*DFTA* *Random effects (deflated by assets)* *(2)*	*DFTL* *Random effects (log ratio)* *(3)*	*DFTL* *Random effects (deflated by assets)* *(4)*
IAS 12	−0.194***	−0.121**	0.230***	0.192***
	(0.051)	(0.056)	(0.052)	(0.043)
CURAS	0.070	0.107	0.289***	0.109***
	(0.056)	(0.097)	(0.080)	(0.037)
NCURAS	0.437***	0.151***	0.321***	0.286***
	(0.074)	(0.057)	(0.087)	(0.065)
CURLIA	−0.111	−0.103	0.100	0.184**
	(0.071)	(0.082)	(0.101)	(0.077)
NCURLIA	0.580***	0.189***	0.158**	0.110**
	(0.049)	(0.040)	(0.064)	(0.046)
Constant	−1.280***	−0.068	−0.780	0.825
	(0.366)	(0.055)	(0.586)	(0.521)
Observations	3354	3354	3354	3354
Year effect	Yes	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes	Yes
R-squared	0.766	0.766	0.696	0.772
p-value (*F*-statistic)	<0.001	<0.001	<0.001	<0.001
	Standard errors in parentheses	Robust standard errors in parentheses	Standard errors in parentheses	Robust standard errors in parentheses

Note(s): ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$
Source(s): Created by author

Table 6.
Impact of IAS 12 on deferred tax assets and liabilities

Variable	*DFTA* *Random effects* *(log ratio)* *(1)*	*DFTA* *Random effects* *(deflated by assets)* *(2)*	*DFTL* *Random effects* *(log ratio)* *(3)*	*DFTL* *Random effects* *(deflated by assets)* *(4)*
DFTA/DFTL	0.103***	0.098***	−0.091***	−0.071***
	(0.027)	(0.033)	(0.028)	(0.026)
DFTA/	0.153	0.118	−0.180***	−0.165***
*DFTL*IAS 12*	(0.148)	(0.157)	(0.031)	(0.036)
IAS 12	0.167***	0.181***	0.041***	0.110***
	(0.061)	(0.051)	(0.015)	(0.031)
CURAS	0.072***	0.094***	0.235***	0.041**
	(0.015)	(0.019)	(0.071)	(0.018)
NCURAS	0.054***	0.041***	0.169***	0.172***
	(0.021)	(0.013)	(0.047)	(0.058)
CURLIA	−0.171	−0.182	−0.055	−0.164
	(0.157)	(0.137)	(0.033)	(0.099)
NCURLIA	−0.219***	−0.198***	−0.051***	−0.127***
	(0.053)	(0.034)	(0.016)	(0.041)
Constant	−1.742	−1.493***	−0.844***	0.761**
	(0.684)	(0.452)	(0.283)	(0.326)
Observations	3354	3354	3354	3354
Year effect	Yes	Yes	Yes	Yes
Firm effect	Yes	Yes	Yes	Yes
R-squared	0.659	0.735	0.759	0.760
p-value *(F-statistic)*	<0.001	<0.001	<0.001	<0.001
	Standard errors in parentheses	Robust standard errors in parentheses	Standard errors in parentheses	Robust standard errors in parentheses

Note(s): ***$p < 0.01$, **$p < 0.05$ and *$p < 0.1$
Source(s): Created by author

Table 7.
Value relevance of IAS 12

under IAS 12 also indicates that firms have reduced their tax aggressiveness and expect to obtain less tax refunds or credits. These findings of the increase in deferred tax liabilities and the decrease in deferred tax assets are consistent with the conservative nature of IFRS/IAS. Therefore, the findings suggest that the IASB has achieved its objective of ensuring conservatism and prudence in financial reporting, which leads to perceived high-quality accounting information (Bradbury & Scott, 2021; Edeigba & Amenkhienan, 2017).

The findings provide empirical support to the hypothesis that there have been significant changes in the deferred tax post-IAS 12. We attribute these changes to the fair value accounting policies associated with IFRS. For example, IAS 16 (accounting for assets) could include several transaction items, such as the cost of installation of equipment that is capitalized under IFRS. This capitalization is in anticipation of the inflow of economic benefits from the installation cost (see IAS 16 Property Plant and Equipment Accounting Standards).

The findings from this study have several implications for literature and accounting practice. The significant difference noted between the pre- and post-IAS 12 adoption periods implies some weaknesses in the recognition of financial statement elements under SSAP 12 that were present before IAS 12 adoption. In other words, IAS 12 adoption represents an improvement in the accounting standards in New Zealand. This finding indicates progress in financial reporting regulations. Our findings support those of an earlier study that the adoption of IFRS in New Zealand has improved financial reporting transparency and accountability (Edeigba & Amenkhienan, 2017).

Given the significant changes in the deferred tax assets, as noted earlier, it is likely that IAS 12 has boosted the prudence and conservatism of firms' balance sheets compared with SSAP 12. Under SSAP 12, which provided limited guidance, financial statement preparers had a greater opportunity for earnings management, which consequently increased the risk of overstatement of deferred tax assets in financial reporting. However, following IAS 12 adoption—and owing to the provision of comprehensive guidance, including the justification for probable recovery of deferred tax assets—investors' reliance on financial statements is likely to improve, given the conservatism in deferred assets recognition because deferred taxes do not always translate to income realization in future cash flow (Auerbach, 1991; Schröder & Sørensen, 2022). Therefore, the changes in deferred taxes are a consequence of fair value accounting, which implies that the value of deferred taxes is fairly accounted for in line with the requirements prescribed by IAS 12.

Regarding the value relevance of the changes in deferred tax associated with IAS 12, the results indicate that the decrease in deferred tax assets post-IAS 12 does not have a significant impact on firms' market valuation. Rather, we find a significant large negative impact of the post-IAS 12 increase in deferred tax liabilities on the market valuation. These results imply that *ceteris paribus*, the capital market punishes firms for recognizing high levels of deferred tax liabilities. Thus, the recognition of high deferred tax liabilities following IAS 12 implementation is value destructive to firms. The value destructiveness of IAS 12 brings unintended consequences to firms that have become conservative by recognizing more deferred tax liabilities. The results on deferred tax assets and liabilities are contrary to the expectation and the intended consequence of IAS 12 because the aim of implementing IAS 12 is to increase the value relevance of accounting information through conservatism, and hence benefit users as well as firms. However, our results suggest that although IAS 12 has achieved its objective of increasing conservatism in financial reporting, the capital market does not value this type of conservatism and even punishes firms by lowering their valuation.

These results can be attributed to the principle-based nature of IAS 12, and the subjective judgment allowed in the recognition and measurement of accounting value (Karampinis & Hevas, 2013 and Mear, 2011). The effect of principle-based accounting standards compared with that of rule-based ones during the pre-IFRS period in many countries (including New Zealand) has been a topical issue, with concerns raised about the quality and value relevance of financial reporting during the IFRS era. Scholars such as Edeigba (2017), Ball (2016), Sunder (2011), and Nobes (2006), suggest that IFRS and its predecessor version (IAS) are not likely to yield the intended consequences because of the flexibility and judgmental measurements in the standards. Arguably, preparers are opportunistic and will implement accounting standards in favor of themselves, not financial statement users.

6. Conclusions

More than 166 countries have adopted IFRS based on the perception that these standards provide a fairer representation of business performance. This adoption has had intended and unintended consequences on accounting values. In this study, we analyzed the consequences of IAS 12 adoption on deferred taxes in the context of New Zealand. We find a significant decrease in deferred tax assets and an increase in deferred tax liabilities post-IAS 12 implementation. These findings are consistent with the standard setters' objective of increasing conservatism and lead to better financial reporting. However, we find that these changes in deferred tax assets and liabilities post-IAS 12, are not value-relevant for capital participants. Indeed, the increase in deferred tax post-IAS 12 adoption is value destructive, causing unintended consequences for firms. Therefore, these results imply that some IFRS/IAS may achieve conservatism and prudence in financial reporting, but may also result in

unintended consequences for firms and financial statement users. The findings also indicate that achieving high-quality financial reporting may come at a high price, such as a loss in the market valuation.

These findings are relevant to standard setters because they provide insights about how individual standards, such as IAS 12, could have differential and unintended consequences for firms that adopt these. The findings also indirectly reveal that some firms are reluctant to implement IFRS/IAS because of the possible unintended consequence of high conservatism. Preparers of financial statements could adopt these findings in making preferential decisions on the appropriate accounting standards for the recognition and measurement of deferred income taxes. We expect that future studies from other countries that have adopted IAS 12 could provide similar or different perspectives from other business environments.

Notes

1. The transaction-based approach of accounting follows the normative theory, which postulates what the accounting value is, giving the monetary weight of items or activities involved in transactions.
2. The value-based approach follows the positive accounting theory, which determines what accounting values should be, given the fair value of the accounting item if it were sold in an active market (Edeigba, 2017; Watts & Zimmerman, 1978).
3. The percentage of firms that reported deferred tax assets in the pre- and post-IFRS adoption periods are 79% and 75%, respectively. We calculated this percentage from the overall data before selecting the equal samples for analysis. The equal sample statistics are presented in Table 1.
4. The figures reported in Tables 1 and in the discussion of the results are in US dollars.

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Appendix 1

Table A1.
Definition of variables

Variable	Description	Expected sign
Dependent variables		
DFTA	Deferred tax assets	
DFTL	Deferred tax liabilities	
Independent variables		
CURAS	Current assets	(+)
NCURAS	Non-current asset	(+/−)
CURLIA	Current liabilities	(−)
NCURLIA	Non-current liabilities	(+/−)
A_REG	Accounting regulations	(+)
ε_t	Error term	

Source(s): Created by author

Appendix 2

Variable	*DFTA* pre-IAS 12	*DFTA* post-IAS 12	*DFTL* pre-IAS 12	*DFTL* post-IAS 12
	Random effect	*Random effect*	*Random effect*	*Random effect*
CURAS	0.208	−0.128	0.258***	0.674***
	(0.143)	(0.079)	(0.077)	(0.171)
NCURAS	0.611***	0.408**	0.372**	0.315
	(0.163)	(0.191)	(0.185)	(0.193)
CURLIA	−0.118	0.141	0.191	−0.152***
	(0.099)	(0.097)	(0.170)	(0.049)
NCURLIA	0.610***	0.517***	0.165***	0.110
	(0.157)	(0.159)	(0.042)	(0.073)
Constant	−0.620	−0.437	−0.861	−0.582
	(0.721)	(0.332)	(1.016)	(0.632)
Observations	565	565	158	158
R-squared	0.611	0.761	0.597	0.603

Note(s): Robust standard errors in parentheses
***$p < 0.01$, **$p < 0.05$ and*$p < 0.1$
Source(s): Created by author

Table A2.
Additional analysis results

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