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**THE NATURE AND EXTENT OF THE BOOK-TAX GAP FROM A SOUTH AFRICAN
PERSPECTIVE**

by

DOMINIQUE MOORE

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ABSTRACT

Recently, there has been a spate of reported cases of large corporate entities paying very little, or no income tax, despite the appearance of being profitable. Enron conducted a lot of business through special purpose vehicle (SPV) companies that were structured specifically for the purpose of paying very little, if any, corporate tax, without having to reduce reported book net profits to achieve this. A study in October 2012 of Starbucks by Reuters found that the company had reported no profits and had paid no income tax for the previous 3 financial years in the United Kingdom despite sales of 1.2 billion pounds. By comparison, McDonalds had to pay tax of 80 million pounds based on a turnover of 3.6 billion pounds, and KFC paid 36 million pounds in taxes on 1.1 billion pounds turnover in the United Kingdom. Another company highlighted for paying no tax is the giant Internet company, Ebay. In its latest financial period the company paid 1 million pounds in tax, on a turnover of 800 million pounds. Again complicated tax structures are at the centre of the tax computation.

Consideration has to be given to the role played by the accounting standards, if any, in this scenario, and the extent of the role played by accounting treatments. One has to question if accounting treatments are enabling companies to consistently pay lower rates of tax than is statutorily required, through mechanisms like the raising of deferred tax, or whether it is simply a question of the relevant tax legislation being formulated in a way that allows taxable income to be lower than accounting income.

The extent of this book-tax gap and the amount of tax actually paid by companies have been researched to a limited degree. Several studies have been conducted on the financial results from the 1990s, where a consistent decline in the collection of tax by authorities, despite the economic boom that was in existence at that time, has been shown. Research in the 2000s tends to confirm the continuance of this trend of an ever-increasing book-tax gap. The general consensus from the literature review conducted is that the divergence between book income and taxable income is a growing trend, and taxes actually paid by corporates are declining and are on average lower than statutory tax rates.

It appears that no research has been done in this area in the South African context. The objective therefore of this minor dissertation is to explore the book-tax gap in the South African context. The extent of the gap will be measured using two different calculations, and trends in the size of the gap over a long term period will be analysed. The significance of accounting treatments, in particular the raising of deferred tax, in the size and trends of the book gap tax will be studied over the 10-year period.



CHAPTER 1

INTRODUCTION

1.1 Background

The difference between a company's accounting income and the taxable income is called the book-tax gap (Dyreng, Hanlon & Maydew, 2005) The book-tax gap is a representation of the difference between the amount of tax a company is effectively paying, compared to the amount of tax the company should be paying in terms of the prevailing statutory tax rate. The book-tax gap arises because accounting for financial reporting purposes and accounting for taxation have different rules, different requirements, and essentially exist for different reasons.

Financial accounting standards and tax laws often provide different rules on how to account for transactions for book and tax purposes, even though the same fundamental transaction has taken place. Consequently, a company's accounting profit, calculated in accordance with the various accounting standards of the relevant reporting framework, will almost never be the same as the taxable income, calculated for tax purposes, in accordance with the relevant tax legislation. This is due to the differing rules on the treatment of a particular transaction applicable under the relevant accounting framework versus the rules applicable in terms of tax legislation. The resulting difference, or gap, between the accounting income and taxable income is commonly referred to as the book-tax gap (Mills, Newberry & Trautman, 2002).

The primary objective of financial accounting is to provide the relevant parties with information that is required for decision-making (Alley & James, 2005). This concept is elaborated in the Framework for the Preparation and Presentation of Financial Statements published by the International Accounting Standards Board (IASB), summarised by Nobes and Parker (2002). They indicate that the main purpose of financial statements is to provide information to users to improve their financial decision-making.

The computation of taxable income however has very different objectives, the primary goal being the equitable and effective collection of taxes, and the

financing of public expenditure with this collected revenue. The objective of tax authorities is to maximise revenue collection within the realms of the law.

The existence of the book-tax gap as described above leads to a further enquiry. How prevalent, if it is in fact present at all, is long-run underpayment of tax by companies in South Africa as a result of the book-tax gap? In the context of this question, the underpayment of tax is regarded as effective current tax rates, or actual tax being paid by companies, being below the statutory tax rate. It is important to note that a company paying lower taxes does not imply anything improper or illegal has been done by the company. In fact, there are several provisions in the tax act that allow, and sometimes even encourage, companies to pay lower tax than the prescribed rate.

If the book-tax gap does exist in South Africa, is its existence merely a result of mechanical differences that arise between tax legislation and accounting standards, or are companies reporting book and tax profits in a manner that is incentivised for a particular outcome, such as for example the avoidance of paying corporate tax?

This minor dissertation uses two measurements to determine if the book-tax gap exists in South Africa, and if so, its nature and extent. The first measure considered is the difference between the statutory tax rate and the actual tax rate reported by the company, measured as the current tax charge disclosed in the statement of comprehensive income. The second measurement computes the book-tax gap by measuring the difference between the tax rate actually paid by the company, as disclosed in cash flow statement in the annual financial statements, and the prevailing statutory tax rate.

The individual items comprising the difference between taxable incomes and accounting income are either permanent or temporary in nature. Permanent differences between the accounting treatment and the tax treatment of an income or expense item will never reconcile with each other, and therefore the difference will exist indefinitely. This results in a permanent difference between the tax treatment of an item and the accounting treatment.

A simple example of this is dividends received. From an accounting perspective it is investment income, and is included in a company's accounting income, however, it is exempt income from a tax point of view in terms of South African tax law, and is therefore excluded from taxable income. This difference is permanent in nature and the tax treatment of dividends received will never equalise to the accounting treatment over any period of time.

Temporary differences between accounting and taxable income, however, are temporary in nature as it is just the timing that differs between the accounting and tax treatment. The overall treatment of the transaction is the same and over a certain period of time, the tax treatment and accounting treatment will equalise once the transaction has been fully accounted for in both systems and the difference in timing between the systems has been eliminated. All balance sheet assets or liabilities created as a result of these temporary timing differences will reverse and equalise to nil. Due to the nature of these items, one would expect the majority of these temporary differences between the tax treatment and accounting treatment related to a particular transaction to completely reverse and be eliminated in a short period of time, usually between one and five years.

In terms of IAS 12, these different accounting and tax treatments for certain items create temporary differences between the carrying amount of an asset or liability, in the statement of financial position, and its tax base. IAS 12 requires deferred tax to be created as a result of these temporary differences.

When deferred tax is created, or reversed, in the statement of comprehensive income, a corresponding deferred tax asset or liability balances are created in the statement of financial position. As described above, these assets or liabilities are temporary in nature and will reverse and reduce to nil in the short term. However, in practice these balances always remain due to the fact that these temporary differences between accounting and tax income that have completed and fully reversed to nil, are constantly being replaced with new temporary differences.

A significant consideration is that these temporary differences that are created between the carrying value of an asset or liability and the tax base are often the result of differences in estimates. These estimates are often based on subjective judgements, sometimes at the discretion of management. This therefore means

the extent of these temporary differences, and in turn the size of the book-tax gap, has the ability to be manipulated and therefore biasedly favour a desired outcome that suits a particular objective or intention.

1.2 Statement of the Problem

Research has identified a growing book-tax gap, and this has resulted in declining tax revenues in the United States (Desai, 2002). Recently, considerable attention has been given to a spate of reported cases of large corporate entities paying very little, or no income tax, despite the appearance of being profitable (Desai, 2002). These trends have raised concern over the perceived tax sheltering activities by companies. This has been heightening in recent times by high profile cases of this activity occurring. Enron conducted a lot of business through special purpose vehicle companies (SPV's) that were structured specifically for the purpose of paying very little, if any, corporate tax, without having to reduce reported book net profits to achieve this. All these factors raise concerns and questions over the integrity of the corporate tax base. The issue of the eroding of the corporate tax base through accounting methods and treatments that allows the widening of the scope to achieve this, needs to be addressed by accounting standard setters.

Several research papers have been done on examining the book-tax gap in a single year (Hanlon & Shelvin, 2005; Desai, 2002; Manzon & Plesko, 2002), there is however little research examining the book-tax gap over a longer term, particularly in South Africa. Doing the study over a longer term eliminates the effect of any non-recurring, extraordinary or abnormal items that have occurred in the operations of those companies for a particular year, but are non-recurring and do not repeat in following years. It also allows long-term averages and trends to be assessed and studied with regard to tax payments and financial statement balances.

Research is required to determine the existence, extent and nature of the book-tax gap in South Africa. Any trends that may exist in the book-tax gap over a longer period need to be studied. A longer study period is essential, as this overcomes the problem of single year analyses that contain abnormal, non-

recurring events, or items carried from previous periods that have an adverse effect on tax rates in the current period. The nature of the book-tax gap and the extent to which the book-tax gap is comprised of permanent or temporary differences are determined by assessing the deferred tax raised in the statement of comprehensive income, and the deferred tax balance in the statement of financial position. This will provide insight into the role played by accounting treatments in the book-tax gap and to what extent the book-tax gap is a result of differences between accounting and tax treatments of the same transactions. Furthermore, the research will illustrate the nature of the book-tax gap and how much of the gap is permanent in nature, compared to how much is attributable to only temporary differences that are required to be reversed in the future, and therefore have an impact on future reporting and tax calculations.

1.3 Objective of the Minor Dissertation

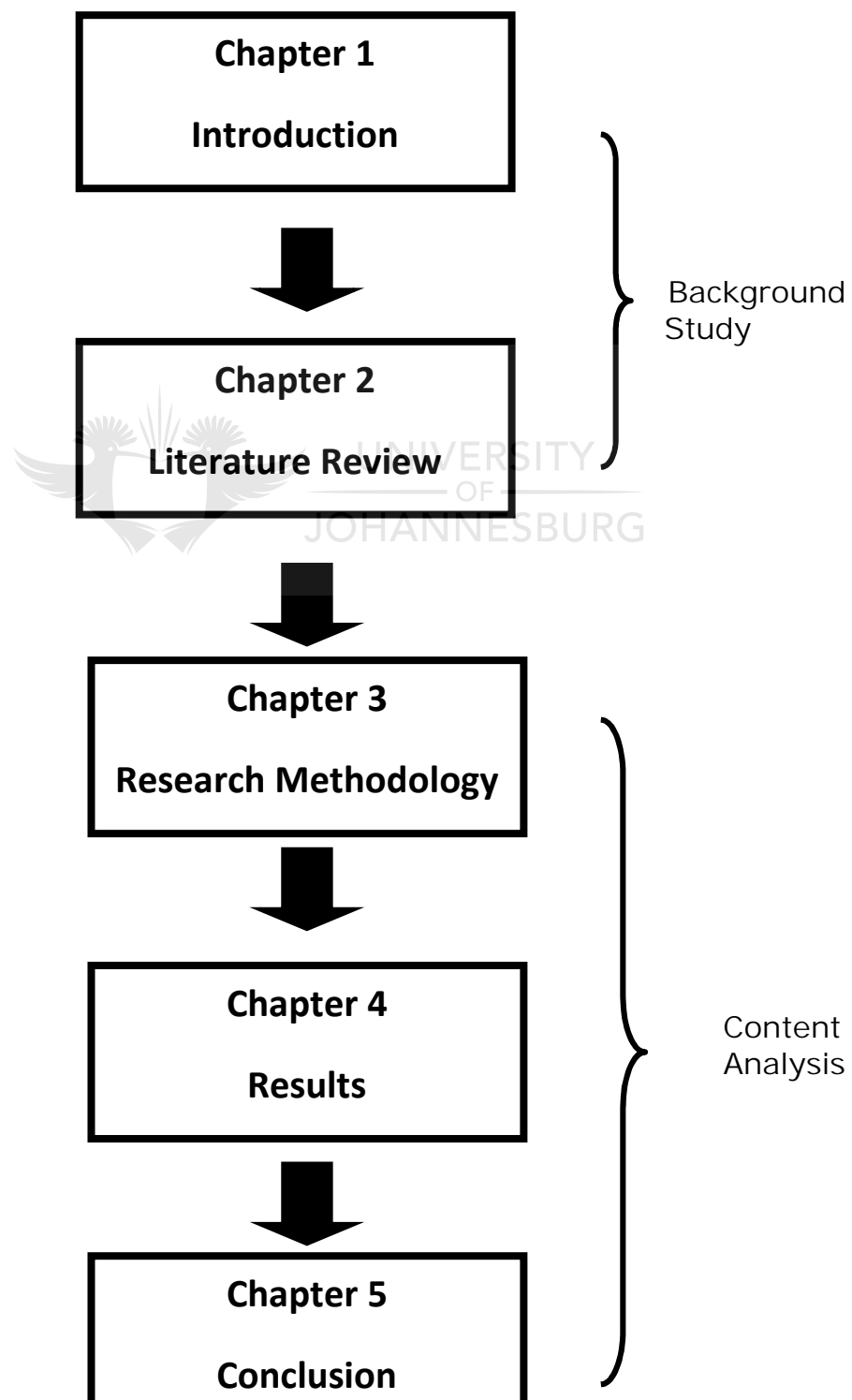
The objective of the minor dissertation is to determine the nature and extent of a phenomenon, namely the book-tax gap in the South African context. A secondary objective is to determine the extent of the temporary differences in the composition of the book-tax gap and how this has manifested itself in the form of deferred tax balances raised in the financial statements. This will be done by studying deferred tax charges raised in the statements of comprehensive income and deferred tax balances disclosed in the statements of financial position. The extent of deferred tax balances in the statements of the financial position will be considered in the context of the potential future impact of these balances on future profitability.

The forty largest companies by market capitalisation listed on the Johannesburg Stock Exchange in the ten-year period from 2002 to 2011 are used as the sample from the population of all public companies listed on the Johannesburg Stock Exchange. The relevant data is extracted from these companies. Any trends that exist with regard to the change in size or movement of the book-tax gap over the ten-year period are analysed.

1.4 Research Methodology

The inquiry mode for this minor dissertation is a structured approach and a quantitative study, as illustrated in Figure 1.1. The first part of the minor dissertation is a literature review and the second part is a content analysis of accounting narratives.

Figure 1.1 Overall structure of the Minor Dissertation



1.4.1 Literature Review

The literature review identifies previous research conducted with regard to the book-tax gap and effective tax rates paid by companies. The revised accounting standard, IAS 12 Income Taxes, which introduced a different method of calculating deferred tax assets and liabilities, is also reviewed to obtain an understanding of the treatment from an accounting perspective, of the balances and differences that arise as a result of the book-tax gap. The differing treatments between tax accounting and financial accounting create differences in the carrying amounts of the assets and liabilities in the financial statements (book) and tax base (tax). The tax base is therefore the value of an asset or liability for tax purposes, and the carrying value is the value for financial accounting purposes. The difference between these two values is referred to as temporary differences in IAS 12.

In October 1996, the revised International Financial Reporting Standard (IFRS), published as IAS 12 (revised 1996), Income Taxes was approved and repealed the previous IAS 12 (reformatted 1994), Accounting for Taxes on Income. The revised standard was effective for financial statements beginning from January 1 1998.

IAS 12 requires these differences between the tax base and the financial accounting carrying value to be accounted for, using the comprehensive balance sheet method. This method recognises both the current tax consequences of transactions and events and the future tax consequences of the future recovery or settlement of the carrying amount of an entity's assets and liabilities.

Studies and research conducted on effective tax rates paid by companies have been reviewed. Further research also reviewed included an analysis of trends in book-tax gap differences, the growing divergence between book income and tax income, long-run corporate tax avoidance, and trends in book-tax gap differences. Another area reviewed in the literature was studies conducted on the link and interface between financial accounting and tax accounting.

This literature has been reviewed and analysed for the purpose of conducting similar research from a South African perspective. Trends and observations in

other countries have been noted and this provides a backdrop, and guidance, to similar studies on South African companies.

1.4.2 Content Analysis

Audited annual financial statements for the forty biggest companies, by market capitalisation listed on the Johannesburg Stock Exchange for the period 2002 to 2011, are used for the content analysis of accounting narratives. The required data is extracted from various reports in the annual financial statements. These reports are the statement of comprehensive income, the statement of financial position and the statement of cash flow. The corresponding notes in the annual financial statements are also studied and the relevant data extracted.

The data extracted from the financial statements included the following items:

- The total tax charge (including deferred tax) charged in the statement of comprehensive income;
- The current tax charge (excluding deferred tax) in the statement of comprehensive income;
- The deferred tax charged in the statement of comprehensive income,
- The total tax paid in the cash flow statement;
- The deferred tax balance in the statement of financial position.

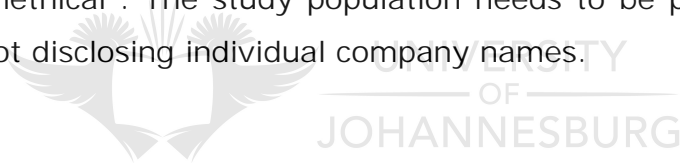
The data extracted is summarised and these summaries provide the basis of the content analysis.

1.5 Limitations

There are no limitations in obtaining financial reports for any of the forty companies included in the research. All forty companies provided unqualified audited financial statements for the period 2002 to 2011. The only instances where financial statements were not provided were in cases where the company did not trade for whatever reason, or was not in existence during the period requested.

1.6 Ethical Considerations

There are several ethical issues to consider during the conduct of this study. Although financial statements are public documents and therefore no permission is required from the companies to view and analyse the financials, the research may produce findings and draw conclusions that the companies in question may not want disclosed or highlighted in a public forum. For this reason the research does not disclose any findings relating to specific companies. The data is collated and presented in this manner to allow conclusions to be drawn on the market as a whole. If any findings for a specific company are disclosed, the company's identity will not be disclosed. There is a real possibility of detriment being caused to companies in the form of decreased public opinion of the companies if they are perceived to be knowingly avoiding tax. Disclosure could also trigger investigations or audits from the tax authorities. This risk of harm will be minimised by not disclosing any of the company's identities. According to Kumar (2005), "the use of information in a way that directly or indirectly adversely affects respondents is unethical". The study population needs to be protected and this will be done by not disclosing individual company names.



CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The literature review examines research on the existence of the book-tax gap and the prevalence and widening of the gap between net income before tax calculated in financial statements, and taxable income calculated in accordance with applicable tax laws. Literature on the role played by deferred tax balances and transactions is reviewed.

Extensive research has been conducted on the existence of book-tax gap and the continuing growth of the extent of the divergence between accounting income and taxable income (Dyreng & Hanlon, 2005; Mills & Plesko, 2003; Manzon & Plesko, 2002). Research has also been done investigating the nature of the book-tax gap, and what items actually comprise the gap itself. This has led to a questioning of why the gap exists. Some researchers conclude it is due to tax sheltering and the earnings manipulation activities of companies. Other researchers believe accounting standards, in particular IAS 12 enable the book-tax gap to exist and continue to widen and therefore need to be revised (Alley & James, 2005). The content of IAS12 and research on this aspect is reviewed.

2.2 Measuring the Book-Tax Gap

Mills and Plesko (2003) undertook a significant study, "Bridging the reporting gap: a proposal for more informative reconciling of book and tax income". The study was motivated by a number of high profile cases in the United States in which profitable organisations were demonstrating questionable anomalies with regard to their reported taxable income and accounting income. Despite the appearance of being very profitable companies from a financial accounting perspective, these companies had very low taxable incomes and tax liabilities.

This resulted in increased scrutiny on the growing difference, or gap, between financial income and taxable income (the book-tax gap), as well as an increased focus on the actual items comprising this gap.

The research paper by Mills and Plesko (2003) discusses the history of previous research done on the book-tax gap. The paper proposes that the first comprehensive study of the book-tax gap was performed by Smith and Butters (1949). Smith and Butters compiled extensive and comprehensive research into the existence and extent of the difference between reported accounting income and taxable income by studying the financial and tax reports for the period 1929 to 1936. They concluded that book income and its tax equivalent, "did not differ greatly" (Smith & Butters, 1949:167). However, book profit typically exceeded taxable income, but usually by less than 10 per cent.

The paper further identifies various researchers who have provided estimates of the magnitude and growth in aggregate book-tax income differences for the past decade (Desai, 2002; Manzon & Plesko, 2002; Mills, Newberry & Trautman, 2002; Plesko, 2000a; U.S. Treasury, 1999; Talisman, 2000). All agree that the trend has been an increase in the book-tax difference during the 1990s.

The research by Mills and Plesko (2003) proposes several reasons and explanations for the book-tax gap and its continued increase in size. One observation is that the existence of the gap is due to the different objectives and emphasis of financial rules compared to tax rules. The primary objective of financial rules is to ensure the financial statements are not overstated to all users of the financial statements. This is in direct contrast to tax rules, for which the primary objective is to ensure companies do not understate income and therefore pay too little tax. The tax system also has the objective of providing incentives or disincentives for particular activities. Examples of this include the accelerated depreciation allowance which has the intention of encouraging investment in certain types of assets, and limits on deductible compensation are an attempt to discourage excessive payments.

The research does extensive analysis on the items comprising the book-tax gap, and details the main source of temporary differences as follows:

- Accruals: In the US reporting framework, as with IFRS, revenue must be recognised for tax purposes when received or accrued, regardless of when the revenue is recognised for book purposes. For book purposes the receipt of income is often not recognised immediately, such as in the case of prepayments or deposits. However, these receipts are required to be recognised immediately as income for tax purposes.
- Asset depreciation rules: Asset depreciation for financial reporting purposes is based on the principle of matching production expenses with sales revenues. Therefore book depreciation for tangible assets is based on estimates of useful lives and residual values that reflect their economic values over an estimate of the asset's useful life. However, the treatment for tax purposes follows explicit asset classifications that specify the life and method to be used. This is referred to as the 'wear and tear' allowance in South African tax law.
- Intangible assets: Intangible assets have a varied history that has affected whether their associated book-tax differences are temporary or permanent. Post-2001 tax goodwill amortisation has been shown as a temporary difference rather than a rate-favourable permanent difference. Discussions with managers and partners at three of the Big-Four accounting firms confirmed that they treat the tax goodwill as temporary, even though the company hopes never to record an impairment charge.

Other examples of temporary differences highlighted in the research by Mills and Plesko are mark-to-market accounting method differences and capital losses in excess of capital gains. These reverse if capital losses are used before they expire.

The paper concludes by making recommendations for further study in this area and the main recommendation proposed by the paper is increased disclosure and transparency of these temporary differences.

Mills et al. (2002) in their paper "Trends in Book-Tax Income and Balance Sheet Differences" use tax return data and company financial statements to conclude that the gap between book and tax incomes grew throughout the 1990s. They extended prior research in this area and investigated these differences by industry, global character of the companies, and profitability.

They considered prior research that suggested that book-tax differences relate to firms' tax and financial reporting incentives, as confirmed by Mills and Plesko (2003). They also considered prior research that concluded differences caused by known factors that arise due to the differing treatments of certain transactions by accounting standards, and tax laws were also a significant factor in the book-tax gap. They refer to research conducted by Mills (2002) who analysed the book-tax gap after controlling for simple causes of book-tax differences, such as depreciation and foreign repatriation.

Mills et al. (2002) also refer to earlier research conducted by Mills and Newberry (2001) which found that public firms, which are subject to greater financial reporting pressures, have larger absolute book-tax differences than private firms not exposed to the same reporting pressures. They observe that current research by Manzon and Plesko (2002) and others highlights the need to carefully investigate sources of book-tax differences to separate explained from unexplained effects. They explain that book-tax differences originate for several different reasons and therefore represent several factors, such as:

- Technical differences that arise due to different methods applied by financial accounting principles and tax laws;
- Differences that arise due to managers exercising discretion in financial reporting to manage (increase or smoothen) book income, and
- Differences due to managers exercising flexibility in tax rules to manage (normally to decrease or defer) taxable income.

Interestingly, they note that the portion of book-tax gap that is specifically related to decreasing taxable income may represent a compliance risk. They refer to the

Treasury White Paper (1999) that points to the growing gap between book income and taxable income as possible evidence of corporations' increasing use of abusive tax shelters that decrease taxable income relative to book income.

Phillips, Pincus and Rego (2003) extend the work done by Mills and Newberry (2002) as reviewed above in a paper entitled "Earnings Management: New Evidence Based on deferred Tax Expense". In this paper the authors focus on the deferred tax expense as a method of earnings management as opposed to most of the research which tended to focus on using accrual measures as proxies for managerial discretion and earnings manipulation. An assumption of the research is that managers will seek to raise income without also increasing taxable income, which will result in increased temporary differences. The research highlights two environments where earnings management is likely to occur, namely earnings management to avoid a year-on-year earnings decline, and secondly to avoid reporting a loss.

To test the first scenario, prevalent in situations where a company is seeking a means to avoid reporting a year on year decline in earnings, the paper compares firms where the year-on-year change in earnings is zero, or slightly positive to firms where the current year's earnings are slightly below the previous year's results. The research concluded that the deferred tax expense is an area used significantly in earnings management in situations where firms potentially have to report year-on-year declines. The increased deferred tax expenses indicate an increase in probability of firms using deferred tax as a means to manage earnings.

To test the second scenario in which firms are seeking to refrain from reporting a loss, the paper compared firms with zero or slightly positive scaled earnings levels with a control sample of firms with slightly negative earnings. Again the results are consistent with the findings of testing done in the first scenario. Increases in the deferred tax expense raised in the statement of comprehensive income suggested an increase in the probability of managing earnings to avoid reporting a loss. Thus, deferred tax expense is also incrementally useful in detecting earnings management in this setting.

Although this research is primarily considering the subject of earnings management in different scenarios, its objective is to consider earnings

management from the perspective of temporary differences and deferred taxes role in making earnings management possible and to have actually occurred. The overall conclusion proposed by the research is that the deferred tax expense is an incrementally useful detection of earnings management. This provides useful insight for this minor dissertation as the book-tax gap is comprised of primarily temporary differences. However, there are also permanent differences which will be considered in the research of this minor dissertation, but it will be shown that the permanent differences make up a smaller element of the book-tax gap, the primary difference being due to temporary differences.

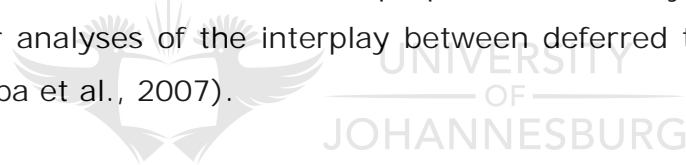
A significant amount of research on the book-tax gap has been done by Desai (2002). He conducted a study into the divergence between book and tax income. The research in this paper confirms previous conclusions that the book-tax gap is widening, and the manner of this increasing gap is consistent with the use of tax sheltering activities. His research provides insights into the nature of the link between book and tax income, and provides evidence that over the last two decades the link between book and tax income has no longer existed and it has effectively broken down. The research concludes that the traditional, identifiable items that have always comprised the book-tax gap have shown dramatic and substantial increases over the last two decades.

The most significant finding of this research however, is the finding that although the distinctive treatment of these traditional temporary differences has historically accounted fully for the difference between book and tax income, this is no longer the case. The paper demonstrates that book and tax income have diverged significantly for reasons not normally associated with traditional temporary differences, as was the case in the past. The research also provides evidence from the companies researched that the nature of the deterioration in the link between tax and book income is consistent with increased levels of tax avoidance activities.

2.3 The Significance of Deferred Tax Balances

The significance of deferred tax balances in financial statements was researched by Poterba, Rao and Seidman (2007). They investigated the importance of deferred tax assets and liabilities from a sample of US corporations, and they also studied the more significant components making up the deferred tax balances. Interestingly, they note that historical research has tended to ignore the rules that link tax payments to reported earnings. They also note that the significance of deferred tax is likely to increase as the emphasis of standard setters moves towards fair value accounting and away from cash-based transactions.

The research conducted in the study found that that deferred tax balances in the statement of financial position of more than forty per cent of the companies had a significantly material deferred tax position. In these forty per cent of cases the deferred tax balance was valued at more than five per cent of the company's assets. This again provides insight into the book-tax gap from a temporary difference perspective. The researchers propose their study could provide a starting point for analyses of the interplay between deferred tax and corporate behaviour (Poterba et al., 2007).



2.4 Long term Analysis of the Book-Tax Gap

Extensive research, including the research reviewed above, has been conducted on the extent and nature of the book-tax gap in a single year or at a particular point in time. This research however has the potential to be tainted, or bias, due to once off, or abnormal events that occur in a single year, that are not repeated. These studies also don't enable trends to be investigated and conclusions to be drawn from these movements.

The paper "Long-Run Corporate Tax Avoidance" (Dyreg, Hanlon & Maydew, 2005) differed from most of the other research on this topic in that it examined differences in book and tax incomes over a period longer than annual measures of avoidance as focused on by other studies (Hanlon, Kelley & Shelvin, 2005; Hanlon & Shelvin, 2002; Desai, 2003; Manzon & Plesko, 2002; Plesko, 2000a) and in so doing avoided the situations where unique circumstances may have only

existed for that particular financial year. The research found that 22 per cent of the sample of 437 publicly-traded firms had effective tax rates of less than 20%, where the statutory tax rate was 35%, measured over a 10-year period. This suggested that a significant portion of publicly listed firms were able to engage in long-term tax reductions over an extended period of time. The authors of this paper state they are not aware of any studies on long-run book-tax differences. The researchers refer to the study conducted by Manzon and Plesko (2002) where the relation between financial accounting income and taxable income measures over time was analysed. However, Manzon and Plesko (2002) use annual data and do not investigate the long-run tax avoidance ability of the firm.

The paper summarises that although extensive tax research has been conducted, there is little knowledge about firms' ability to avoid income taxes over long periods of time, and this study provided some initial evidence on this topic.

2.5 IAS 12: Income Taxes

International Financial Reporting Standards (IFRS) (2011) form the basis of accounting transactions, and it is these accounting reports that are used as a starting point when computing taxable income. This therefore creates a link between the accounting for financial reporting purposes and accounting for tax purposes. As pointed out by Desai (2002), this link has broken down over the last two decades.

In the context of this minor dissertation on the book-tax gap, it is important to consider the role of the applicable accounting standard and its contribution to the book-tax gap. The rules stipulated in the accounting standards for the preparation of financial accounts differ from the applicable tax rules, and it is this difference that results in the creation of the book-tax gap. To operate effectively, tax rules require a degree of certainty, as noted by Alley and James (2005) in "The Interface Between Financial Accounting and Tax Accounting: A Summary of Current Research". However, this is often not appropriate for accounting purposes in terms of IFRS as certainty is sometimes not possible. This is further compounded by the fact that in terms of IFRS, there may be different methods of accounting for

transaction, that are both equally acceptable in terms of IFRS, and the method chosen is inappropriately chosen based on the taxation implications.

The relevant accounting standard is IAS 12. In October 1996, the revised IFRS, published as IAS 12 (revised 1996), Income Taxes was approved and repealed the previous IAS 12 (reformatted 1994), Accounting for Taxes on Income. The revised standard was effective for financial statements beginning from 1 January 1998. Two interpretations SIC that are relevant to IAS 12 have also been issued:

- SIC-21, income taxes - Recovery of revalued non-depreciable assets, and
- SIC-25, income taxes - Changes in the tax status of the company or its shareholders.

In March 2009 the International Accounting Standards board (IASB) issued an exposure draft (ED) to replace the current IAS 12 that proposed a number of changes that would be reflected in a revised standard. After considering respondents' views on the Exposure Draft, the IASB decided not to proceed with it. Instead, it announced that it would consider undertaking a fundamental review at some time in the future. It also indicated that it might consider a more limited scope project to amend the standard. This resulted in an amendment to IAS 12 Deferred Tax: Recovery of Underlying Assets, which was issued in December 2010 (Banka 2011).

IAS 12 implements a method of accounting for income taxes that recognises both the current tax consequences of transactions and events and the future recovery or settlement of the carrying amount of an entity's assets and liabilities. This is referred to as the "comprehensive balance sheet method" of accounting for income taxes (Banka, 2011). This replaces the previous "income statement approach" where net profit as per the books was compared to taxable income calculated in accordance with the relevant tax laws and deferred taxation was raised on the timing differences between the two measures.

In terms of IAS 12, temporary differences are the differences between taxable income and accounting income that originate in one period and are capable of reversal in one or more subsequent periods. Should the difference between

accounting income and taxable income be of a permanent nature, where there will never be a reversal of the difference, no deferred tax is created.

The current “balance sheet approach” applied in terms of IAS 12 accounts for temporary differences as opposed to timing differences. The term temporary differences has a wider definition than timing differences and is defined as a difference between the carrying amount of an asset or liability and its tax base, where the tax base is the amount that will be deductible for tax purposes. Therefore deferred tax assets and liabilities as well as carried forward tax losses and credits, are recognised when there is a difference between the carrying amount and tax base of an entity’s assets and liabilities. The primary definitions provided in IAS 12 are as follows:

Temporary difference: A difference between the carrying amount of an asset or liability in the statement of financial position and its tax base.

Temporary differences are either:

- Taxable temporary differences: Temporary differences that will result in taxable amounts in determining taxable profit (tax loss) of future periods when the carrying amount of the asset or liability is recovered or settled, or
- Deductible temporary differences: Temporary differences that will result in amounts that are deductible in determining taxable profit (tax loss) of future periods when the carrying amount of the asset or liability is recovered or settled.

Tax base: The tax base of an asset is the amount that will be deductible for tax purposes against any taxable economic benefits that will flow to an entity when it recovers the carrying amount of the asset. Effectively, it is the amount attributed to the asset or liability for tax purposes.

Accounting profit: The profit or loss for the period before deducting tax expenses.

Taxable profit: The profit or loss for the period, determined in accordance with rules established by the taxation authorities, upon which income taxes are payable (or recoverable).

2.5.1 Recognition of Deferred Tax Asset and Liabilities

Temporary differences are defined as the difference between the carrying amount of an asset or liability and its tax base, where the tax base is the amount that will be deductible for tax purposes. Companies are therefore required to compute the tax balance of all the balances in the statement of financial position, which is effectively the tax base of both asset and liability. Deferred tax is raised on the differences between the tax base of an asset or liability and its carrying value determined in terms of IFRS.

IAS 12 specifies that deferred tax assets should be recognised for deductible temporary differences, unused tax losses and unused tax credits to the extent that it is probable that taxable profit will be available against which the deductible temporary differences can be utilised, unless the deferred tax asset arises from the initial recognition of an asset other than in a business combination which, at the time of the transaction, does not affect the accounting or the taxable profit. IAS 12 further provides that an entity is required, at balance sheet date, to reassess any unrecognised deferred tax assets.

In terms of defining a deferred tax asset or liability, further guidance is provided in the IASB's Framework, the basis for IFRS. In terms of the Framework an asset is recognised when it is probable that the future economic benefits will flow to the entity, and the asset has a cost or value that is capable of being measured reliably. A liability is recognised when it is probable that an outflow of resources embodying economic benefits will result from the settlement of a present obligation, and the amount at which the settlement will take place can be measured reliably.

2.5.2 Measurement

Deferred tax assets and liabilities should be measured at the tax rates that are expected to apply to the period when the asset is realised or the liability is settled,

based on tax laws that have been enacted or substantively enacted by the end of the reporting period.

IAS 12 provides that tax assets and liabilities should be measured at the amount expected to be paid (or recovered), based on enacted or substantially enacted tax legislation. Therefore, deferred tax assets and liabilities should be measured at tax rates that are expected to apply to the period when the asset is realised or the liability is settled, based on the tax laws that have been enacted, or substantially enacted by the end of the reporting period. The measurement should reflect the entity's expectations at the balance sheet date, of the way in which the carrying amounts of its assets and liabilities will be settled or recovered.

2.5.3 The Continual Changing of Accounting and Tax Laws

The differences between the accounting rules applicable under IFRS, specifically IAS 12, which have been detailed above, and tax law are the primary reason book-tax gaps originate and continue to exist and grow. Financial accounting and taxation accounting have different objectives and intentions and therefore perfect harmonisation between taxation and accounting is improbable. This situation is enhanced by the fact that accounting standards and tax law are in a continual process of development and change. The difference in the development process and objectives between tax and accounting perpetuate this problem of the difference between taxable income and accounting income, and therefore the book-tax gap. Tax laws are often modified on piecemeal basis in response to particular pressures and issues. Therefore, although there is continual incremental development of both accounting and taxation, this development is often not at the same rate or in the same direction.

2.6 Conclusion

All the literature and research reviewed on this topic agreed that the gap between book and tax income is growing and continues to do so. Some literature reviewed links this directly to tax sheltering and avoidance activities. Furthermore, the increased emphasises on fair value accounting in IFRS is going to further increase the significance and materiality of deferred tax balances and the treatment of temporary differences. The literature reviewed concludes that future research has to be carefully conducted to ensure that the reasons for this growth in temporary differences are correctly established, as they could be due to technical reasons, an attempt to avoid the payment of tax, or to manipulate earnings and financial statement presentation. Some literature suggests that IAS 12 needs to be reviewed in the context of this ever-increasing book-tax gap and the significantly material deferred tax balances in annual financial statements.

There is very little research to date on the book-tax gap and the treatment of deferred tax over an extended period, as most research has considered only a one year, or a specific reporting time frame. Studies conducted over longer time frames will enable trends to be analysed and will provide further insight into this phenomena.

Research of the book-tax gap in the South African context is very limited, in terms of both the long-term and short-term perspective.

CHAPTER 3

RESEARCH METHODOLOGY OF THE CONTENT ANALYSIS

3.1 Introduction

This chapter explains the research methodology chosen to achieve the objective of determining the nature and extent of the book-tax gap for the forty largest companies in South Africa by market capitalisation in the ten-year period from 2002 to 2011. A secondary objective is to determine the extent of deferred tax balances in the company's annual financial statements, and to determine any trend in the movement and materiality of these deferred tax balances in the study period. The chapter explains how the content analysis is applied in the minor dissertation. This includes the approach, the data, and how the data is measured.

This minor dissertation presents the results of a detailed content analysis performed on the audited financial statements of the forty biggest companies by market capitalisation for the period 2002 to 2011. The content analysis classifies and summarises the formal data presented in the annual financial statements. The content analysis will extract and summarise the relevant tax disclosures presented in the statement of comprehensive income and the statement of financial position of the annual financial statements of the companies in the sample.

This minor dissertation is a quantitative study with a structured, rigid and predetermined methodology. The research value is reliable and objective as it obtained information from independently audited and published financial statements. Based on the objectives, the research is a descriptive research design as it analyses and describes what is currently prevalent.

As there are numerous contacts with the study population at regular intervals over a period of time, it is a longitudinal study design (Kumar, 2005). The pattern of change in relation to time is being analysed by extracting the relevant tax information from the company's annual financial statements for the period. The

study design is also retrospective, if it is to be classified based on a reference period as we are studying historical financial statements.

3.2 The Research Approach

The research approach is twofold:

- To determine the nature and extent of a phenomenon, namely the book-tax gap. The book-tax gap is measured as the difference between the actual effective tax rates reported and paid by companies and the prevailing statutory tax rate. The data analysed will cover a long-term period, 2002 to 2011. The extent of the variation and trends in the movement of the variation over the reporting period will be quantified.
- To obtain an understanding of the role played by temporary differences and deferred tax in the book-tax gap. This is done by an analysis of deferred tax balances in the statement of financial position and deferred tax charged to the statement of comprehensive income. The materiality of the deferred tax balances in the statement of financial position will be analysed by considering these balances in relation to net income before tax. The change, if any, in these balances over the ten-year study period will be analysed. Any trends in movement of balances in the period 2002 and 2011 will be identified and analysed.

3.3 The Research Data

The research tool or instrument is the companies' published annual financial statements for a ten-year period from 2002 to 2011. Although this data is a secondary source of information (the primary source being the actual source documents and accounting records from which the financial statements have been prepared), it is a very reliable and accurate source of data. The financial statements have been independently audited by registered auditing firms as required by statute, and have been officially published by the companies. A great deal of reliance is placed on the financial statements by a wide range of users,

including investors, shareholders, tax authorities, stock exchange authorities, and analysts amongst others. Based on this, the data can be regarded as highly valid and reliable. Furthermore the required data is openly and publicly available as company financial statements of JSE listed companies are public documents. Financial statements are usually publicly available for download from the company's website, and several financial institution websites also have this data available.

The population for the study is all the companies listed on the Johannesburg Stock Exchange. Only public companies are being selected as they are required to apply IFRS. The top 40 companies, as determined by the Johannesburg Stock Exchange as the companies making up the top 40 index as at 1 July 2012, is the sample selected from the population.. Therefore, the sampling design is a non-random and a non-probability sampling design (Kumar, 2005). The sample selected is limited to the top forty companies due to the fact that this is exploratory research in South Africa.. . The market capitalisation of the top 40 companies comprises a large percentage of the market as a whole, and would therefore be a good representation of the entire population. Furthermore, larger companies with stricter reporting requirements and larger business activities provide greater insight into the nature of book-tax gaps and deferred tax balances.

3.4 Measuring the Book-Tax Gap and the Extent of Deferred Tax

In principle, the book-tax gap measures the difference between accounting income, i.e. net profit before tax disclosed in the statement of comprehensive income, and taxable income, computed in accordance with applicable tax law. This is represented by the difference between the statutory rate of tax and the actual rate of tax effectively raised by the company in the financial statements.

The actual items comprising the difference between taxable income and accounting income are classified as either permanent differences or temporary differences. Permanent differences arise when there are differences between the accounting treatments compared to the tax treatment of an item, and the nature of these differences is that of a permanent nature. These differences will therefore not change, or reverse, in the future. Examples include expenses incurred that are not deductible for tax purposes, but comprise accepted expenses in terms of

accounting standards, such as expenses that are capital in nature. Another common example is expenses incurred by a company that have not been incurred in the production of income, but are incurred in the operations of a company. In terms of tax legislation, these expenses are not permissible deductions against income, however, in terms of accounting standards, these items are expenses and treated as such. Certain legal fees would be an example here. Similarly, certain income items must be accounted for in a company's statement of comprehensive income, even though it is not taxable as it is defined as exempt income in terms of tax legislation, and is therefore excluded from taxable income. An example of this is some forms of investment income such as dividends.

Temporary differences however arise due to differences in estimates and timing and judgements between a companies' accounting treatments and the relevant tax authority treatment of the same item. This use of judgement and estimation enables opportunities for bias to suit a desired outcome, such as the payment of less tax or earnings manipulation. Deferred tax raised in the statement of comprehensive income has a direct bearing on the amount of tax actually paid by a company, as the total tax charge per the statement of comprehensive income is made up of the sum of current tax and deferred tax. The higher the deferred tax charge, the lower the current tax, and vice versa.

The average statutory tax rate in South Africa over the period 2002 to 2011 is 28.90%. The tax rate was 30% from 2002 to 2004, 29% from 2005 to 2007 and 28% from 2008 to 2011.

Secondary tax on companies (STC) was removed from the data as this is not considered relevant to the study. In 2012, tax legislation in South Africa was changed and STC is no longer in force. It has been replaced by dividends tax which is a withholding tax levied on the shareholder receiving the dividend and is no longer a tax charge on the company paying the dividend. Furthermore paying tax on dividends distributed to shareholders has no fundamental bearing on tax charges that are raised based on a company's earnings and operations and is therefore not relevant to this research..

In some instances companies have prior year adjustments in the current year's tax computation. This is normal practice as tax submissions are often only finalised

by tax authorities in the year following the financial year end, and in some cases adjustments are required where there is a difference between what was submitted to the tax authority, and the final assessment issued by the tax authority. These prior year adjustments are normally immaterial and are included in the data extracted from the financial statements. As this minor dissertation is analysing the data over a ten-year period, it is considered appropriate to include all prior year adjustments as this depicts a more accurate long-term average. Adjustments that occur between years are irrelevant when the data is analysed over a ten-year period.

There are cases in some years where abnormal, once-off events have an adverse impact on the average. To avoid the results being tainted and skewed by these non-recurring items and to obtain a more true reflection of the average, any adverse differences between book tax rates and statutory tax rates that are greater than 100% are excluded. The items that have been excluded are shaded in grey in the Tables of data presented in the appendices. The Tables in the appendices show the data that was used to analyse the book-tax gap.

Appendix I contains the current tax charge percentage as has been disclosed by the companies in the statement of comprehensive income, excluding deferred tax, for the top forty companies, for the years 2002 to 2011. The list is ordered by rank, from the companies with the lowest average tax rate to the companies with the highest tax rate for the period.

In Appendix II deferred tax is included in the book-tax percentage, hence the total tax charge per the statement of comprehensive income is the data extracted. Again the Table is ordered by rank, from lowest tax rate to highest.

Appendix III is the tax paid percentage by the companies, as published in the cash flow statements of the companies. The Table is ordered by rank, from the least tax paid to the highest.

Appendix IV shows the deferred tax balance in the statement of financial position (debit or credit) as a percentage of the net income before tax. If the percentage is negative, this means there is an overall deferred tax liability on the statement

of financial position, and if the percentage is positive, this reflects an overall deferred tax asset on the statement of financial position.

Appendix V shows the deferred tax charge in the statement of comprehensive income as a percentage of the total tax charge. It shows if the deferred tax charge is a debit or credit charge to the statement of comprehensive income for a particular year.

3.5 Conclusion

This chapter explains the methodology followed in this minor dissertation. The research data is the published annual financial statements for the top forty companies by market capitalisation for the ten-year period from 2002 to 2011. The data extracted from the annual financial statements that will be used to analyse the book-tax gap and the role of deferred tax is shown in the Appendices.

The book-tax gap is measured using the current tax as a percentage of net income before tax, and the tax paid as a percentage of net income before tax. The composition of the book-tax gap between temporary and permanent differences is assessed using the data total tax as a percentage of net income before tax that was extracted from the annual financial statements.

The role of deferred tax and the deferred tax balances in the book-tax gap is analysed using the deferred tax balances data extracted from the statement of comprehensive income and the statement of financial position. The data extracted from the statement of comprehensive income is the deferred tax charge as a percentage of total tax. The data extracted from the statement of financial position is the deferred tax balance as a percentage of net income before tax.

All the data used in the study has been extracted directly from the published, audited annual financial statements of the companies, and therefore there are no issues concerning the integrity and validity of the data.

CHAPTER 4

RESULTS

4.1 Introduction

This chapter presents the results of the content analysis, described in chapter 3. The analysis of the book-tax gap is measured from two perspectives:

In the first measurement the tax charge in the statement of comprehensive income, including and excluding deferred tax, is compared to the statutory tax rate. This is done so that the effect of deferred tax can be assessed. When the total tax charge including deferred tax is compared to the statutory rate, the difference is a measure of only the permanent differences between book tax and statutory tax. Where deferred tax is excluded and only the current tax in the statement of comprehensive income is compared to the statutory tax rate, this is a measure of the total book-tax gap that includes both permanent and temporary differences. The results show the average actual tax rates disclosed by the companies (where deferred tax is excluded) is 14.4% lower than the average statutory tax rate for the same period. However, the difference is only 6% when the total tax charge, including deferred tax, is compared to the statutory tax charge. When deferred tax is included, the only difference between the statutory tax charge and total tax charge is permanent differences.

The second measurement considers actual tax paid by the companies. The book-tax gap is measured as the difference between the tax actually paid by the company as disclosed in the cash flow statement, and the prevailing statutory tax rate. The results show the average tax paid over the ten-year period is 16.69% less than the statutory tax rate.

The results of the two measurements of the book-tax gap above, confirm the role of temporary differences, and therefore, deferred tax is a significant component of the overall book-tax gap. Temporary differences account for 59% of the overall book-tax gap. The extent of deferred tax is measured in the statement of financial position and in the statement of comprehensive income, as follows:

- The deferred tax balances in the statements of financial position are evaluated. Their materiality in relation to the earnings results of the companies is measured and analysed. Trends in the extent of these balances over the ten-year period of the study are also analysed. The results show that the average net deferred tax balance in the statement of financial position was a liability in every year of the ten-year period. Over the period the average deferred tax liability is 58% of net income before tax.
- The extent of the deferred tax charge in the statements of comprehensive income is determined by comparing the average deferred tax charge as a percentage of the total tax charge over the ten-year period. The average deferred tax charge as a percentage of the total tax charge is 29%.

4.2 Measuring the Book-Tax Gap in South Africa

4.2.1 Measurement 1(a): Current Tax in the statement of comprehensive income as a percentage of net income before tax (total tax charge less deferred tax) compared to the statutory rate

The first measurement compares the current tax charge as a percentage of net income before tax in the statement of comprehensive income (Book) to the prevailing statutory tax rate (Statutory). The current tax charge is calculated as total tax charged in the statement of comprehensive income less deferred tax. This is a direct representation of the book-tax gap as it essentially measures the gap between the tax charge raised in the financial statements, and the statutory tax charge. Table 4.1 and Figure 4.1 show a summary of the data from Appendix I.

Table 4.1 Current tax charge (excluding deferred tax) as a percentage of net income before tax compared to the statutory tax rate

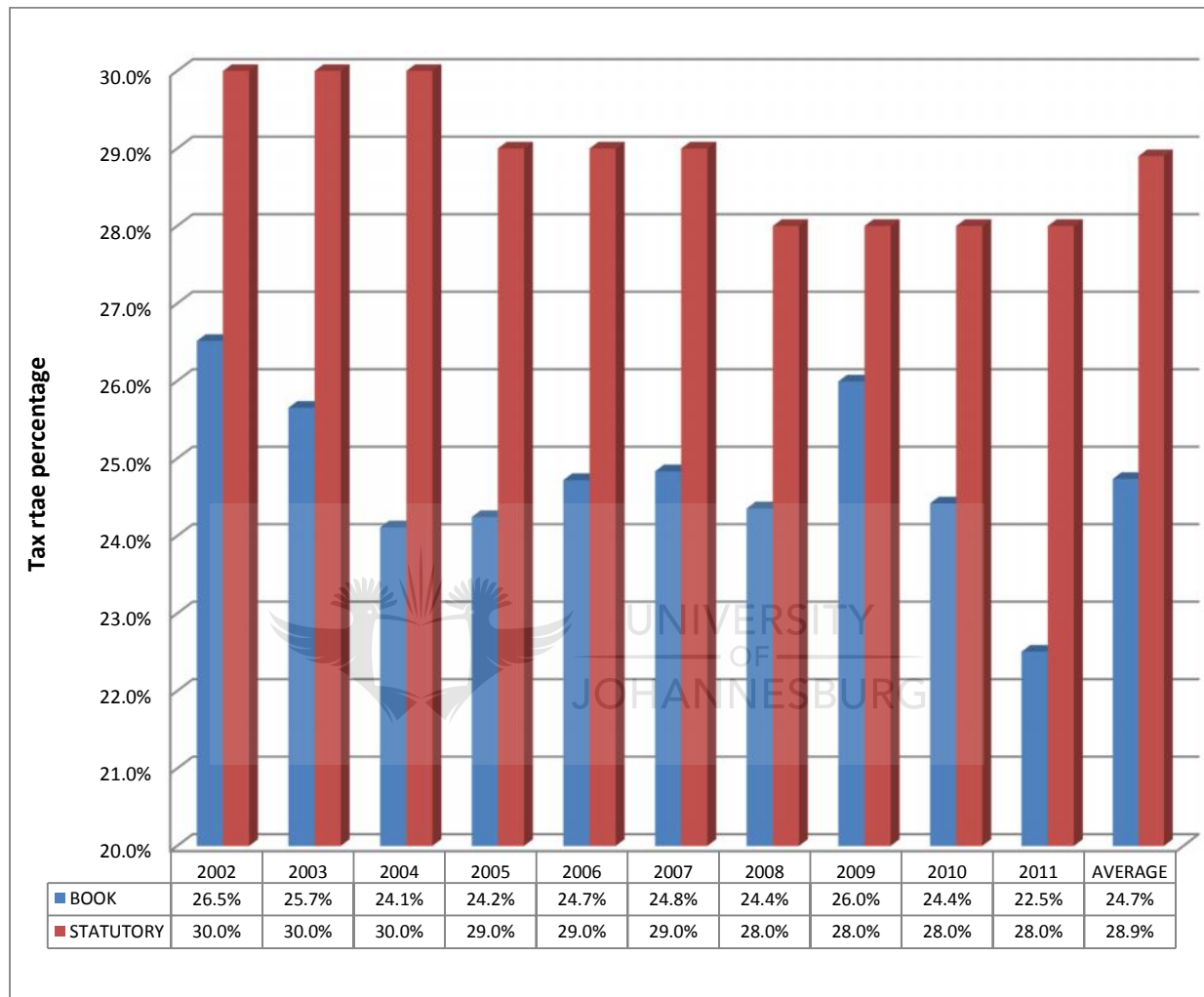
PERIOD	BOOK	STATUTORY	DIFFERENCE
2002	26.5%	30.0%	(11.6%)
2003	25.7%	30.0%	(14.5%)
2004	24.1%	30.0%	(19.6%)
2005	24.2%	29.0%	(16.4%)
2006	24.7%	29.0%	(14.8%)
2007	24.8%	29.0%	(14.4%)
2008	24.4%	28.0%	(13.0%)
2009	26.0%	28.0%	(7.2%)
2010	24.4%	28.0%	(12.8%)
2011	22.5%	28.0%	(19.6%)
AVERAGE	24.7%	28.9%	(14.4%)

The data shows that in every year from 2002 to 2011 the current tax rate (book-tax rate) was lower than the statutory tax rate. The average book-tax rate over the 10-year period was 24.7%, compared to an average statutory tax rate of 28.9%. Over the ten-year period the book tax raised was 14.4% less than the prevailing statutory tax rate.

There does not appear to be any trend in terms of the movement of the size of the book-tax gap over the study period. This is illustrated by the two years in which the difference was the greatest, namely 2004 and 2011. In both these years, one near the beginning of the study period and the other the last one in the study period, the average book tax rate was 19.6% lower than the statutory

tax rate. The two years where the gap was its lowest also appear at the beginning and end of the period, namely 11.6% in 2002 and 7.2% in 2009.

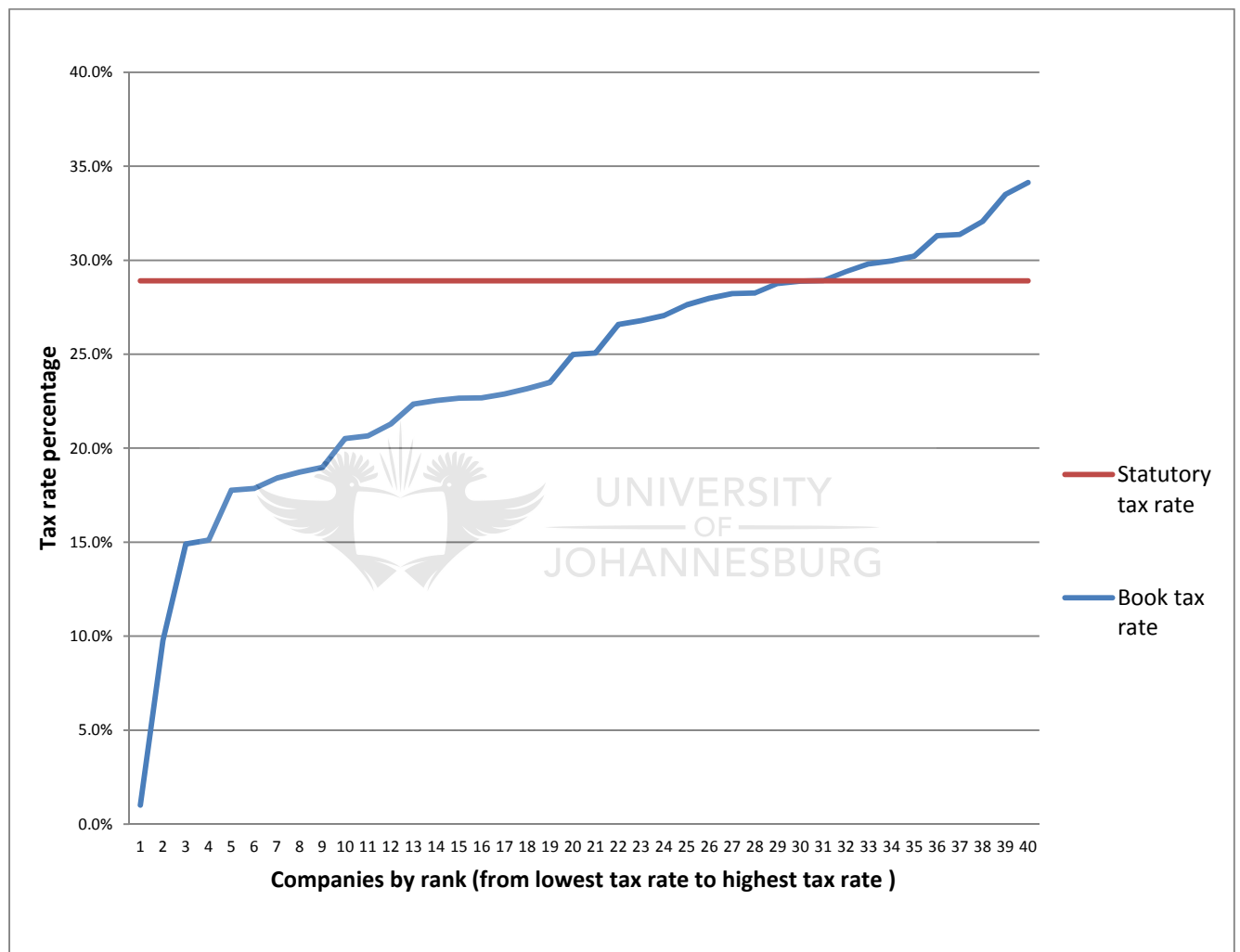
Figure 4.1 Diagrammatic representation of the book tax rate (Total tax charged to the statement of comprehensive income, less deferred tax) compared to the statutory tax rate



If one considers the individual companies shown in Appendix I, and as shown diagrammatically in Figure 4.2, 30 of the 40 companies had an average book-tax rate for the 10-year period that was lower than the average statutory tax rate for the same period. This represents 75% of the sample. The average book tax rate for these 30 companies over the 10-year period is 21.1%, or 37% less than the statutory tax rate. The two companies with the lowest accounting tax rates for the period, (1% and 9.8% respectively) are in the situation as a result of trading losses in the period, and a foreign subsidiary operating in a country with significantly lower tax rates than South Africa. The remaining 10 companies'

average book-tax rate is 31.1%, 7.6% greater than the statutory tax rate. These companies had greater tax rates than the statutory tax rate primarily due to foreign taxes levied from operations in other countries with higher tax rates than South African.

Figure 4.2 Diagrammatic representation of companies, ranked from lowest book tax to highest book tax compared to the average statutory tax rate



The results of this analysis indicate the existence of a significant book-tax gap in South Africa in the period 2002 to 2011. The size of the book-tax gap, as well as the number of companies in the sample that have a book-tax gap where the book tax rate is lower than the statutory tax rate, is also illustrated.

Given that the results clearly indicate the existence of a book-tax gap, and the fact that the book-tax gap is comprised of permanent and temporary differences,

it is therefore necessary to analyse how much of the gap is attributable to each category of difference. Permanent differences between accounting standards and tax law will never reverse in the future and therefore do not have any effect on the companies' results and financial statements other than in the year in which the permanent difference arose. However, temporary differences, by their nature, have a current impact on a company's financial statements, as well as a future impact when these temporary differences reverse. This future impact is represented by the deferred tax balances in the company's statement of financial position.

4.2.2 Measurement 1 (b): Total Tax Charge as a Percentage of Net Income Before Tax (including deferred tax)

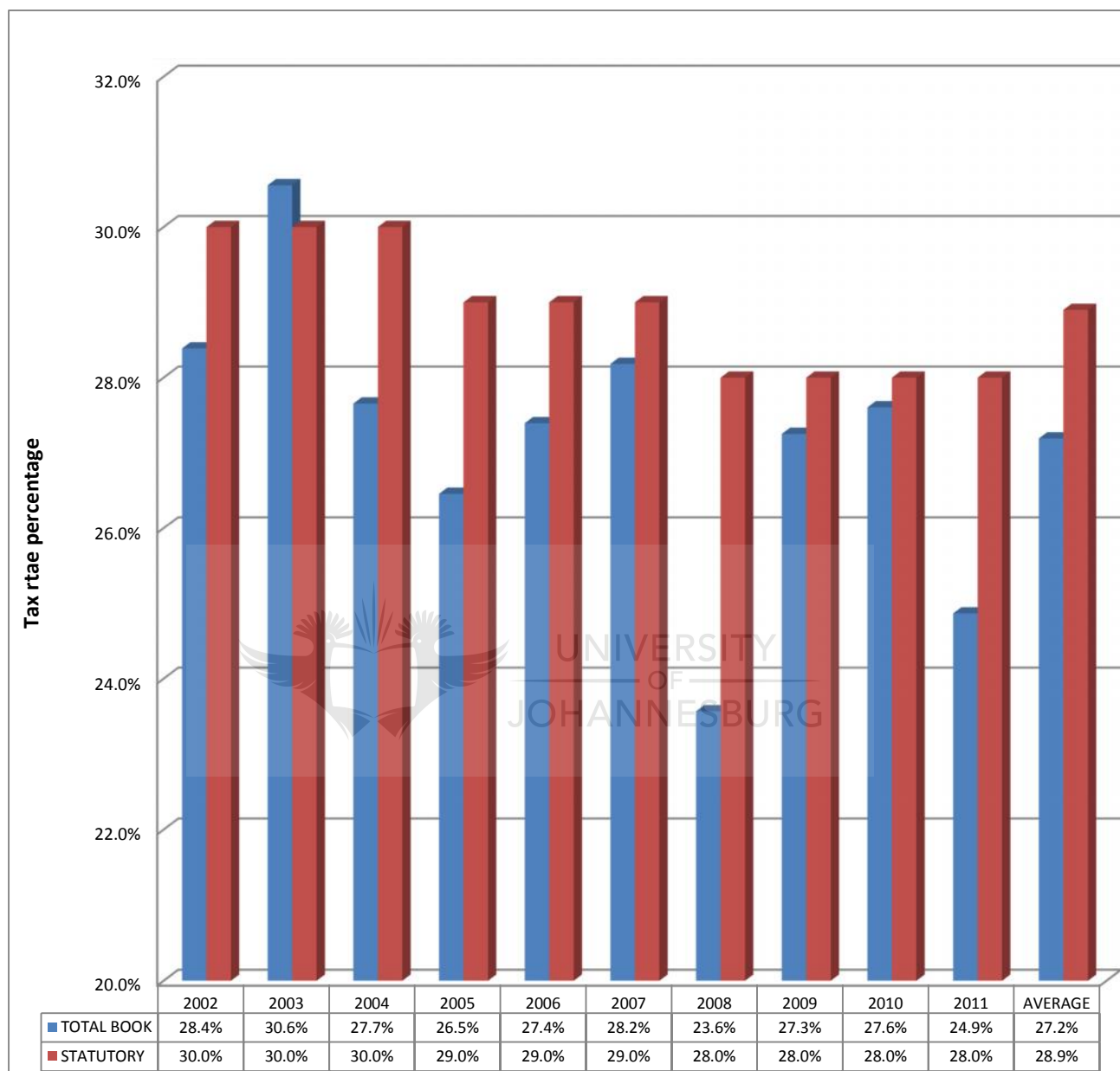
The book-tax gap comprises temporary and permanent differences. When deferred tax is included in the tax charged to the statement of comprehensive income, the difference between the statutory rate and the book-tax rate is comprised of permanent differences only. Tax laws and accounting standards have different objectives and needs, and there will never be 100% unity between them. For this reason permanent differences will always exist.

As can be seen from Table 4.2, the book-tax gap is reduced when deferred tax is included in the tax charge raised in the statement of comprehensive income. Where current tax was less than the statutory tax charge by 14.4% as illustrated by measurement 1(a) in Table 4.1, this difference is only 6% when deferred tax is included and the total tax charge as a percentage of net income before tax is compared to the statutory tax rate. The average total tax charge per the statement of comprehensive income for the 40 companies for the 10-year period is 27.2%, compared to the statutory rate of 28.9%, a difference of 6%.

Table 4.2 Total tax charge (including deferred tax) as a percentage of net income before tax compared to the statutory tax rate

PERIOD	TOTAL BOOK	STATUTORY	DIFFERENCE
2002	28.4%	30.0%	(5.4%)
2003	30.6%	30.0%	1.9%
2004	27.7%	30.0%	(7.8%)
2005	26.5%	29.0%	(8.8%)
2006	27.4%	29.0%	(5.5%)
2007	28.2%	29.0%	(2.8%)
2008	23.6%	28.0%	(15.8%)
2009	27.3%	28.0%	(2.7%)
2010	27.6%	28.0%	(1.4%)
2011	24.9%	28.0%	(11.2%)
AVERAGE	27.2%	28.9%	(6.0%)

Figure 4.3 Diagrammatic representation of total book tax (total tax charged to the statement of comprehensive income, including deferred tax) compared to the statutory tax rate

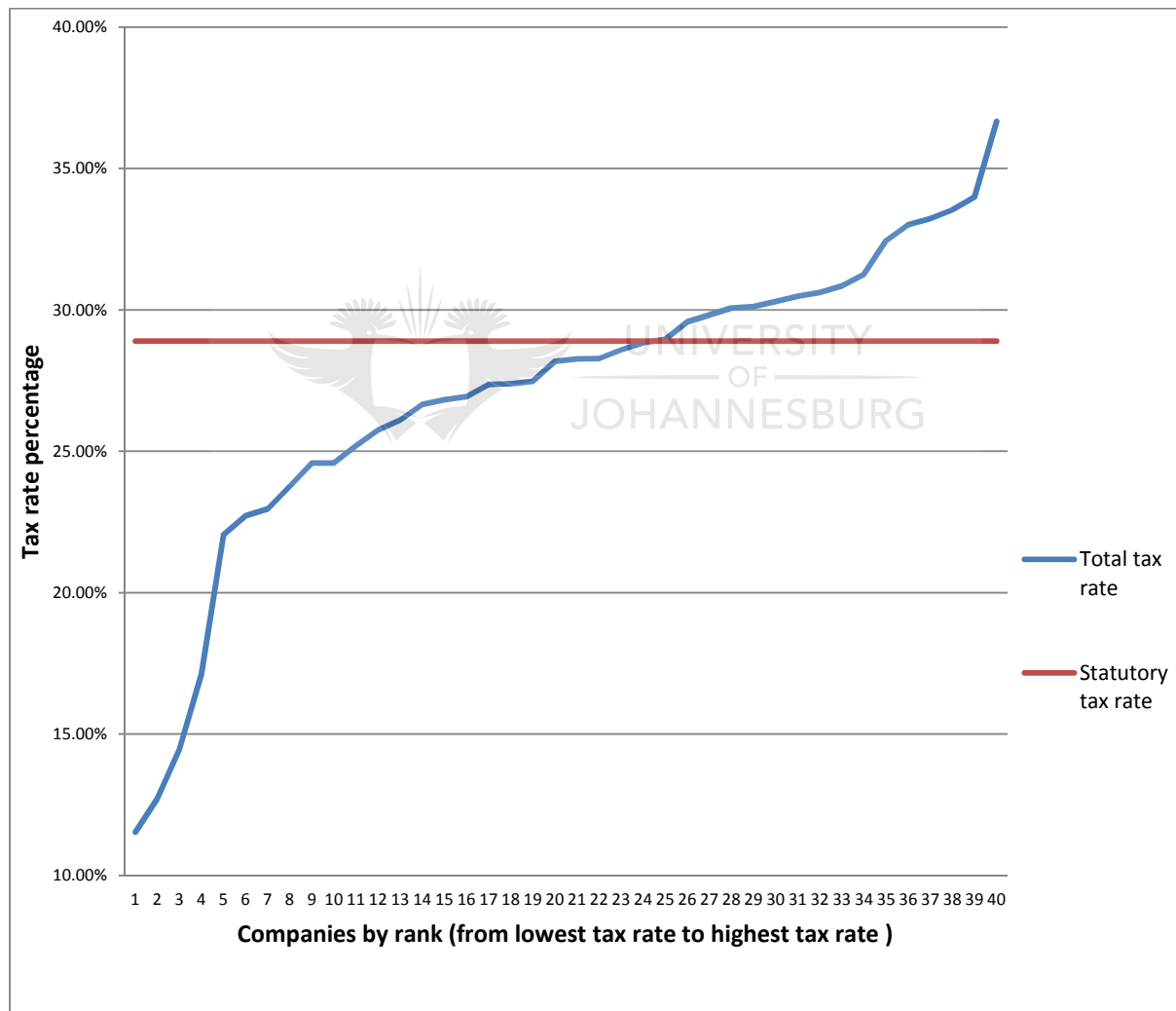


These results provide a basis for the conclusion that the difference between book income and tax income (the book-tax gap) that was noted in Table 4.1 is comprised of 58% temporary differences and the raising of deferred tax for book purposes, and 42% permanent differences between taxable income and accounting income. In the next section the extent of deferred tax in the financial statements is analysed by measuring the deferred tax charge in the statement of comprehensive income as a percentage of the total tax charge and the deferred

tax balance in the statement of financial position as a percentage of net income before tax.

Of the forty companies in the sample (Figure 4.4), 26 had tax rates lower than the average statutory rate over the study period (65%) due to permanent differences only, compared to 30 out of 40 (75%) where the book-tax gap is comprised of permanent and temporary differences.

Figure 4.4 Diagrammatic representation of the individual companies' total book tax (total tax charged to the statement of comprehensive income, including deferred tax) compared to the statutory tax rate



4.2.3 Measurement 2: Tax paid as a Percentage of Net Income Before Tax

The second measurement that provides further insight into the book-tax gap is the actual tax paid as a percentage of net income before tax compared to prevailing statutory tax rates. This measure is subject to timing differences, as actual payments of tax are often made in a year that is different to the year in which the associated taxable income is reported in the financial statements. This is particularly relevant in a South African context where the tax regime is based on a system of tax being paid in advance through estimates and provisional tax payments. However, in a ten-year study it is possible to analyse trends and long-term averages, and this nullifies the timing effect to a certain extent.

Table 4.3 Tax paid as a percentage of net income before tax compared to the statutory tax rate

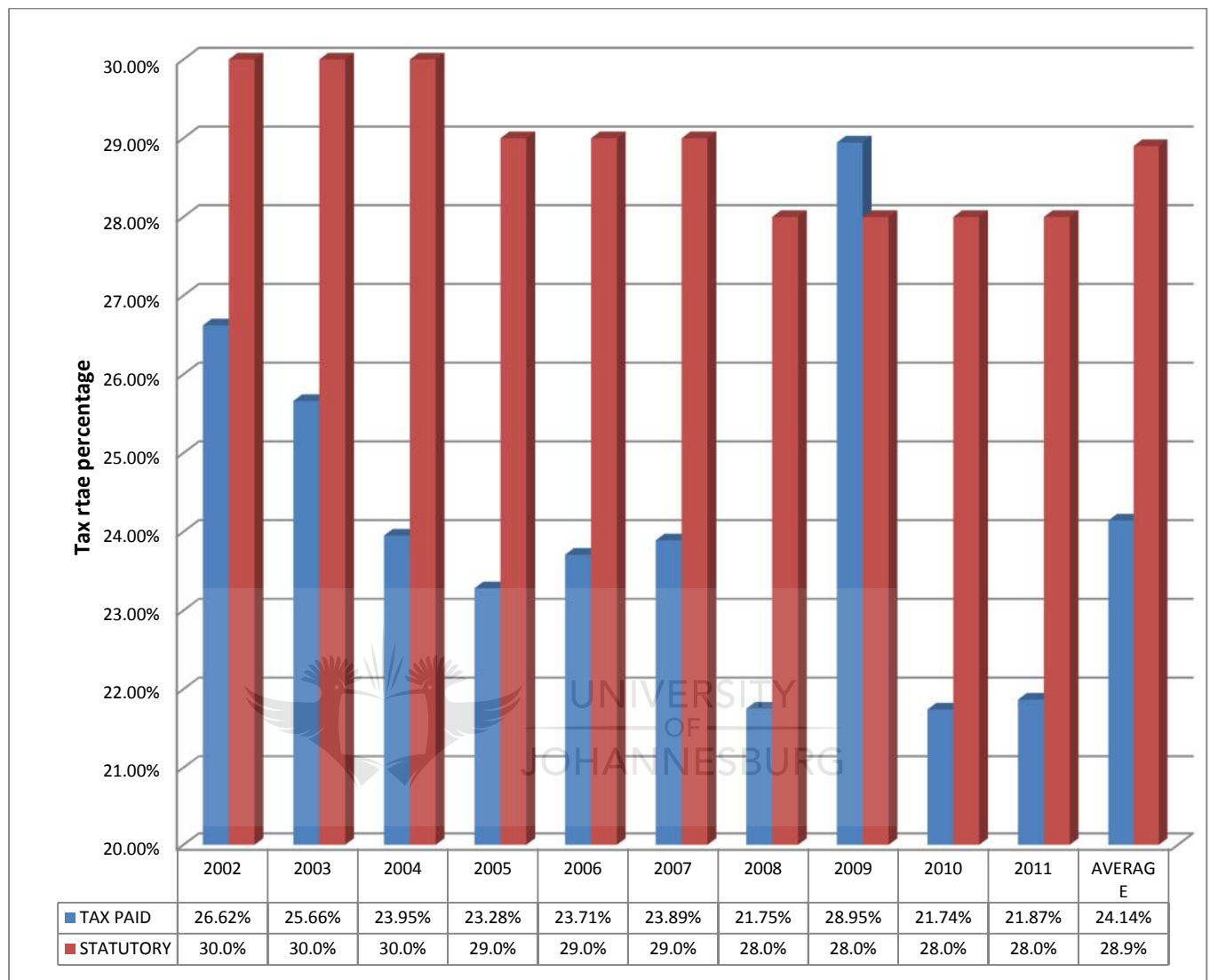
PERIOD	TAX PAID	STATUTORY	DIFFERENCE
2002	26.62%	30.00%	11.26%
2003	25.66%	30.00%	14.46%
2004	23.95%	30.00%	20.16%
2005	23.28%	29.00%	19.71%
2006	23.71%	29.00%	18.25%
2007	23.89%	29.00%	17.61%
2008	21.75%	28.00%	22.31%
2009	28.95%	28.00%	-3.38%
2010	21.74%	28.00%	22.35%
2011	21.87%	28.00%	21.90%
AVERAGE FOR PERIOD	24.14%	28.90%	16.46%

The results, shown in Table 4.3 and represented diagrammatically in Figure 4.5 are consistent with, and confirm, the results of measurements 1. The tax paid as a percentage of net income before tax is significantly lower than the statutory tax rates. This is consistent with the finding that the average current tax charge as raised in the statements of comprehensive income is significantly lower than the

average statutory tax rate over the same period. The top 40 companies paid an average of 16.46% less tax than the statutory rate for the 10-year period from 2002 to 2011. In the ten-year period there was only one year, 2009, where the tax paid exceeded the statutory tax rate. This is due primarily to the timing of tax paid in this year illustrated by the fact that the following year, 2010, is the lowest tax paid in the 10-year period, 22.35% lower than the statutory rate. The preceding year, 2008, is the second lowest year in the ten year period, again illustrating that the anomaly of the high amount of tax paid in 2009 was merely a result of timing differences in the three year period from 2008 to 2010. The average tax paid for the three year period from 2008 to 2010 was 24.15%, which is 16.97% lower than the statutory rate, and consistent with the average over the ten year period of 16.46% less tax paid than the statutory rate. There appears to be no trend in the movement of size of the gap over the ten-year period, illustrated by differences of over 20% in years at the beginning and end of the ten-year period, namely 2003, 2008, 2010 and 2011.



Figure 4.5 Diagrammatic representation of individual companies' tax paid as a percentage of net income before tax compared to the statutory tax rate

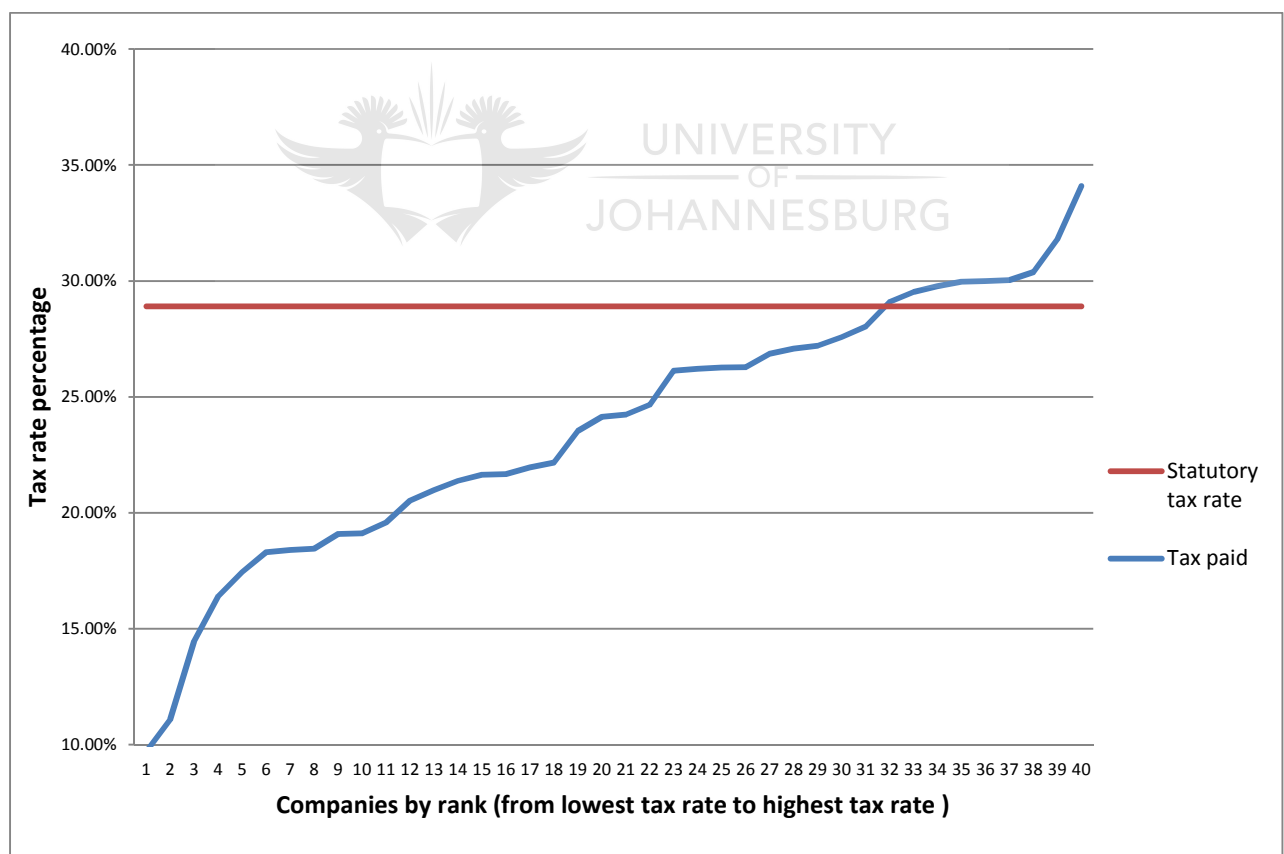


The overall results show the difference between the statutory tax rate and the book tax rate declared by the companies is due to permanent and temporary differences and a large portion is attributable to temporary differences. Due to the fact that temporary differences are in theory expected to reverse in the short term, it would be expected that the gap between the actual tax paid and the statutory rate over the ten-year period would, on average, only reflect the permanent differences. Over the ten-year period the difference between the average tax paid and the statutory tax rate should be similar to the difference between the total tax and the statutory tax, as measured in measurement 1(b). The fact that the tax paid is consistently significantly lower than the statutory rate,

an average of 16.46% lower over the ten-year period, indicates new temporary differences are consistently replacing, and exceeding, the temporary differences that are reversing to the extent that new originating temporary differences are continually arising and always exceeding the reversal of the old temporary differences.

From a company perspective, as illustrated in Figure 4.6, 31 companies out of the sample of 40 companies, (77%), have average tax paid rates over the ten-year period that are lower than the average prevailing statutory tax rates. The average tax paid rate by these 31 companies over the period was 21.63%, which is 25.16% less than the statutory rate.

Figure 4.6 Diagrammatic representation of individual companies, ranked from lowest to highest, tax paid as a percentage of net income before tax compared to the statutory tax rate

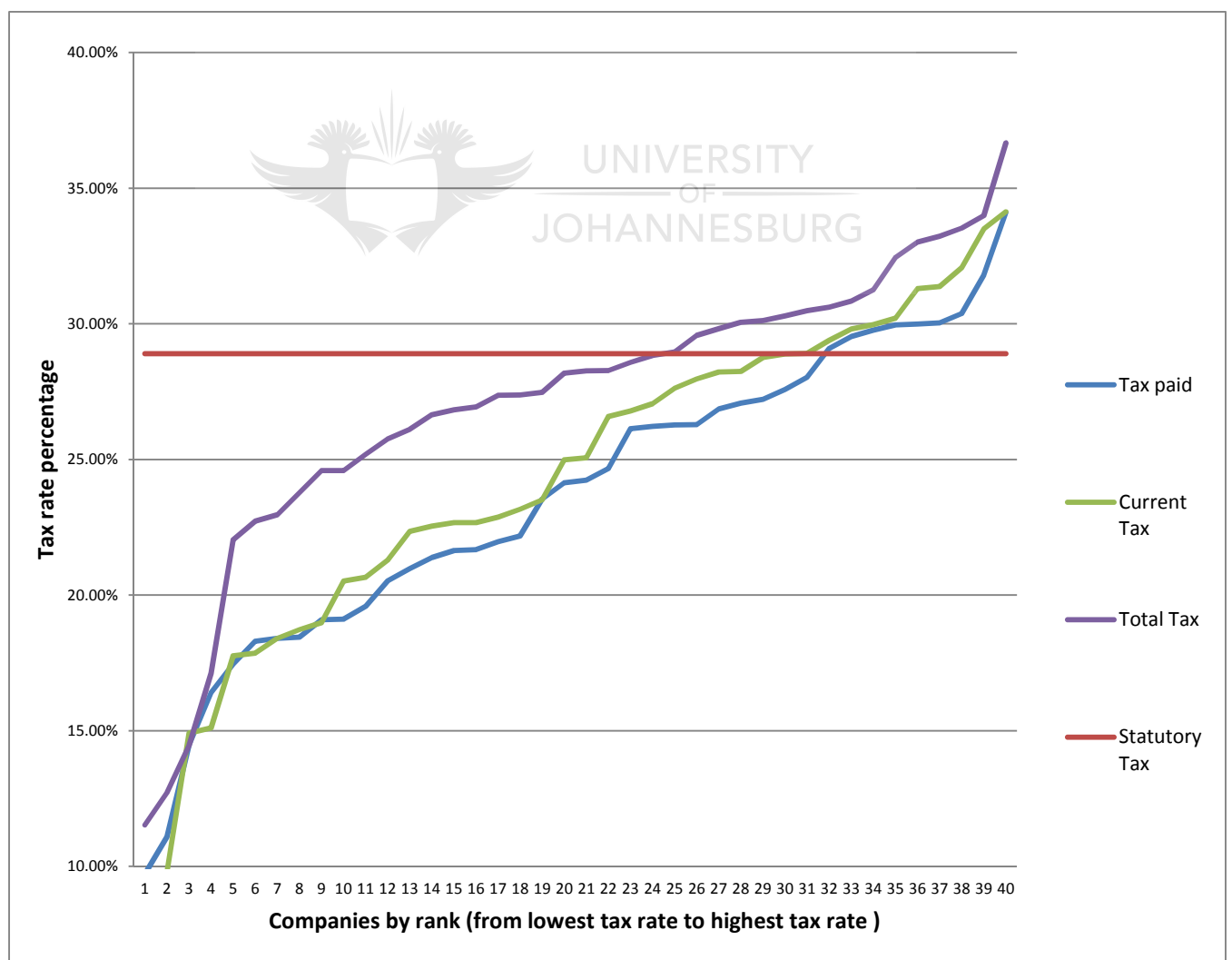


Measurement 1 and measurement 2 both illustrate the existence of a book-tax gap over the ten-year period from 2002 to 2011. The extent of the book-tax gap has remained consistent over the ten-year period and no trends in the movement of the size of the gap over the period were noted.

The results of measurement 1 and 2 confirm the existence of a book-tax gap in South Africa. Based on the results from the two measurements the size of the book-tax gap is in the range 14.4% and 16.56%. The difference between the results from the two measurements can be attributed to timing differences between tax reported in financial statements and actual tax payments to tax authorities.

Figure 4.7 shows a combined graph of measurements 1(a), 1(b) and 2. The similarity in results between measurements 1 and 2, and the simple explanation for the difference confirms the accuracy of the data extraction from the annual financial statements.

Figure 4.7 Diagrammatic representation of current tax, total tax and tax paid as a percentage of net income before tax compared to the statutory tax rate



4.3 The Extent of Deferred Tax

The book-tax gap is comprised of permanent and temporary differences that arise between differing tax treatments and accounting treatments of the same transaction.

Permanent differences are permanent in nature and therefore the effect of these differences is to lower or increase the accounting income when reconciling it to taxable income, on a permanent basis. The result is an increase or decrease in the liability, or asset, owing to or by the tax authority in the statement of financial position. This balance will be eliminated from the statement of financial position when the tax authority is actually settled with a cash payment or a refund is received by the company from the tax authority.

Temporary differences however are generally short term in nature and any difference between book income and taxable income will reverse to nil in the short term. During this period when the difference between book and taxable income exists, an asset or liability is recorded in the statement of financial position, representing the amount of taxation that has been deferred and will reverse in the future. This deferred tax balance is recorded as a liability in the statement of financial position if the payment of tax has been delayed, or deferred, by the tax benefit accruing at a faster rate than the book treatment of the same item. Hence a liability is created in the statement of financial position for the future liability of tax that will be payable when the item is still being accounted for in the book, but has already been completed from a tax treatment perspective in previous periods. Conversely, an asset is created where the future tax benefit has been delayed in the books, and the future reversal results in the lowering of tax payable.

If the deferred tax charge in the statement of comprehensive income is a debit, this is in effect lowering the actual tax payable and results in the creation of a future liability for the underpayment of tax in the current period (due to the temporary difference). This is recorded as a deferred tax liability in the statement of financial position, representing the liability for the future tax that will be payable. Conversely, a deferred tax asset is created in the statement of financial position when the deferred tax charge to the statement of comprehensive income is a credit balance, as this is effectively either a reversal of a previously created

deferred tax liability, or alternatively, is the original creation of an asset for a tax benefit that has been deferred to a future date, due to a timing difference. The net result is an increase in current tax in the statement of comprehensive income and the creation of the deferred tax asset in the statement of financial position.

4.3.1 Deferred Tax Balances in the Statement of Financial Position

The average deferred tax balance on the statement of financial position for the period was evaluated in the context of its materiality in relation to reported profits. This was considered the appropriate method to analyse the balances as these balances in effect represent the future impact on profitability when they reverse. It was not considered relevant to measure the deferred tax balances in relation to total assets or total liabilities, as this would not emphasise or provide any insight into the possible impact of these balances reversing on future profitability. Comparing the deferred tax balances in the statement of financial position to total net assets, would also not provide an accurate assessment of the deferred tax balances as many companies have different asset profiles due to the nature of their operations. As an example, a service company would have a very different asset profile to a manufacturing company with large investments in infrastructure, and the extent of this difference between the companies' assets has no bearing on the assessment of the materiality of the deferred tax balance in the statement of financial position. Considering the deferred tax balances in relation to net income before tax, provides a more accurate reflection of the materiality of the deferred tax balances as they are considered in relation to the earnings of the company, as well as on the effect of future profitability of the company.

Table 4.4 Deferred tax balances in the statement of financial position as a percentage of net income before tax

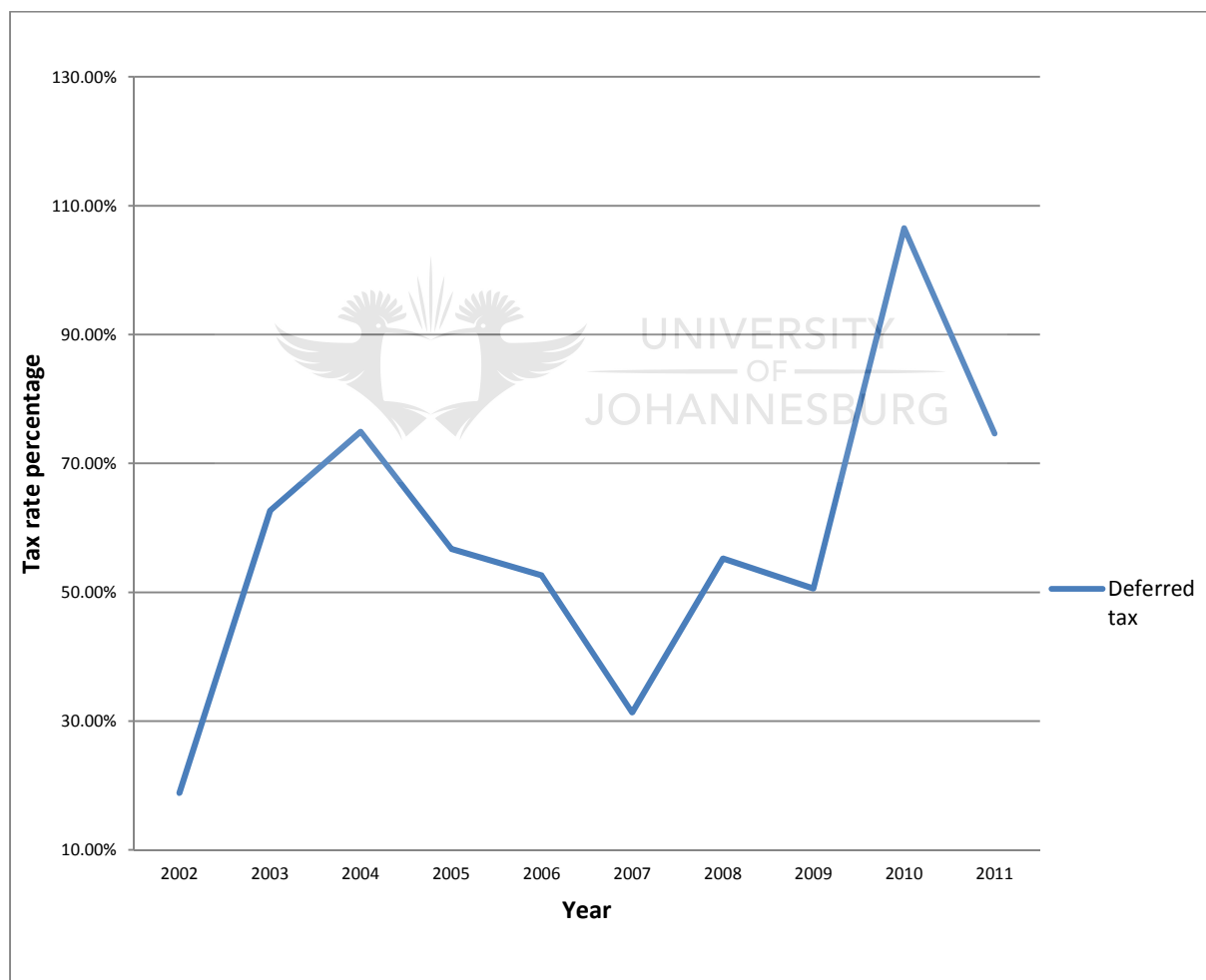
YEAR	BALANCE
2002	18.81%
2003	62.67%
2004	74.91%
2005	56.75%
2006	52.63%
2007	31.36%
2008	55.25%
2009	50.57%
2010	106.53%
2011	74.65%
AVERAGE	58.41%

As illustrated in Table 4.4 and Figure 4.8, in every year in the ten-year period there was a net liability in the statement of financial position. In some cases the companies split the deferred tax asset and liability into separate items, disclosed them in separate lines in the statement of financial position, and in separate notes in the annual financial statements, and in other cases it was shown as a single net amount in one note. The year when the liability was lowest was at the beginning of the period, and in no year in the ten-year period was the average for the forty companies a debit balance, in other words, an asset on the statement of financial position. The average deferred tax liability in 2010 is greater than all the other years in the study period. This is primarily the result of one particular mining company that created a large deferred tax liability in 2010 as a result of large investments in plant and machinery. The large deferred tax balance this created was in the context of low earnings and this therefore created an abnormally high percentage for this company, so much so that it impacted on the overall average for all forty companies.

From a company perspective, as illustrated in Appendix IV, 30 of the 40 companies (75%) had average deferred tax liabilities on the statement of financial position for the ten-year period.

The average deferred tax balance as a percentage of net income before tax for the 10-year period was 58.41%. This effectively means that should all the deferred tax in the statement of financial position be reversed the net income before tax would change by this amount.

Figure 4.8 Diagrammatic representation of deferred tax in the statement of comprehensive income as a percentage of net income before tax



The significant observation from the data extracted is the movement in the extent of this balance over the ten-year period. In the first five years from 2002 to 2006, the average deferred tax balance in the statement of financial position as a percentage of net income before tax was a credit balance (net liability) of 53.15%,

however, this increased significantly in the next five years from 2007 to 2011 to a net liability as a percentage of net income before tax of 63.67%. This is consistent with earlier findings in this research on the existence of book-tax gap in South Africa. It is these temporary differences between book tax and statutory tax that have resulted in increased deferred tax liabilities in the statements of financial position, as depicted by the data in Table 4.4.

4.3.2 Deferred Tax in the Statement of Comprehensive Income

The deferred tax percentage of the total tax charge in the statement of comprehensive income was analysed to determine the extent that deferred tax comprises the total tax charge, as well as to analyse if any trends existed in the ten-year period. The deferred tax was split between debit and credit balances in the statement of comprehensive income to establish the extent of the charge from a debit and credit point of view, as well as to establish any trends. A debit charge to the statement of comprehensive income effectively means current tax is being deferred and the corresponding credit is a liability on the balance sheet. This represents the future tax payable or the tax that has been deferred. Conversely, a credit charge to the income statement represents either a reversal of a previous tax deferral, and therefore the current tax is increased and the liability on the balance sheet reduced, or an origination of additional current tax being paid over and above what is due as current tax, and therefore a deferred tax asset is created on the balance sheet. Setting the debit and credit charges off against each other and showing a single average, would create an inaccurate result as two large balances could set each other off. Therefore, there is no proper reflection of the deferred tax charge that has been raised in the statement of comprehensive income.

Table 4.5 is a summary of the deferred tax charge as percentage of the total tax charge for the forty companies. The average debit charge for the period was 31.19%. There was no trend in the movement of this balance over the ten-year period, the average being 32.88% for the first five years from 2002 to 2006 and 29.5% from 2007 to 2011. This is greater than the average credit deferred tax charge of 26.97% over the same period. There has been a significant decrease in the credit charge over the ten-year period. From 2002 to 2006 the average credit charge was 31.05%, compared to 22.9% for the next 5 years from 2007 to 2011.

A decrease in the credit charge of deferred tax to the statement of comprehensive income indicates less deferred tax is reversing, or there is greater creation of deferred tax liabilities compared to assets in the ten-year period. This provides further evidence of the increase in the book-tax gap, created through the increased generation of temporary differences and the resultant creation of deferred tax liabilities in the statement of financial position.

Table 4.5 Deferred tax charge as a percentage of total tax charge in the statement of comprehensive income

PERIOD	Average Debit	Average Credit
2002	31.99%	63.11%
2003	30.78%	23.17%
2004	39.89%	42.92%
2005	41.02%	13.85%
2006	20.74%	12.21%
2007	17.12%	20.87%
2008	39.39%	32.74%
2009	34.78%	25.81%
2010	28.57%	10.83%
2011	27.62%	24.16%
AVERAGE	31.19%	26.97%

From a company perspective, as depicted in Appendix V, 26 of the 40 companies, 65% of the sample, had an average debit charge to the statement of comprehensive income for the ten-year period. These companies had a 22.9% average debit charge for the period, compared to 11.8% credit charge of the remaining 14 companies. This indicates that over the ten-year period more current tax was being deferred, and this is consistent with the findings that deferred tax liabilities in the statement of financial position increased during this period. This in turn links to the book-tax gap as it is the creation of these temporary differences

in the statement of comprehensive income that allows the book tax to continue to exist, and increase in size.

4.4 Conclusion

The data extracted from the sample of forty companies clearly indicates the existence of a book-tax gap in South Africa for the period 2002 to 2011. The extent of the book-tax gap is illustrated by the data in measurement 1(a). Measurement 1(b) provides data that the book-tax gap is comprised of both temporary differences and permanent differences between the statutory tax rate and the book tax rate.

The results from measurement 1(a) and 1(b) are confirmed by the findings from measurement 2. This measurement compares the tax actually paid to the statutory tax rate. The average tax paid by the companies over the period is lower than the statutory tax rate by an amount that is similar in value to the result in measurement 1. Measurement 1 depicts the difference as 14.4% compared to the 16.46% of measurement 2.

The results from measurement 1(b) confirm that 58% of the book-tax gap is comprised of temporary differences. This aspect of the book-tax gap is explored further by examining the deferred tax charges and balances in the annual financial statements. Over the period of the research, the deferred tax balances in the statement of financial position remained significantly high, and also displayed indications of an increase in materiality over the latter part of the period. These increasing balances on the statement of financial position are only the result of temporary differences, and therefore have to reverse at some point in the future. As these balances increase in materiality, this is in effect the potential future impact on companies' earnings when these deferred tax balances reverse.

CHAPTER 5

CONCLUSION

5.1 Introduction

This chapter concludes the research conducted. The research analysed the nature and extent of the book-tax gap from a South African perspective and evaluated the extent of deferred tax in the book-tax gap. This chapter reports on the objectives of the minor dissertation, the findings of the various literature that was reviewed, the methodology that was followed in conducting the research, a summary of the results of the research conducted and finally offers suggestions for further research.

5.2 Research Objective

The research objective of the minor dissertation was to evaluate the existence, nature and extent of the book-tax gap in South Africa over a long time frame. A further objective was to evaluate the extent of deferred tax in the book-tax gap. The minor dissertation involved a content analysis of the audited financial statements of the forty biggest companies in South Africa by market capitalisation for the ten-year period from 2002 to 2011.

5.3 Literature Review

The literature review sought to gain an understanding of current research and findings with regard to the book-tax gap and the significance of deferred tax balances in financial statements, as well as the role played by deferred tax in the book-tax gap.

There is significant research on the book-tax gap and the theory that the trend is the gap is continuing to increase in size. Several studies have been conducted that confirm the large growth in the book-tax gap in the 1990s. Several research papers link this continued growth in the book-tax gap directly to tax sheltering activities.

The literature reviewed also contained research into the role played by deferred tax in the book-tax gap. The significance of deferred tax balances in the financial

statements and the major components making up the deferred tax balance was researched in a paper which concluded that forty per cent of the companies in the study had a significant deferred tax position in the financial statements.

Most of the literature reviewed conducted studies and drew conclusions based on short-term time frames. Some literature on the book-tax gap studied the phenomenon over a longer time frame to overcome the issues that may arise only in single years or once-off events. The research found that 22 per cent of a sample of 437 companies had effective tax rates of less than 20%, where the statutory tax rate was 35 per cent. This research also concluded that despite decades of tax research, little is known about firms' ability to avoid income taxes over long periods of time.

The relevant accounting standard, IAS 12, Income Taxes, was reviewed. This IFRS requires deferred tax to be computed and accounted for using the "balance sheet method" which has replaced the "income statement approach" used previously. Deferred tax is now accounted for using temporary differences which have a much wider ambit than the previously used timing differences. Literature was reviewed that analysed current shortcomings in IAS 12 and the future development of the accounting standard.

5.4 Research Methodology

The research objectives was to assess the nature and extent of the book-tax gap from a South African perspective, and to assess the role of deferred tax by analysing the deferred tax balances in the statements of financial position and the deferred tax charges to the statement of comprehensive income.

The inquiry mode was a structured approach and it was a quantitative study, with a structured, rigid and predetermined methodology. The focus of the enquiry was narrow, but the required information was gathered from a large number of respondents.

As there were numerous contacts with the study population at regular intervals over a period of time, it was a longitudinal study design.

The research instrument was the companies' published annual financial statements for the ten-year period from 2002 to 2011. These financial statements have been independently audited. The population for the research was all companies listed on the Johannesburg Stock Exchange, and the sample was the top forty companies, ranked by market capitalisation, as on 1 July 2012. Therefore, the sampling design was a non-random and a non-probability sampling design.

The nature of the book-tax gap in South Africa was analysed by extracting the following data from the annual financial statements for the ten-year period from 2002 to 2011:

- Current tax (excluding deferred tax) as a percentage of net income before tax
- Total tax (current tax and deferred tax) as a percentage of net income before tax
- Tax paid as per the cash flow statement as a percentage of net income before tax

The role and impact of deferred tax was analysed by extracting the following data from the annual financial statements for the ten-year period from 2002 to 2011:

- The deferred tax balance in the statement of financial position as a percentage of net income before tax
- The deferred tax charge as a percentage of the total tax charge in the statement of comprehensive income

5.5 Results

The research results enabled certain conclusions to be made regarding the book-tax gap in South Africa and the extent of deferred tax in the composition of the book-tax gap.

The current tax charge as a percentage of net income before tax in the statement of comprehensive income and the tax paid in the cash flow statements as a percentage of net income before tax, both indicate the existence of a book-tax gap in South Africa. In both cases the book-tax percentage (current tax and tax paid) was significantly lower than the applicable statutory rate. The book tax was lower than the statutory rate by 14.4%, and the tax paid rate was lower by 16.46%. It can therefore be concluded that the book-tax gap in South Africa for the period 2002 to 2011 was in the range between 14.4% and 16.56%. The immaterial difference between the two measures is attributable to the timing of tax payments not corresponding to when the tax in question was reported. Theoretically, these two values should be identical, and the immaterial difference between the two measures confirms the accuracy of the data extracted from the financial statements.

The role of deferred tax in the book-tax gap was confirmed by the result of the measurement of total tax as a percentage of net income before tax. This showed a reduced difference between the statutory tax rate and the total tax charge, where deferred tax was included, when compared to the difference between the current tax charge and the statutory rate. The effect of deferred tax was to reduce the book-tax gap, however this reduction of the gap is only temporary until the deferred tax that has been raised reverses in future periods. The data extracted showed the total book-tax gap is comprised of 58% temporary differences and 48% permanent differences.

The minor dissertation further analyses the extent of deferred tax created in the financial statements by the temporary differences in the book-tax gap. In the ten-year period of the study there is an average deferred tax liability balance in the statement of financial position in every year. Of the 40 companies in the sample, 30 (75%) had an average deferred tax liability for the ten-year period. The trend indicated a growth in the materiality of this balance over the ten-year period. The

average deferred tax liability increased from 53% in the first five years to 64% in the second five years of the study.

These results are further confirmed by data extracted and analysed from the statements of comprehensive income. This data illustrates an increasing debit charge over the ten-year period to the statement of comprehensive income, indicating an increasing deferred tax liability. This liability will reverse at some point, and therefore will be required to be settled in the future.

5.6 Suggestions for Further Research

The research findings in this paper provide a basis for many areas where additional research is required.

As this research has confirmed the existence of the book-tax gap in South Africa, and that deferred tax has a significant role to play in the book-tax gap, future research can explore the items comprising the book-tax gap in more detail. This will assist in establishing the underlying reasons for the book tax-gap, and what mechanisms in accounting standards are allowing the book-tax gap to continue to exist and increase.

A major area of research required is to establish the underlying reasons for the book-tax gap. Is it simply due to a difference between accounting standards and tax law, or is it a conscience and deliberate efforts by companies to avoid the payment of tax or to manipulate earnings and financial statement presentation. What is the extent of tax sheltering activities in South Africa, and are the book-tax gap and deferred tax providing a platform for these activities to take place?

Further research can also be done into the specific components making up the book-tax gap. Are certain temporary differences being used more than others to facilitate the continued existence, and increase in size in the book-tax gap?

There is very little research to date on the book-tax gap and the treatment of deferred tax over an extended period, as most research considers only a one year, or specific reporting time frame. Studies conducted over longer time frames, five to ten year periods, will enable trends to be analysed and will provide further insight into these phenomena.

More detailed research can be conducted into the finding of this research paper that deferred tax liabilities in the statement of financial position have increased dramatically over the ten year period of the study.

Further research is required to understand the role played by IAS 12 in the development of the book-tax gap and what measures can be taken, or changes made to IAS 12 to address the problem.



APPENDIX I

Current tax (excluding deferred tax) as a percentage of net income before tax

Current Tax Charge Per Annual Financial Statements/Net Income Before Tax											
Rank	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average
1	0.0%	93.2%	97.3%	97.9%	95.8%	66.7%	1.0%	-5.4%	-7.7%	-7.0%	1.0%
2	7.2%	8.4%	11.9%	11.4%	12.3%	18.3%	10.8%	5.2%	5.3%	7.1%	9.8%
3	22.9%	44.0%	26.8%	16.5%	6.4%	5.9%	6.2%	11.2%	9.2%	0.0%	14.9%
4	20.2%	14.1%	12.4%	11.5%	21.0%	23.8%	10.3%	12.0%	12.6%	13.1%	15.1%
5	26.6%	22.9%	27.5%	16.7%	13.6%	9.7%	11.6%	12.6%	18.6%	17.9%	17.8%
6	1.1%	-28.4%	17.0%	18.5%	8.2%	21.9%	14.8%	26.0%	23.6%	29.7%	17.9%
7	-42.8%	258.3%	6.8%	23.6%	23.1%	16.5%	17.9%	28.7%	10.0%	20.6%	18.4%
8	22.6%	12.9%	29.9%	10.0%	16.5%	22.2%	9.6%	32.6%	20.1%	10.9%	18.7%
9	25.3%	19.2%	16.1%	12.6%	21.6%	26.7%	18.3%	13.6%	19.1%	17.5%	19.0%
10	11.6%	37.0%	-8.5%	-0.3%	-19.6%	1.4%	72.7%	10.8%	58.7%	3.6%	20.5%
11	12.7%	20.7%	18.9%	19.2%	21.2%	24.4%	26.2%	24.4%	17.8%	21.0%	20.7%
12	27.4%	17.2%	25.6%	54.2%	5.7%	24.2%	20.1%	25.8%	8.1%	4.6%	21.3%
13	29.4%	-24.3%	21.9%	26.4%	25.9%	22.3%	25.5%	19.4%	17.9%	12.5%	22.3%
14	NA	13.7%	76.8%	-48.0%	166.7%	-40.1%	-4.1%	-114.1%	36.1%	17.9%	22.5%
15	19.0%	23.7%	15.0%	27.6%	28.6%	34.3%	19.5%	-16.2%	13.7%	-29.6%	22.7%
16	27.9%	27.1%	22.1%	10.7%	24.1%	24.2%	20.9%	30.5%	22.1%	17.2%	22.7%
17	NA	NA	NA	NA	38.4%	10.8%	24.1%	22.1%	25.2%	16.7%	22.9%
18	27.6%	21.1%	21.3%	25.1%	22.1%	19.8%	20.8%	26.9%	24.3%	22.4%	23.2%
19	NA	18.5%	22.5%	41.6%	19.1%	27.7%	26.6%	17.7%	17.5%	20.4%	23.5%
20	16.5%	17.2%	21.1%	45.0%	20.7%	21.0%	20.5%	37.0%	24.8%	26.0%	25.0%
21	68.0%	13.8%	21.9%	18.3%	24.5%	31.5%	22.6%	29.7%	30.3%	33.0%	25.1%
22	22.4%	29.0%	30.0%	27.6%	26.8%	26.4%	28.0%	25.2%	26.4%	24.0%	26.6%
23	10.4%	3.9%	29.0%	29.9%	33.2%	35.0%	32.9%	30.2%	30.8%	32.5%	26.8%
24	26.3%	29.0%	27.8%	25.7%	33.3%	25.0%	26.7%	24.0%	27.0%	25.9%	27.1%
25	17.3%	15.8%	31.6%	32.3%	31.1%	30.7%	27.3%	27.9%	27.2%	35.1%	27.6%
26	43.4%	60.9%	67.4%	6.3%	15.2%	29.8%	49.7%	25.6%	25.6%	28.0%	28.0%
27	29.6%	30.3%	27.6%	29.9%	30.2%	28.4%	24.4%	30.0%	17.7%	34.1%	28.2%
28	29.5%	27.5%	34.1%	27.2%	34.7%	24.4%	26.4%	35.5%	21.5%	21.8%	28.3%
29	45.8%	26.4%	23.4%	25.4%	22.3%	24.1%	24.9%	43.1%	27.4%	24.8%	28.8%
30	-23.8%	659.6%	72.2%	7.8%	27.7%	36.3%	29.4%	41.8%	32.7%	26.5%	28.9%
31	NA	NA	NA	NA	50.2%	22.8%	-57.3%	108.2%	22.5%	20.1%	28.9%
32	32.0%	41.0%	39.8%	26.7%	28.6%	27.8%	28.4%	22.7%	24.8%	22.3%	29.4%
33	49.5%	29.6%	27.0%	20.1%	22.2%	31.6%	28.1%	28.3%	30.8%	30.8%	29.8%
34	38.9%	52.8%	16.4%	28.4%	25.1%	24.9%	25.7%	28.5%	29.1%	29.8%	30.0%
35	35.8%	29.9%	23.2%	21.9%	24.3%	32.6%	52.0%	87.7%	27.6%	24.5%	30.2%
36	40.8%	31.0%	32.3%	37.9%	36.6%	29.8%	27.9%	19.7%	30.6%	26.4%	31.3%
37	37.1%	33.5%	30.1%	34.5%	31.8%	31.0%	30.4%	28.5%	28.1%	28.8%	31.4%
38	36.0%	31.7%	19.9%	26.7%	34.4%	33.5%	30.2%	52.3%	27.6%	28.3%	32.1%
39	27.9%	34.8%	35.8%	32.2%	29.2%	29.8%	29.7%	34.3%	45.7%	35.6%	33.5%
40	27.8%	43.1%	29.1%	19.1%	24.5%	33.6%	51.6%	105.4%	34.5%	44.0%	34.1%
Average	26.5%	25.7%	24.1%	24.2%	24.7%	24.8%	24.4%	26.0%	24.4%	22.5%	24.7%

APPENDIX II

Total tax (including deferred tax) as a percentage of net income before tax

Rank	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average
1	7.56%	11.03%	14.00%	11.15%	17.19%	10.88%	10.01%	13.19%	10.77%	9.50%	11.53%
2	19.79%	34.01%	23.60%	16.01%	5.94%	5.88%	5.01%	8.60%	8.26%	0.02%	12.71%
3	24.54%	10.53%	21.19%	15.65%	11.04%	10.63%	11.05%	11.00%	13.54%	15.37%	14.45%
4	0.00%	93.19%	97.28%	97.87%	95.83%	66.67%	1.01%	25.00%	25.35%	106.14%	17.12%
5	29.17%	13.03%	34.91%	11.58%	16.26%	25.02%	12.02%	30.88%	33.76%	13.81%	22.04%
6	17.45%	24.40%	25.29%	22.95%	29.87%	29.12%	18.75%	17.34%	24.96%	17.12%	22.72%
7	NA	29.33%	-33.66%	19.53%	143.42%	-22.11%	11.51%	-99.91%	66.47%	31.47%	22.96%
8	32.09%	20.80%	27.13%	49.58%	4.73%	23.18%	13.08%	42.82%	11.27%	13.03%	23.77%
9	-6.75%	40.29%	26.56%	20.99%	26.75%	24.73%	19.67%	18.47%	20.48%	23.34%	24.59%
10	30.75%	-6.88%	27.97%	35.77%	25.15%	23.97%	23.23%	22.12%	20.00%	12.34%	24.59%
11	15.82%	23.04%	24.96%	28.32%	25.86%	25.99%	24.37%	21.26%	26.54%	26.44%	25.20%
12	-26.51%	370.00%	23.81%	7.26%	28.65%	35.34%	25.92%	29.99%	31.30%	23.77%	25.76%
13	28.72%	27.09%	24.29%	14.36%	27.61%	31.26%	19.31%	31.27%	30.78%	26.40%	26.11%
14	25.92%	58.75%	64.69%	10.52%	15.56%	24.66%	17.20%	32.34%	26.75%	28.17%	26.65%
15	33.32%	27.53%	26.30%	24.48%	25.06%	23.87%	27.75%	27.72%	25.70%	26.53%	26.83%
16	27.53%	29.55%	26.87%	29.03%	31.02%	25.57%	20.03%	29.44%	25.46%	24.84%	26.93%
17	27.58%	27.76%	29.25%	28.43%	27.36%	26.93%	26.38%	26.27%	27.37%	26.32%	27.36%
18	30.94%	25.98%	28.65%	27.41%	29.13%	24.34%	31.60%	22.61%	27.91%	25.24%	27.38%
19	29.51%	28.61%	30.84%	24.44%	29.55%	25.58%	28.08%	24.60%	28.01%	25.55%	27.48%
20	NA	NA	NA	NA	41.51%	27.07%	27.73%	24.33%	23.62%	24.82%	28.18%
21	NA	28.39%	31.05%	49.22%	25.30%	28.86%	28.32%	22.36%	19.21%	21.69%	28.27%
22	25.58%	34.79%	32.93%	-3.50%	188.63%	42.03%	211.36%	6.04%	234.27%	355.47%	28.27%
23	63.02%	23.47%	20.34%	15.72%	16.72%	38.47%	38.88%	32.10%	37.84%	33.69%	28.58%
24	NA	NA	NA	NA	42.15%	26.70%	-75.73%	106.12%	24.62%	21.88%	28.84%
25	29.42%	29.48%	29.44%	28.96%	29.25%	28.93%	31.42%	27.81%	27.01%	27.92%	28.97%
26	33.66%	29.61%	28.80%	30.13%	29.90%	29.07%	28.24%	29.00%	28.69%	28.67%	29.58%
27	34.32%	34.24%	30.47%	24.44%	28.61%	34.45%	23.37%	-5.14%	23.95%	34.59%	29.83%
28	38.71%	49.71%	18.54%	26.70%	25.90%	25.67%	27.82%	27.55%	28.44%	31.56%	30.06%
29	32.67%	43.64%	40.04%	24.06%	28.90%	28.85%	28.19%	20.59%	27.55%	26.70%	30.12%
30	24.60%	26.72%	27.86%	32.02%	34.13%	33.13%	33.33%	29.90%	29.65%	31.61%	30.30%
31	32.01%	30.39%	31.39%	29.49%	30.83%	30.49%	29.52%	28.37%	29.03%	33.34%	30.49%
32	20.52%	33.96%	31.76%	31.17%	30.43%	30.18%	31.61%	33.63%	33.06%	29.80%	30.61%
33	-79.23%	394.44%	19.17%	35.49%	31.29%	34.95%	29.01%	34.36%	32.12%	30.35%	30.84%
34	31.06%	31.49%	31.35%	28.89%	36.07%	29.66%	28.15%	39.88%	27.37%	28.64%	31.26%
35	30.82%	27.61%	6.19%	24.77%	36.63%	37.38%	29.16%	55.93%	40.26%	35.71%	32.45%
36	95.92%	82.50%	43.79%	25.86%	30.31%	29.75%	32.03%	45.44%	33.53%	23.39%	33.01%
37	22.59%	62.89%	31.39%	36.99%	31.91%	42.13%	27.34%	-18.75%	40.27%	-11.67%	33.23%
38	31.06%	31.87%	30.57%	33.60%	30.65%	30.24%	29.13%	34.40%	51.13%	32.66%	33.53%
39	18.63%	36.35%	34.50%	47.37%	40.16%	37.18%	22.77%	71.00%	37.76%	31.15%	33.99%
40	52.71%	54.40%	32.76%	30.14%	36.23%	28.80%	-14.79%	113.31%	35.71%	22.64%	36.67%
Average	28.39%	30.56%	27.66%	26.46%	27.40%	28.18%	23.57%	27.25%	27.61%	24.87%	27.19%

APPENDIX III

Tax paid as a percentage of net income before tax

Rank	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average
1	8.61%	9.78%	10.90%	10.26%	13.63%	10.87%	9.91%	6.96%	6.54%	9.65%	9.71%
2	-20.05%	16.32%	15.94%	25.80%	8.25%	4.88%	8.27%	11.02%	9.20%	0.05%	11.08%
3	30.04%	35.65%	5.37%	5.07%	5.13%	26.61%	8.41%	12.77%	7.18%	8.42%	14.46%
4	3.86%	43.84%	138.44%	2.79%	6.20%	-0.91%	20.00%	22.60%	87.41%	32.85%	16.40%
5	41.28%	26.32%	22.52%	13.44%	6.90%	11.90%	9.69%	14.81%	11.82%	15.84%	17.45%
6	10.73%	28.45%	12.89%	9.42%	9.83%	21.60%	7.54%	34.66%	25.64%	22.24%	18.30%
7	NA	NA	NA	NA	NA	0.00%	20.09%	28.72%	18.71%	24.48%	18.40%
8	98.97%	266.67%	4.46%	10.59%	31.90%	13.78%	6.00%	40.05%	18.81%	22.02%	18.45%
9	21.33%	24.77%	7.85%	13.71%	17.77%	24.77%	17.43%	27.30%	16.70%	19.31%	19.09%
10	10.28%	29.36%	18.60%	25.92%	7.90%	23.58%	12.49%	49.86%	7.29%	5.89%	19.12%
11	18.40%	9.42%	30.43%	15.17%	6.70%	42.89%	14.41%	32.38%	14.49%	11.61%	19.59%
12	33.78%	70.52%	31.42%	13.54%	11.21%	24.63%	17.86%	25.79%	13.57%	12.99%	20.53%
13	22.65%	31.07%	27.28%	12.00%	12.44%	22.67%	19.17%	25.71%	20.33%	16.50%	20.98%
14	49.70%	14.78%	16.67%	18.81%	22.43%	35.74%	24.65%	-13.97%	3.41%	6.25%	21.38%
15	64.21%	23.37%	17.01%	10.79%	26.90%	20.42%	22.83%	25.24%	26.31%	21.90%	21.64%
16	NA	NA	NA	NA	31.39%	24.08%	132.04%	63.27%	13.51%	17.72%	21.68%
17	NA	12.61%	17.69%	41.36%	21.28%	20.41%	26.53%	19.47%	18.89%	19.43%	21.96%
18	6.98%	17.71%	53.44%	56.29%	12.56%	17.63%	13.90%	43.08%	0.00%	0.16%	22.17%
19	17.65%	0.58%	5.89%	81.30%	104.17%	733.33%	-1.01%	-7.61%	-7.04%	12.28%	23.54%
20	7.04%	8.75%	7.05%	49.33%	28.52%	27.38%	22.79%	24.69%	37.63%	28.23%	24.14%
21	25.55%	28.81%	27.30%	8.85%	20.79%	20.59%	73.97%	27.46%	27.02%	31.73%	24.23%
22	42.36%	25.89%	18.38%	18.14%	19.82%	27.73%	22.94%	25.41%	15.76%	30.18%	24.66%
23	17.01%	9.35%	13.52%	32.58%	34.13%	29.07%	29.80%	32.57%	25.98%	37.31%	26.13%
24	27.89%	35.45%	31.20%	19.55%	32.25%	24.32%	27.73%	23.63%	18.54%	21.62%	26.22%
25	21.18%	23.76%	27.81%	26.43%	25.31%	30.04%	25.64%	30.75%	24.54%	27.25%	26.27%
26	19.43%	36.00%	30.60%	16.51%	20.85%	26.06%	24.98%	44.15%	25.19%	19.04%	26.28%
27	29.36%	24.25%	36.90%	35.63%	20.02%	20.11%	28.91%	37.08%	21.73%	14.59%	26.86%
28	47.04%	36.30%	21.63%	12.70%	25.97%	20.90%	67.01%	104.85%	23.55%	28.52%	27.08%
29	42.23%	26.21%	22.44%	16.22%	25.96%	18.75%	25.02%	36.70%	30.02%	28.57%	27.21%
30	3.42%	21.39%	36.90%	28.03%	35.10%	33.23%	44.58%	12.86%	20.86%	39.38%	27.58%
31	10.70%	156.80%	43.80%	14.68%	25.10%	34.80%	29.26%	37.69%	30.92%	25.33%	28.03%
32	NA	20.87%	42.17%	34.00%	112.69%	76.14%	11.40%	210.06%	45.16%	20.98%	29.09%
33	40.00%	19.91%	23.84%	23.29%	41.40%	30.43%	28.19%	33.59%	26.78%	27.90%	29.53%
34	18.51%	31.77%	31.53%	25.57%	36.69%	33.10%	40.12%	26.35%	26.98%	27.12%	29.77%
35	42.92%	45.25%	19.37%	29.49%	25.80%	28.14%	25.60%	26.86%	26.85%	29.34%	29.96%
36	30.35%	36.12%	32.42%	18.49%	16.39%	29.14%	67.39%	98.58%	37.99%	39.03%	29.99%
37	30.01%	43.26%	40.03%	24.17%	27.83%	26.15%	26.55%	38.94%	23.25%	20.13%	30.03%
38	55.75%	165.33%	34.77%	15.69%	12.74%	25.58%	23.78%	33.52%	31.69%	39.88%	30.38%
39	51.70%	39.37%	21.05%	33.54%	25.92%	26.87%	30.70%	36.31%	21.98%	30.55%	31.80%
40	40.76%	35.80%	25.15%	35.62%	29.39%	25.11%	34.21%	35.17%	51.35%	28.42%	34.10%
Average	26.62%	25.66%	23.95%	23.28%	23.71%	23.89%	21.75%	28.95%	21.74%	21.87%	23.63%

APPENDIX IV

Deferred tax balance in the statement of financial position as a percentage of net income before tax

Rank	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average
1	-33.79%	-171.21%	-317.84%	-55.35%	594.32%	412.59%	1359.09%	104.37%	2471.33%	2238.69%	775.86%
2	NA	-112.41%	1470.99%	636.62%	848.66%	200.90%	-29.70%	438.87%	-190.35%	-51.19%	442.19%
3	116.67%	1408.33%	-56.32%	-51.31%	-85.71%	-64.32%	-30.35%	-51.06%	-97.79%	-67.31%	202.92%
4	NA	NA	NA	NA	126.46%	-75.92%	-248.54%	585.71%	-98.50%	-66.74%	200.31%
5	-44.88%	-90.38%	-89.44%	107.84%	-46.45%	-82.98%	-69.32%	212.87%	-256.31%	-298.33%	129.88%
6	-44.28%	-139.54%	-142.42%	-99.64%	-42.89%	-45.27%	-58.03%	358.92%	-93.52%	-195.26%	121.98%
7	-84.47%	-96.29%	-341.11%	793.21%	182.65%	142.16%	81.60%	145.66%	-99.81%	-72.87%	-93.57%
8	-50.45%	-87.17%	-116.82%	-93.39%	-34.67%	-38.15%	-48.65%	121.72%	-48.06%	-48.23%	-68.73%
9	-8.23%	-15.94%	-22.18%	-70.40%	-59.52%	-63.79%	-115.35%	168.98%	-52.57%	-61.83%	-63.88%
10	-27.32%	-91.00%	-77.91%	-43.50%	-77.02%	-52.93%	-19.19%	-25.56%	-73.41%	-45.13%	-53.30%
11	-20.64%	-37.28%	-55.12%	-37.59%	-41.75%	-44.99%	-23.00%	-73.55%	-107.22%	-87.20%	-52.83%
12	-19.44%	-1.36%	-21.72%	-8.86%	-13.72%	-70.79%	-44.45%	101.88%	-135.05%	-32.63%	-44.99%
13	-40.49%	-49.69%	-60.19%	-42.10%	-30.87%	-29.02%	-20.78%	-33.00%	-39.82%	-37.98%	-38.39%
14	-16.01%	-5.84%	-4.24%	-1.37%	-46.23%	-57.45%	-32.26%	-63.18%	-75.45%	-66.02%	-36.81%
15	-53.90%	-95.14%	-67.94%	-26.04%	-1.93%	-17.61%	-4.47%	-20.46%	-10.63%	-18.98%	-31.71%
16	-0.23%	-1.21%	-1.36%	-25.64%	-30.86%	-8.50%	-47.70%	-45.60%	-45.44%	-101.78%	-30.83%
17	NA	NA	NA	NA	-74.85%	-25.49%	-14.92%	-16.88%	-7.17%	-13.36%	-25.45%
18	-58.98%	-26.90%	-18.70%	-35.20%	-21.09%	-17.51%	-17.04%	-18.01%	-15.73%	-6.54%	-23.57%
19	-25.06%	-21.59%	-21.19%	-30.33%	-31.44%	-27.00%	-23.58%	-11.48%	-9.59%	-10.28%	-21.15%
20	-14.27%	-14.74%	-15.89%	-36.28%	-27.39%	-26.45%	-24.37%	-20.84%	-11.89%	-6.37%	-19.85%
21	5.98%	-55.06%	4.58%	-5.13%	-21.86%	-17.71%	-21.42%	-24.75%	-23.38%	-12.44%	-17.12%
22	-61.34%	-21.79%	-5.73%	6.57%	-1.18%	-6.82%	-15.21%	-16.87%	-20.05%	-17.94%	-16.03%
23	-42.26%	-35.47%	-12.61%	-4.98%	1.57%	-15.76%	-11.77%	7.51%	-1.36%	4.19%	-11.09%
24	-0.89%	-10.28%	-14.07%	-13.99%	-4.19%	-6.40%	-8.96%	-2.83%	-4.10%	-8.35%	-7.41%
25	9.40%	-16.38%	-37.95%	-8.40%	-12.36%	0.39%	10.54%	-1.80%	-2.65%	-3.06%	-6.23%
26	-11.92%	-8.18%	-3.31%	-2.52%	-3.70%	-3.57%	-2.66%	-5.65%	-8.90%	-2.10%	-5.25%
27	-23.42%	-15.68%	-10.04%	-7.97%	-2.81%	1.11%	3.35%	2.27%	1.40%	1.36%	-5.04%
28	33.41%	48.31%	6.53%	-9.53%	-51.46%	-41.71%	23.19%	-94.90%	-40.37%	84.81%	-4.17%
29	-0.19%	-7.53%	0.36%	0.50%	-0.83%	-2.34%	-5.62%	-4.34%	-2.23%	-4.32%	-2.65%
30	NA	27.61%	11.90%	-3.54%	-8.13%	-4.97%	-12.76%	-10.81%	-8.08%	-10.54%	-2.15%
31	-13.26%	8.31%	7.11%	4.23%	1.37%	1.55%	2.81%	6.89%	5.68%	0.09%	2.48%
32	0.57%	5.16%	7.63%	4.84%	5.75%	4.35%	3.89%	3.12%	1.01%	-2.20%	3.41%
33	-29.21%	-17.65%	-0.19%	9.94%	14.27%	18.38%	11.00%	12.57%	13.64%	12.53%	4.53%
34	6.49%	4.53%	1.83%	2.89%	8.37%	6.72%	6.82%	8.46%	0.59%	6.74%	5.34%
35	14.31%	39.53%	30.25%	24.69%	7.67%	2.42%	0.97%	4.51%	-0.64%	-7.27%	11.64%
36	-1.56%	130.69%	63.29%	13.37%	10.51%	11.37%	-23.60%	-10.56%	-7.74%	-4.46%	18.13%
37	54.58%	26.81%	20.64%	23.76%	15.00%	14.28%	9.44%	8.32%	7.94%	7.77%	18.85%
38	45.92%	20.08%	9.64%	33.99%	24.10%	19.48%	13.52%	14.23%	12.03%	16.14%	20.91%
39	13.99%	24.21%	50.00%	26.19%	18.51%	15.87%	10.88%	18.78%	41.50%	24.63%	24.45%
40	NA	NA	NA	NA	NA	NA	NA	390.22%	-285.92%	455.26%	186.52%
Ave.	-18.81%	-62.67%	-74.91%	-56.75%	52.63%	-31.36%	-55.25%	-50.57%	106.53%	-74.65%	-56.48%

APPENDIX V

Deferred tax charge as a percentage of total tax charge in the statement of comprehensive Income

(2002 to 2006)

Rank	2002		2003		2004		2005		2006	
	Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr
1	10.1%			-76.8%		-190.7%		-6.3%	3.2%	
2		-254.6%	38.1%		11.8%		32.3%		4.9%	
3		-8.4%		-118.0%		-29.7%		-6.5%		-23.5%
4		-67.5%		-3.7%		-4.2%	37.4%		1.8%	
5		-28.9%		-17.3%		-12.7%		-38.0%		-22.6%
6		-16.5%		-28.8%		-13.4%		-2.6%		-6.6%
7		-63.8%	10.4%		12.8%		11.6%		26.3%	
8		-9.7%		-13.5%		-3.9%		-13.1%		-5.7%
9		-58.6%		-10.8%	12.7%		52.7%		17.8%	
10	46.6%		37.8%			-241.5%		-81.8%	43.5%	
11	21.4%			-26.1%		-32.8%		-25.4%		-31.3%
12		-68.5%	15.8%		30.4%		51.4%		37.8%	
13	9.4%			-8.5%		-14.4%	3.4%		3.8%	
14		-0.6%		-6.2%	11.4%			-6.5%	2.9%	
15	10.2%			-1.3%	9.3%			-4.5%		-10.5%
16	1.9%		5.7%		0.7%			-9.1%	1.0%	
17		-0.5%		-2.9%	4.9%			-2.5%		-2.6%
18	18.3%			-4.3%		-2.4%	2.8%		1.9%	
19	NA	NA	NA	NA	NA	NA	NA	NA		-19.1%
20	4.5%				21.2%		26.0%			-2.9%

(2002 to 2006)

Rank	2002		2003		2004		2005		2006	
	Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr
21	43.7%		44.3%			-0.5%		-8.9%		-0.7%
22	14.6%		14.8%		5.1%			-8.2%		-14.4%
23	4.8%		11.5%			-7.7%	5.3%		3.4%	
24	51.4%		76.3%			-3.9%	6.0%		2.5%	
25	4.4%		23.7%		15.2%			-2.3%	28.2%	
26	22.0%		1.3%		14.0%		13.4%			-1.3%
27	17.1%		23.4%		18.8%			-2.6%	11.7%	
28	62.4%		61.5%		54.5%			-3.3%		-13.4%
29	16.0%		62.3%		52.2%		25.4%		10.4%	
30	NA	NA	33.3%		26.0%		14.5%		24.5%	
31	NA	NA	NA	NA	NA	NA	NA	NA	7.4%	
32	10.9%		24.7%		29.7%		10.1%		16.1%	
33	204.0%		21.0%		38.3%		11.9%		67.0%	
34	37.6%		37.9%		39.8%		37.7%		28.6%	
35	0.0%		0.0%		0.0%		0.0%		0.0%	
36	45.4%		33.3%		63.9%		32.6%		24.7%	
37	47.3%		20.7%		11.2%		36.8%		32.4%	
38	54.5%			-6.3%	125.8%		92.0%		110.4%	
39	41.2%		58.7%		59.4%		53.1%		26.7%	
40	NA	NA	51.3%		328.2%		345.8%			-16.2%
Average	32.0%	-52.5%	30.8%	-23.2%	39.9%	-42.9%	41.0%	-13.9%	20.7%	-12.2%

(2007 to 2011)

Rank	2007		2008		2009		2010		2011		Average
	Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr	
1		-2.7%		-13.2%		-39.2%		-4.3%		-11.7%	-33.2%
2		-19.4%	6.7%			-35.6%		-13.8%		-23.2%	-25.3%
3	8.9%			-4.6%		-14.3%		-37.2%		-16.3%	-25.0%
4		-18.4%		-186.3%	20.2%		4.0%		0.5%		-21.6%
5		-18.5%	10.0%		9.5%			-9.6%		-4.1%	-13.2%
6	0.2%			-19.4%		-25.1%		-9.7%	0.0%		-12.2%
7	5.3%			-23.1%		-47.1%		-7.2%	0.1%		-7.5%
8		-5.9%		-6.7%	1.6%		1.9%			-0.3%	-5.5%
9	16.4%			-10.7%		-82.9%	11.5%			-0.4%	-5.2%
10	43.8%		29.6%		33.8%		38.4%		27.3%		-2.3%
11	17.5%		26.9%		11.5%		17.6%		7.9%		-1.3%
12	11.4%			-114.4%		-21.1%	26.3%		19.9%		-1.1%
13	1.3%			-1.7%	0.3%		10.3%			-7.9%	-0.4%
14	3.2%		7.8%			-3.5%		-2.4%	5.5%		1.2%
15	2.0%		3.5%		2.2%		3.5%			-1.3%	1.3%
16	3.1%			-0.6%		-9.0%	9.3%		15.0%		1.8%
17	1.5%		18.7%			-6.5%	28.8%			-19.1%	2.0%
18	2.1%			-6.2%	4.2%		3.4%		8.0%		2.8%
19	14.7%		24.4%			-1.9%	8.5%		8.0%		5.8%
20	6.7%			-9.7%	12.3%		10.2%			-1.1%	7.5%

(2007 to 2011)

Rank	2007		2008		2009		2010		2011		Average
	Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr	
21		-0.6%	6.7%		1.5%		5.6%			-4.5%	8.7%
22		-4.1%		-53.3%	39.8%		28.1%		65.0%		8.7%
23	16.7%		5.9%		10.2%		19.7%		21.7%		9.1%
24		-5.0%	1.1%			-1.0%		-3.6%		-2.6%	12.1%
25		-65.4%		-8.3%	58.0%		48.4%		26.1%		12.8%
26	10.7%		18.9%			-5.2%	37.9%		20.0%		13.2%
27	17.0%		24.9%		3.0%		5.3%		15.5%		13.4%
28		-12.6%	5.6%			-15.1%	17.8%			-21.0%	13.6%
29	18.5%		28.6%		13.7%		66.1%			-153.6%	14.0%
30	4.1%		6.0%		20.8%		9.1%		6.0%		16.0%
31	52.3%		11.7%		7.1%			-5.7%	26.8%		16.6%
32	13.2%		4.4%		48.9%		34.8%		31.0%		22.4%
33	11.0%		23.1%			-38.9%		-14.9%		-25.3%	29.7%
34	18.5%		16.7%		24.4%		43.2%		27.2%		31.1%
35	0.0%		0.0%		121.7%		130.6%		93.4%		34.6%
36	51.9%		37.6%		14.4%		65.3%		30.1%		39.9%
37		-16.7%	448.9%		7.0%		3.3%			-94.2%	49.7%
38	96.8%		65.6%			-78.2%	74.9%		102.5%		63.8%
39	30.8%		55.7%		334.0%		47.4%		62.1%		76.9%
40		-81.3%	135.4%			-14.2%	45.7%		43.3%		93.1%
Average	17.1%	-20.9%	39.4%	-32.7%	34.8%	-25.8%	28.6%	-10.8%	27.6%	-24.2%	11.2%

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