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Impact of adopting the International Financial Reporting Standards on book-tax differences: Evidence from Dutch listed companies

Jinky Lunaspe Dagoon

IMPACT OF ADOPTING THE INTERNATIONAL FINANCIAL REPORTING STANDARDS ON BOOK-TAX DIFFERENCES: EVIDENCE FROM DUTCH LISTED COMPANIES

A Thesis

Presented to the

Faculty of

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In Partial Fulfillment

of the Requirements for the Degree

Master of Science

in

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by

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ABSTRACT

This study empirically examines how the adoption of new accounting standards impacts book-tax differences (BTDs) and analyzes the role of changes in accounting rules as an important function of the book-tax income gap. Based on evidence from the Netherlands, a country with low book-tax alignment like the United States, this research work investigates whether or not the mandatory conversion from Dutch GAAP to the International Financial Reporting Standards (IFRS) results to a widening of the book-tax income gap, as measured by the increase or decrease in book-tax differences. Understanding the effect of changes in accounting rules, a factor that causes the book and tax income to diverge, has important implications in the interpretation of BTDs in financial analysis. Results from this study may serve as useful reference as more countries adopt or converge with IFRS especially for countries with low book-tax conformity such as the United States.

The sample for this work is limited to Dutch firms listed in the Euronext Amsterdam that are first-time adopters of IFRS in 2005 and disclosed financial statements information under both Dutch GAAP and pro-forma IFRS for the 2004 sample selection year. Index of comparability (IC)

values of BTDs under the two accounting regimes were calculated and tested using both parametric and non-parametric measures. The outcome of this study suggests that changes in accounting standards are informative of BTDs, and in the case of the Netherlands leads to a widening of the book-tax income gap. Results show a mean index value of BTDs at 1.9835, which implies that, on average, the mandatory switch to IFRS resulted to a 98% wider book-tax income gap based on 2004 figures. Of the total sample size, 65% of firms show a statistically significant increase in 2004 BTD figures at 5% materiality level. This shows that one of the consequences of IFRS adoption is less conformity with the tax accounting system compared to that under the Dutch GAAP. Results also show an increase in positive BTDs, which means that book income is higher than taxable income for most firms after IFRS conversion. Furthermore, an extension of this study compares the effect of IFRS conversion on BTDs across industries and market capitalization segments, with results suggesting no significant statistical difference on book-tax income gap across industries and firm sizes.

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My deep gratitude further extends to the following people whose kindness helped clear the road towards completion - Dr. Jeri Seidman of the University of Texas at Austin whose comments helped me shape the conceptual framework for this study and whose scholarly work inspired me to venture into this area of research; Prof. Sharlene Gotico of Stanford University who helped me access data from *Compustat Global* database; and Frederike Broekhuizen of NYSE Euronext for providing information on 2004 listings. Moreover, I would like to acknowledge the financial support given by the Research Grant Committee, which allowed me the opportunity to embark on this unique learning experience. My heartfelt thanks also go to family and friends who continued to stick by my side in this roller-coaster ride called thesis writing - my mother and sister for taking me in and for helping me stay focused in this goal; Howard Friedman for not only providing me part-time employment during this whole ordeal but whose friendship is a source of encouragement; Jeeyoung Kim for being a great thesis buddy; and Jose Razon for being the bestest friend ever. And finally, to God for making something beautiful of my life and for the great reminder that nothing is impossible in His loving hands.

DEDICATION

This research work is dedicated to the Master of Science in Accountancy (MSA) program at California State University San Bernardino. May it continually embody academic excellence and uphold high ethical standards as it educates future accounting practitioners, accounting educators, and business professionals.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

Background of the Study

For most of financial history different countries around the world use various accounting standards in the preparation of financial statements (Needles & Powers, 2010). As global economies expand many recognize the necessity of having a worldwide harmonization of accounting standards to minimize complications in the preparation, consolidation, interpretation, and audit of financial statements. There is a recognition that the use of the same "language" in financial statements would help eliminate impediments that waiver investor confidence and accounting risk in cross-border investments (Jermakowicz & Epstein, 2010). Many see an answer to this need of a common language in the adoption of the International Financial Reporting Standards (IFRS from here on).

The European Union was first to adopt IFRS with the European Commission's issuance of Regulation 1606/2002 requiring companies listed in European exchanges to use IFRS for public reporting purposes beginning in 2005. In

the same year other countries followed suit like Australia and South Africa. Turkey converted in 2006, Canada and India are transitioning in 2011, and the United States have expressed its commitment to converge the US GAAP to IFRS targeting 2015 as the earliest date for the required use by publicly listed companies (Defelice & Lamoreaux, 2010).

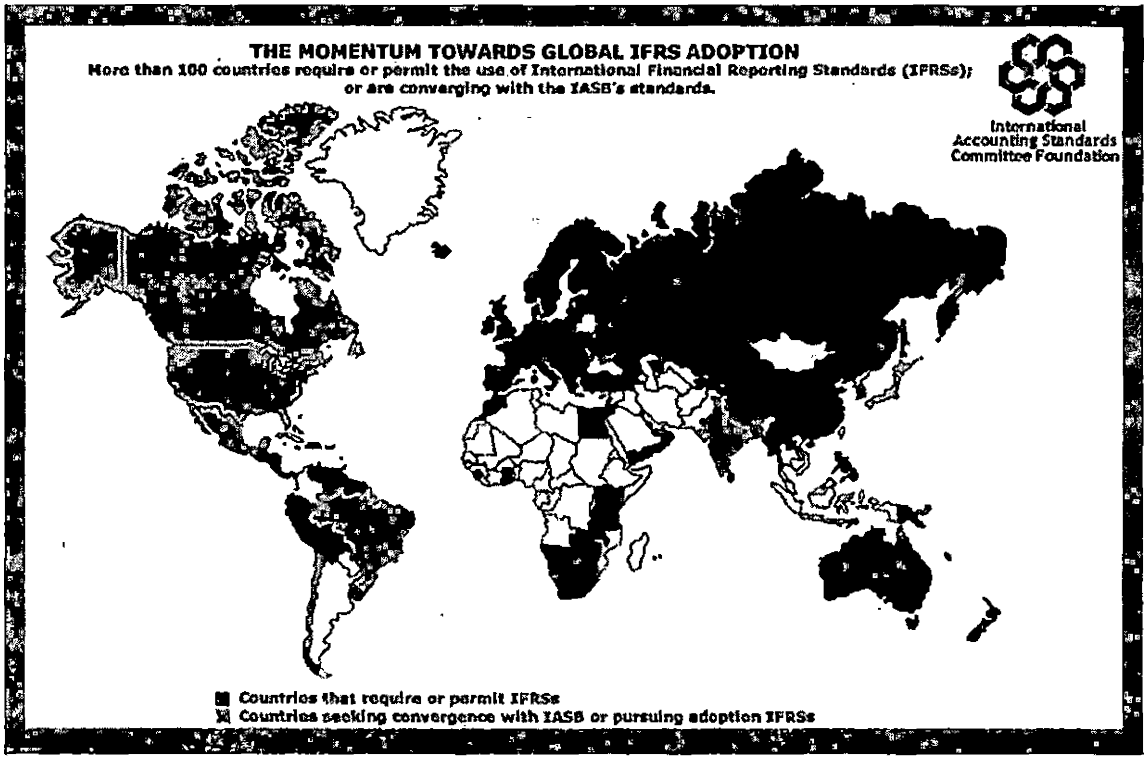

Figure 1. Implementation of the International Financial Reporting Standards around the World

Source: International Accounting Standards Committee Foundation. (2007). IFRSs around the world. *Insight, 3,* 17.

This global trend in the adoption of a common accounting language is not without challenges. IFRS is not a panacea to all issues surrounding the quality of financial reporting, and the effect of IFRS conversion continuous to be a subject of debate. Thus, it is not surprising that much of recent international accounting research is devoted to the study of implications and economic consequences of the conversion to IFRS. However, this paper is not concerned with the IFRS debate but aims to examine and understand its implications on book-tax differences (BTDs from here on), an important piece of financial information that is subject to many interpretations by financial statement users.

Purpose of the Study

This study empirically investigates the impact of the mandatory adoption of new international accounting standards on BTDs. It examines whether conversion from a national GAAP to IFRS significantly increases or decreases BTDs in the case of a country with low book-tax conformity like the Netherlands. This research analyzes the role of changes in accounting rules as an important function of the

book-tax income gap. Understanding the effect of changes in accounting rules, a factor that cause the book and tax income to diverge, have important implications in the interpretation of BTDs in financial analysis. This study also examines the effects of IFRS adoption on the book-tax income gap across industries and market capitalization segments.

Significance and Contributions of the Study

Acceptance of IFRS is gaining momentum worldwide, and knowing how it impacts financial statement figures and organizational functions is important. This knowledge is vital for proactive planning, identifying needed changes in internal control processes, and managing key issues arising from conversion or convergence of accounting rules. Having sufficient understanding of the effect of IFRS is also fundamental to stakeholders making business decisions and to regulators carrying out policies. In a 2006 survey of European fund managers, a majority responded that IFRS adoption significantly impact how they perceive companies and how they make investment decisions. In the survey only 12% of the investors expressed that they are very confident

of their understanding of IFRS impact on the companies they are investing in (PricewaterhouseCoopers, 2006; O'Connell & Sullivan, 2008).

With this scenario, various studies attempt to explain the impact of IFRS adoption like its effect on financial reporting quality (e.g. Daske & Gebhardt, 2006; Barth et al., 2008; Armstrong et al., 2009), cost of equity capital (Daske, 2006; Palea, 2007), and pervasiveness of earnings management (Jeanjean & Stolowy, 2008). While other studies explore the effect of IFRS conversion on financial statement variables like net income (Hung & Subramanyam, 2005; O'Connell & Sullivan, 2008) and preference shares (de Jong et al., 2006). The present study investigates how the mandatory switch to IFRS affect the book-tax income gap of publicly listed firms. This study adds to the string of above-mentioned researches particularly in the implications of IFRS adoption on BTDs.

Statement of the Problem

This study on BTDs addresses a resulting financial and tax accounting issue brought about by IFRS adoption in the Netherlands. This research investigates the comparability

of BTDs under two sets of accounting standards – Dutch GAAP and IFRS – in a country with low book-tax conformity and has an independent tax regime based on local tax accounting principles. The misalignment between financial and tax reporting rules is a subject covered in many economics-based accounting research since this provides opportunity to firms for tax noncompliance and earnings management (Chan et al., 2010). Results of certain studies with data from low book-tax conformity regimes like the United States indicate that large BTDs are product of aggressive financial reporting (e.g. Ayers, et al., 2009; Desai and Dharmapala, 2006), aggressive tax sheltering (e.g. Mills, 1998; Desai, 2003), and a large percentage of these could be explained by financial statement variables (Manzon & Plesko, 2002). Seidman (2008) also "… find that changes to the calculation of book income alone explain more than 50% of the variation in the book-tax income gap" (p. 11).

This study builds on the above-mentioned works of Manzon and Plesko (2002) and that of Seidman (2008) to further investigate the effect of accounting changes on the book-tax income gap with data from Dutch listed firms. The primary research question addressed in this study is

whether BTDs under IFRS materially differs from that under Dutch GAAP. If yes, does it significantly increase or decrease the book-income gap after conversion to IFRS? From this question a corresponding hypothesis is formulated:

- **H1**: In a low book-tax conformity regime, changes in accounting standards do not have significant impact on BTDs. There is no difference in the BTDs calculated under the Dutch GAAP and IFRS.

The research question is extended to answer questions as to whether the impact of IFRS on BTDs of Dutch listed firms significantly vary from one industry to another and whether or not firm size plays a significant role in influencing BTDs after IFRS adoption. To answer these research questions, corresponding null hypotheses are formulated and tested using relevant statistical measures.

- **H2**: BTDs after IFRS adoption do not vary depending on industry type, with none of the industries showing a material increase in BTDs more than others.
- **H3**: BTDs after IFRS adoption do not vary depending on firm size, with firms belonging to different market capitalization segments showing no significant differences in BTDs.

Scope and Limitations of the Study

This study comparing BTDs under Dutch GAAP and IFRS covers a sample of publicly-listed Dutch firms trading in the Euronext Amsterdam in 2004. The sample is limited only to those firms that are first time adopters of IFRS effective in 2005 and has comparative financial statement information prepared under both accounting standards investigated in this study. Out of all the firms actively trading in Euronext Amsterdam during the sample selection date, 63 firms meet the sample selection criteria. The Netherlands is chosen as the source for the sample since (1) as a member state of the European Union, it mandatorily converted to IFRS in 2005; and (2) like the United States, it is a low book-tax alignment country with an independent tax regime.

The period investigated in this research is only limited to one year. The year 2004 is chosen as the sample selection date due to availability of comparable information for both accounting systems during the transition from Dutch GAAP to IFRS. Most public firms in the Netherlands are allowed only until 2004 to apply Dutch GAAP in the preparation of their annual reports. In

addition to preparing their annual reports under Dutch GAAP for the last time, many of these firms also provided 2004 figures based on IFRS for the purpose of comparability and consistency. This is necessary to make the 2005 beginning balance align with 2005 figures calculated using the new international accounting standards.

A limitation identified in this study is the accuracy of data in faithfully representing firms' typical economic reality and usual business activities. This could be an issue when comparing financial statement figures under different accounting systems, especially in the period of transition. Firms are well-aware of the transition years before it is effectively enacted and there is likelihood that firms' behavior is influenced by this knowledge and decisions are adjusted based on the anticipated change.

Another limiting factor in this research work is the measure utilized for the book-tax income gap. The book-tax income gap is defined as the difference between book income and taxable income, but various literature use different measures in investigating BTDs depending on the purpose of the study and availability of data. Book income information is accessible from the income statement while data on

taxable income are found in tax returns, which are confidential documents and are not easily available for research purposes. With this, the use of estimates is necessary to calculate taxable income of firms. A common estimation method is the grossing up of current income tax expense, an income statement figure, by dividing it with the statutory tax rate. As estimations involve certain levels of error, this measurement has limitations. This issue is further discussed under research design in Chapter Three.

Definition of Terms

The primary terms used in this research are conceptually defined below and contextual usage is based on the following definitions:

- Book income, also known as financial income, is the income before taxation reported in the financial statement.
- Book-tax differences (BTDs) "... are by definition differences between book and tax reporting of the same transaction" (Hanlon & Heitzman, 2010, p. 26).

- Current income tax expense is the part of total income tax expense that is based on taxable income (Mulford & Comiskey, 2002).
- Deferred income tax expense is the part of total income tax expense that result from "... current-period originations and reversals of temporary differences" (Mulford & Comiskey, 2002, p. 273).
- Statutory tax rate is "... the income tax rate that is stated in income tax law. It is applied to taxable income reported in income tax returns" (Mulford & Comiskey, 2002, p. 275).
- Taxable income is "... income subject to income tax as reported on the tax return" (Mulford & Comiskey, 2002, p. 275).
- Total income tax expense is the "... expense deduction from pretax book income reported on the income statement. It consists of both current income tax expense and deferred income tax expense" (Mulford & Comiskey, 2002, p. 274).

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The International Financial Reporting Standards

The International Financial Reporting Standards is a set of accounting standards endorsed by the International Accounting Standards Board (IASB from here on) whose goal is to "provide the world's integrating capital markets with a common language for financial reporting" (as cited in Needles & Powers, 2010, p. 4). This set of accounting standards is considered by many as the answer to address accounting harmonization problems across borders. The conceptual approach behind IFRS is more principles-based with broad rules and flexibility to be applied in varying institutional conditions. This principles-based system has been instrumental in the acceptance of IFRS worldwide (Carmona & Trombetta, 2008).

One of the distinctive features of principles-based standards is having potential different interpretations for similar transactions (AICPA IFRS Resources, n.d.). These standards are less prescriptive and with less detailed instruction on how to apply standards across organizations

(Shortridge & Myring, n.d.). In this case, there is greater reliance on the preparer's judgments and extensive disclosure is required in the financial statements (Needles & Powers, 2010). The IASB has approved interpretations to aid preparers of financial statements but broad allowance for professional judgment could be misused to circumvent accounting principles.

Brief Background of the International Financial Reporting Standards and the International Accounting Standards Board

The IFRS is not exclusive to any one country's accounting standards. Even though the IASB, the IFRS standard setter is headquartered in London, it is an independent body, does not represent any particular country and not part of any other international institutions (Needles & Powers, 2010). The development of IFRS follows a due process that is thorough, open, and transparent. In recent years, the IASB have accomplished considerable advancement towards global convergence with the widespread acceptance of IFRS worldwide. At present, approximately 120 countries require or permit the use of IFRS either partially or completely, while others have established timeline for the adoption of the standards (AICPA, n.d.).

The European Union was first to adopt IFRS with the European Commission's issuance of Regulation 1606/2002. The Regulation states that companies governed by the law of a Member state and with securities traded on a European Exchange are obliged to prepare their consolidated accounts in conformity with international accounting standards for each financial year starting January 1, 2005 (Official Journal of the European Communities, 2002). The European Parliament and the Council of the European Union see the importance to mandate the use of a single set of accounting rules in order to, among others, (1) enhance the comparability of financial statements, a prerequisite in building integrated capital markets that are effectively and efficiently operated; (2) to protect investors and cultivate confidence in the financial markets; and (3) to make the companies in Member States of the European Union more globally competitive (Official Journal of the European Communities, 2002).

Also effective in 2005, an Australian equivalent of IFRS replaced the Australian GAAP and South Africa required all publicly-listed companies to comply with the requirements of IFRS. Turkey followed suit in 2006 and Hong

Kong is fully converged beginning 2010. Other countries like Canada, India, Russia, and Korea are transitioning to IFRS in 2011, while Mexico targets 2012. In 2006, the US Financial Accounting Standards Board (FASB) issued a memorandum of understanding with the IASB acknowledging their commitment to converge US GAAP with IFRS in order to develop a "high quality, compatible accounting standards" (AICPA, n.d.). Furthermore, in 2008, the US granted permission to foreign listed firms to exclusively prepare their financial statements using IFRS without reconciliation to US GAAP. Most recently in 2010, the SEC announced that it envisions the year 2015 as the earliest date for the required use of IFRS by publicly listed companies in the United States (AICPA IFRS Resources, n.d.).

Brief History of the International Financial Reporting Standards and the International Accounting Standards Board

The IASB, the standard-setter of IFRS, traces its origins from the International Accounting Standards Committee (IASC). The IASC was founded and was formed through an agreement made by the professional accountancy bodies from Australia, Canada, France, Germany, Japan,

Mexico, Ireland, the Netherlands, the United Kingdom, and the United States. It was too difficult for governments to agree on requirements for international accounting standards, so it rested on the hands of accountancy bodies to devise a consistent set of global guidelines. From 1973 to 2001, the number of accountancy bodies with membership in the IASC increased to over 140 representing over 100 countries.

In the late 1990s, with the more pressing need for a set of global accounting standards, the IASC needed to restructure and establish a full-time standard-setting board that is more independent of the member bodies. This is to "bring about convergence between national accounting standards and practices and high quality global accounting standards" (Deloitte Global Services Limited, n.d.). On April 2001, the standard-setting body was renamed the International Accounting Standards Board (IASB) and organized under an independent non-for-profit foundation. The IASB carries with it the sole responsibility of establishing the International Financial Reporting Standards (IFRS).

The standards under the IASC, issued from 1973 to 2000, are known as International Accounting Standards (IAS). From 2001 onwards, the IASB amended some IASs and adopted new IFRS on areas with no previous IAS. Both the IASC and IASB have issued Interpretations of Standards; and financial statements are not described as IFRS compliant unless they comply with all the requirements of applicable standards and interpretations (AICPA IFRS Resources, n.d.). As of April 2006, nine standards with IFRS titles, thirty standards carrying IAS titles, and 20 interpretations make up the International Financial Reporting Standards (see Appendix A for complete list).

Accounting Quality Debate Related to Adoption of the International Financial Reporting Standards

There is continuing debate regarding the pros and cons of accounting standards harmonization and the adoption of a common accounting language. So it is not surprising that much of recent international accounting research is devoted to the study of implications and economic consequences of the switch from national GAAP to IFRS.

Advocates of IFRS strongly adhere to the notion that a uniform accounting regime results to higher quality financial reporting across borders. In a survey of EU-

listed companies in 2004, majority of the respondents favorably view the adoption of IFRS to result in greater transparency and improved comparability (Jermakowicz & Gomik-Tomaszenki, 2006). This finding is supported by surveys on DAX-30 company executives in Germany (Jermakowicz et al., 2007) and BEL-20 firms in Belgium (Jermakowicz, 2004); with results indicating that most firms believe that implementation of IFRS will lead to improvement of financial statement comparability and transparency.

Investors also express their positive expectations that outcomes of IFRS adoption in Europe include increases in information quality among others (Armstrong, et al., 2009). In Barth, Landsman, and Lang's (2008) investigation of 327 firms that adopted IAS between 1994 and 2003, they find that firms who apply international accounting standards demonstrate higher accounting quality over firms that do not. Based on the sample of UK firms that adopted IFRS, they exhibit a decrease in earnings management, more timely recognition of losses, and an increase in value relevance after transition from their respective national GAAP (Iatridis, 2008). As evidence from the experience of

Austrian, German, and Swiss firms that adopted IFRS prior to 2005, there is significant increase in disclosure quality of financial statements under internationally recognized standards (Daske & Gebhardt, 2006).

On the other hand, there is an argument that a common set of international standards are less likely to be aligned with the firm's environmental conditions like taxation, regulation, and managerial accounting figures than national standards (Choi & Levich, 1991). According to the report of the Financial Reporting Policy Committee, "Cross-country institutional differences will likely result in differences in the implementation of any single set of standards" (as cited in Jeanjean & Stolowy, 2008, p. 484). This misalignment in implementation practice in various settings is a consideration when gauging comparability and quality of published financial statement information. Since accounting quality is not only a function of accounting standards but is influenced by firms' overall institutional setting, cross-country differences in the quality of financial reporting are likely to remain even after adoption of IFRS (Soderstrom & Sun, 2007). Ball (2009) added a note of caution in the use of uniform reporting

rules worldwide that it may not be suitable for all settings in improving value relevance and reliability. He argues that "the incentive of preparers (managers) and enforcers (auditors, courts, regulators, politicians) remain primarily local, and inevitably will create differences in financial reporting quality that will tend to be swept under the rug of uniformity" (Ball, 2009, p. 49).

Implications and Economic Consequences of Adopting the International Financial Reporting Standards

Conflicting results of studies on the implications of international accounting standards incite more questions regarding the economic consequences and quality of financial statements prepared in accordance with IFRS. Below are discussions on the effect of IFRS adoption on firm characteristics and important financial statement figures.

First are studies focusing on the impact of IFRS on the cost of capital. According to Levitt (1998), longest-serving chairman of the US Securities and Exchange Commission (SEC), among other advantages of having a harmonized set of international accounting standards is the lowering of the cost of capital. A study based on data from

the European banking industry shows that indeed the cost of equity capital is effectively lower as a result of increased level of disclosure provided by the adoption of IFRS (Palea, 2007). However, evidence from Daske's (2006) investigation of German firms in the period from 1993 to 2002 fails to document lower expected cost of capital for firms who adopted internationally recognized reporting standards. A later study based on data from 26 countries also document a decrease in cost of capital of firms after transitioning to IFRS (Daske et al., 2008).

Second is the implication of IFRS adoption on earnings management. Analyzing data from German listed firms, Van Tendeloo and Vanstraelen (2005) find that IFRS adoption does not significantly lower incidence of earnings management, but results suggest an increase in earnings smoothing among firms. Jeanjean and Stolowy's (2009) study of three first-time adopter countries also shows that pervasiveness of earnings management did not decline after adoption of IFRS, and in fact increased in France and remained stable in Australia and the United Kingdom. However, a study investigating data of public firms in 17 European countries reveal that the application of IFRS

results to less earnings management as compared to firms using local GAAPs (Aussenegg et al., 2008).

Third is the effect of IFRS on net income. Empirical testing of data from IBEX companies in Spain indicate a diverse effect of IFRS adoption on net income, which according to Perramon and Amat (2006), "... makes it difficult to predict its impact on the other listed companies in Spain." In case of German firms investigated by Hung and Subramanyam (2007) with data from 1998-2002, net income is significantly higher after IFRS adoption. Their study also indicates a significant increase in total assets, book value of equity, and variability of book value for German firms under IFRS. Building on the study based on the German experience, O'Connell and Sullivan (2008) examined a sample of Euronext 80 firms and results reveal that mandatory conversion to IFRS leads to significant increase in net income.

Furthermore, various studies examine IFRS implications on significant issues related to firms' economic reality. For one, there is an increase in market liquidity during transition to IFRS based on data from 26 countries (Daske et al., 2008). A study on the impact of IFRS on preference

shares shows evidence that adoption of IFRS leads to a decrease in the use of financial instruments by firms in Netherlands and results to change in firms' net real capital structure (de Jong et al., 2006). One of the results of Callao, Jarne, and Lainez's (2005) investigation of IBEX-35 companies in Spain reveal a wider gap between book and market values of firms after conversion to IFRS. A finding in the study of DAX-30 companies in Germany suggests that value relevance of firms' earnings relative to market prices significantly increase with the adoption of IFRS (Jermakowicz et al., 2007).

In addition to this, in the analysis of 1,722 European firms during the 2004-2005 transition periods from local GAAPs to IFRS result to significantly higher ROA under IFRS (Capkun et al., 2008). Findings from this study also include significant effect of IFRS on total assets, book equity, long term debt, goodwill, and property, plant, and equipment to the sample of European firms.

Book-Tax Differences

Most countries use different accounting rules when reporting financial statements and preparing tax returns

annually. The national GAAP or IFRS are used for financial reporting purposes and the country's tax code is used to calculate the tax liabilities of corporations. For instance in the United States, financial statements are prepared in accordance with the US GAAP and tax returns are based upon the Internal Revenue Code (IRC). In the Netherlands, compliance with the IFRS is required for all publicly listed firms beginning in 2005 in the preparation of financial statements and the Dutch Tax Code is followed in the preparation of tax returns. Like the United States, the Netherlands has an independent tax regime characterized by book and tax accounting rules not conforming to one another.

The use of different accounting rules results to a book income reported in the financial statements that is not necessarily equal to the taxable income reflected in the tax return. So it follows that the amount reported as income tax expense, which was calculated based upon GAAP or IFRS, will often differ from the amount of taxes payable calculated based upon the tax code. The difference in accounting rules causes a divergence between book income

and taxable income that is referred to as the book-tax income gap.

Components of Book-Tax Differences

Conceptually based on financial accounting definitions, book-tax differences are attributable to two primary sources - permanent differences and temporary differences.

Permanent Differences. Permanent differences are caused by items that enter into book income but never into the taxable income and vice versa (Kieso et al., 2009). These items affect one but not another and arise as a result of tax rules exempting some revenues from taxation and limiting deductibility of some expenses. Examples of tax law provisions excluding certain revenues from taxation are municipal bonds and non-taxable interest revenue. Permanent differences will not reverse, affecting only the period in which they occur and do not result in future taxable or deductible amounts. No deferred tax liabilities or assets result from permanent differences.

Permanent differences are an important area of consideration in the analysis of the book-tax income gap. In the study done by Frank, Lynch, and Rego (2008), they

consider firms with high permanent BTDs to likely have aggressive financial or/and tax reporting practices. In their analysis of tax reporting aggressiveness they rely on permanent differences as basis for their primary measure. Khurana and Moser (2009) also rely on permanent differences as one of their proxies in examining tax aggressiveness of firms with institutional ownership.

Temporary Differences. Temporary differences, on the other hand, are products of timing differences when recognizing revenues and expenses for book and tax purposes (Kieso et al., 2009). They are called temporary since they eventually reverse in due time. Examples of what cause temporary differences are differences in estimates (e.g. warranty reserves, allowance for doubtful accounts, post retirement benefit obligations) used and depreciation methods applied in financial and tax reporting. Temporary differences result to a recording in the balance sheet of either a deferred tax asset (DTA), which gives rise to future deductible amounts; or a deferred tax liability (DTL), which gives rise to future taxable amounts.

The study on temporary differences is an important area of research in the issues surrounding book-tax income

gap since it is a major component in causing the book income to be greater or less than taxable income. Poterba, Rao, Seidman's (2009) investigation on deferred tax positions of a sample of US firms indicates that temporary differences, especially those giving rise to deferred tax liabilities, is an important component of the book-tax gap. Their findings suggest that a high percentage of the book-tax gap is attributable to temporary differences with an average of 73% during the period examined and characterized by a substantial rise in deferred tax liability (Poterba et al., 2009).

Presence of temporary differences is further augmented due to the allowance given to managers to exercise judgments when dealing with certain accounting procedures. As pointed out by Mills and Newberry (2001) managers have discretion over their choice of accounting methods; for instance how they estimate depreciation and goodwill, and how they calculate reserve allowance for bad debts, warranty reserves, and accrued compensation. This is true especially with a more principle-based accounting system, an inherent characteristic of IFRS where similar transactions could be subject to different interpretations.

Temporary differences are usually used as a basis of measure in studies involving earnings management (e.g. Philips et al., 2003; Hanlon, 2005; Badertscher et al., 2008)

Prior Studies on Book-Tax Differences

Knowing the effects of IFRS adoption on BTDs of companies is an important area of study since evidence from extant literature associate BTDs to various financial accounting and tax issues that influence decisions of financial statement users like stakeholders (e.g. investors) and regulators (e.g. tax authorities). Book-tax differences, serving as the link between financial statements and tax returns, communicate important information about the firm.

Studies on Growth of Book-Tax Differences. Prior studies document the growth of BTDs and try to explain its sources. Seidman (2008) presents BTDs to be dependent on a combination of factors. Her study models five factors influencing the book-tax income gap, which include book reporting requirements (GAAP or IFRS), tax reporting requirements (tax code), book reporting behavior (earnings management), tax reporting behavior (tax sheltering) and

general business conditions. Some literature attributes book-tax income gap to financial statements variables (Manzon & Plesko, 2002) and effects of financial reporting (Ayers, et al., 2009; Desai & Dharmapala, 2006; Hanlon, 2005). Other literature strongly associates the increase in BTDs to aggressive tax sheltering (e.g. Mills, 1998; Desai, 2003; Frank et al., 2008). According to Wilson (2008), "Tax sheltering is significantly positively associated with BTDs. This result is consistent with the conjecture that BTDs are an important signal of tax aggressiveness" (p. 30).

Prior researches also show BTDs as a significant indicator of earnings management (Mills & Newberry, 2001; Phillips et al., 2003; Badertscher et al., 2009). Mills and Newberry (2001) suggest that public firms engage in big bath behavior when in a loss position than private firms which affects the book-tax gap. A study by Philips et al. (2003) indicates that BTDs can detect earnings management. Badertscher et al. (2009) shows prevalence of upward management of earnings in their examination of firms that restated earnings due to accounting irregularities.

Moreover, more recent literature on BTDs investigate the concurrent impacts of earnings management and tax management like the study conducted by Seidman (2010) based on a sample of domestic subsidiary firms in the United States. Tang and Firth (in press) examine both earnings and tax management and their interactions as they explain BTDs based on data from Chinese firms. Evidence from their study suggests earnings and tax management both contribute to book-tax income gap.

Book-Tax Differences as Useful Measures. Some studies focus on how BTDs are utilized in various scenarios. For instance, results from the study of Ayers, Laplante, & McGuire (2010) reveal that credit analysts not only use BTDs in their assessment of firms' credit worthiness but are also able to read through the source of the gap between book and tax incomes. Their study suggests that credit rating agencies find BTDs informative and that BTDs influence credit rating changes of firms.

In a study of firms that restated their financial results due to accounting irregularities indicate the usefulness of BTDs in predicting probable restatements (Badertscher et al., 2009). Evidence from Lev and Nissim's

(2004) research demonstrate the ability of BTDs to predict earnings growth and stock returns. As for large positive BTDs, they are seen as a result of aggressive financial reporting (Desai & Dharmpala, 2009), a signal of lower earnings and accrual persistence (Blaylock et al., 2010), and interpreted by investors as a "red flag" that reduces their expectations of future earnings persistence (Hanlon, 2005).

Tax authorities and other revenue regulatory agencies factor in BTDs when checking for tax compliance by firms, as supported by studies showing a positive relationship between BTDs and tax audit adjustments (Mills, 1998; Cho et al., 2006). Moreover, this is backed-up by studies that provide evidence on the positive association between BTDs and tax shelter usage (Wilson, 2009; Frank et al., 2009; Lisowsky, 2009). Evidence from Seidman's (2010) and Tang and Firth's (2010) studies also suggest that BTDs are indicative of earnings management, tax management, and their interactions.

Since BTDs is so well-associated with various matters discussed above, among others, and is subject to various uses and interpretations, it is important to investigate

how conversion to IFRS impacts BTDs. Having an understanding of the effect of adopting new accounting standards on BTDs would allow for adjustments in interpretations of the observed changes in BTDs after conversion and during convergence to IFRS.

Although many studies examine impacts of IFRS adoption particularly on financial statement variables, few studies thoroughly examine its tax implications and to the best of my knowledge none have explained its effect on BTDs. There are also many studies on BTDs, with the entire literature reviewed by Hanlon and Heitzman (2010) and Graham, Raedy, and Shackelford (2010), but so far none discuss how the adoption of IFRS impacts the book-tax income gap.

CHAPTER THREE

METHODOLOGY

This section describes the research method utilized in this present work. First is the presentation of the research design and the statistical measures used to test the hypotheses presented earlier in the study. The second part is the discussion on the sample selection process and the data gathering procedure followed.

Research Design

The primary purpose of this study is to investigate the impact of mandatory IFRS adoption on BTDs and to provide empirical evidence whether book-tax income gap increased or decreased as a result of applying new international standards by Dutch firms. This study also investigates whether or not effect of IFRS adoption significantly varies across industries and firm size. To accomplish these objectives, BTDs values under Dutch GAAP and IFRS are manually computed for each of the sample firm (BTDs measure used is described later on this chapter). Firm level comparability index value is calculated to

compare the percent increase or decrease in the BTDs, as a result of adopting new accounting standards. The BTDs values and comparability index values are then subjected to statistical testing using both parametric and non-parametric measures.

The Index of Comparability

The *Index of Comparability* (IC) provides an overview on the variance between the book-tax income gap computed under Dutch GAAP and IFRS for our sample of firms listed in the Euronext Amsterdam. Gray (1980) was first to use the Index of Comparability, then called the "index of conservatism," to test for comparability of accounting figures reported by firms under different accounting systems. Various studies have used the IC in comparing financial statement variables like stockholder's equity and net income (Hung & Subramanyam, 2007; O'Connell & Sullivan, 2006; Haverty, 2006; Beckman et al., 2007). The IC model to measure the differences between BTDs reported under Dutch GAAP and IFRS is presented as follows:

$$1 - \frac{(BTDs_{\text{Dutch GAAP}} - BTDs_{\text{IFRS}})}{|BTDs_{\text{Dutch GAAP}}|}$$

- IC > 1: BTDs is higher when calculated under IFRS
- IC < 1: BTDs is lower when calculated under IFRS
- IC = 1: No difference on BTDs under Dutch GAAP and IFRS

An index value equal to 1 result when there is no difference between BTDs computed under Dutch GAAP and IFRS. If the index value is greater than 1, for example 1.10, it means that BTDs is higher under IFRS and increased by 10% after application of new accounting standards. Conversely, an index value of less than 1, for instance .95, means that BTDs calculated under IFRS is lower and decreased by 5% after a switch from Dutch GAAP. Index values are determined for each individual sample firm and these are used as data in testing the three null hypotheses in this study.

Methods of Hypotheses Testing

This study addresses three research questions. A corresponding hypothesis is formulated for each question to provide empirical solutions explaining the impact of adopting new accounting standards on the book-tax income gap. The research questions are as follows:

1. In a low book-tax conformity regime, does the financial reporting effect on BTDs under IFRS

materially differ from that under Dutch GAAP? If yes, does it significantly increases or decreases the book-income gap after conversion to IFRS?

2. Does the impact of IFRS on BTDs of Dutch listed firms significantly vary from one industry to another?
3. Does the impact of IFRS on BTDs of Dutch listed firms vary by firm size and influenced by market capitalization segmentation?

First Hypothesis. The first null hypothesis states that there is no difference in the BTDs reported under the Dutch GAAP and IFRS. To statistically test whether to reject or accept the first hypothesis, calculated index values are subjected to standard *t*-test. The *t*-test is a parametric measure used to demonstrate significance in differences assuming a normal distribution of values. This study tests whether the variable, Index of Comparability values for Dutch GAAP and IFRS, are equal to one (IC = 1). The null hypothesis (H_0), there is no significant difference between BTDs under Dutch GAAP and IFRS, is rejected if P-value result of *t*-test is greater than the set .05 alpha level of materiality.

- H_0: IC = 1
- H_A: IC ≠ 1
- Where: H_0 = Null hypothesis

  H_A = Alternative hypothesis

  IC = Index of Comparability

  1 = Test value

The Wilcoxon signed-rank test is a non-parametric measure similar to *t*-test, which involves comparison of differences, but is more robust in approach since it does not have normal distribution requirements. This metric is utilized to check whether results are still consistent assuming the population is not normally distributed. In here the BTD values under Dutch GAAP and IFRS are directly tested for significant comparison. The null hypothesis tested is whether theta is equal to zero (H_0: $\Theta = 0$), which is rejected when resulting P-value is greater than .05 materiality threshold. The variables in this test are respective BTD values under Dutch GAAP (variable one) and IFRS (variable two).

This study uses these two measures to see the consistency in results of whether or not differences in

BTDs are statistically significant with or without the assumption of a normal distribution of samples. Results are analyzed using materiality threshold of 5% (.95 - 1.05) in determining comparability between BTDs computed under Dutch GAAP and IFRS.

Second Hypothesis. In testing the second hypothesis, which states that BTDs after IFRS adoption do not vary across industries, firms are categorized by industry type and calculated IC values are analyzed using two statistical metrics - the Analysis of Variance (ANOVA) and contrast analysis for multiple comparisons. The ANOVA tests for the significance between the computed means of each industry. The independent variable list contains mean Index of Comparability values for each industry group and the factor is industry type.

Contrast analysis is a supplementary measure to test for statistical significance for specific differences in particular industries. Two types of contrast analysis are performed, one assuming normal distribution of variance (Scheffe Test) and the other assuming unequal group variances (Games-Howell).

Data are also analyzed based on the entire sample and consideration of outliers. The sample firms in this study cover nine out of ten industries represented in the Euronext. Utilities industry is the only one not represented in the sample. Appendix B contains a complete list of sample firms classified according to industry type and capitalization compartment. The industries included in the sample are as follows:

1) Basic materials - 38%
2) Consumer goods - 17%
3) Consumer services - 13%
4) Industrial - 8%
5) Technology - 10%
6) Others (Oil and Gas, Financial, Healthcare, and Telecommunications) - 14%

Third Hypothesis. A similar procedure is followed in testing the third hypothesis, which states that BTDs after IFRS adoption do not vary by firm size. The firms are grouped according to market capitalization segments - large caps, mid caps, small caps. IC values of firms belonging to these three capitalization segments are analyzed using the Analysis of Variance (ANOVA) and contrast analysis to

determine whether or not the effect of IFRS adoption to BTDs varies by firm size. The independent variable list contains mean Index of Comparability values for each market capitalization group and the factor is capitalization size.

Measure of Book-Tax Differences

In this present work book-tax differences (BTDs) is defined as the "… differences between book and tax reporting of the same transaction" (Hanlon and Heitzman, 2010); and in this study, it is measured as the difference between book income and estimated taxable income, deflated by total assets. This measure is consistent with prior literature interested in analyzing value of BTDs during the current year (e.g. Dhaliwal et al., 2008; Frank et al., 2008; Lisowsky, 2010; Ayers et al., 2010).

$$\text{BTDs} = \frac{\text{Pretax Book Income} - \text{Estimated Taxable Income}}{\text{Total Assets}}$$

Book income information is readily available from financial statements while taxable income is acquired either straight from tax returns or estimated from reported financial statement figures. The more reliable sources are tax returns, but since they are confidential documents

unavailable to the general public, the use of estimates based on financial statements data is necessary for the purpose of this research. In addition to this, no tax returns were filed based on IFRS figures for the firm year selected, unlike the availability of published financial statement figures both under Dutch GAAP and IFRS. So for the purpose of consistency, this study makes use of estimates in calculating taxable income figures under Dutch GAAP and IFRS.

As proxy for taxable income a common method used is grossing up current tax expense by dividing it by the statutory tax rate (e.g. Hanlon, 2003; Dhaliwalal et al., 2008; Desai and Dharmapala, 2006; Manzon and Plesko, 2002; Goncharov, 2009; Lev and Nissim, 2004; Jackson, 2009). Taxable income data is derived using this estimation for the purpose of this study. Statutory tax rate for the Netherlands is 34.5 in 2004.

$$\text{Taxable Income} = \frac{\text{Current Tax Expense}}{\text{Statutory Tax Rate}}$$

However, since this measure relies only on estimates, it has limitations. Hanlon (2003) identifies three areas in

which estimation of taxable income through grossing up current income tax expense could be problematic. A primary issue is the presence of items, like intra-period tax allocation and tax cushion, which lead to understatement or overstatement of current tax expense vis-à-vis actual tax liabilities. Another area of concern is the presence of tax credits, which are applied before current tax expense is reported, making the estimate less reliable. The third issue involves multinational firms, which also characterizes almost all the firms in the sample. Multinational firms have foreign operations and are subject to different tax rates, and this could prove problematic in the use of current tax expense in estimating taxable income. A study by Plesko (2007) confirms these measurement errors and results to significant difference between actual tax liability and the values estimated from the financial statements.

Furthermore, Wilson (2009) points out that more error is added to the measure when firms have negative taxable income. In case of net operating losses, current tax expense is truncated at zero or negative; thus, overstating taxable income (Ayers et al., 2009). This issue is usually

addressed by deducting the change in NOL carryforward to the calculation. However, data on NOL carryforward for Dutch listed firms are not available in *Compustat Global* database. To help control the effect of this limitation, firms with operating losses are eliminated from the sample selection.

An operating loss, a financial accounting term, does not necessarily translate to a negative taxable income or an NOL (net operating loss), a tax terminology. But since data is unavailable for NOL carryforward in *Compustat Global* and it is hard to ascertain whether or not sample firms have NOL for the sample selection year, this study altogether disregards firms with income statement operating losses in 2004.

Data and Sample Selection

Data are derived electronically from *Compustat Global* database and hand collected from annual reports available in individual company's websites. Income statement figures necessary to calculate BTDs for Dutch GAAP like pre-tax book income, current tax expense, and total assets are gathered from *Compustat Global*. Comparative data for BTDs

calculation under IFRS are hand collected from both 2004 and 2005 financial statements. Companies were not required to prepare financial reports under IFRS for 2004, but many of them opted to produce comparative IFRS figures before officially preparing annual reports under IFRS effective in January 2005. Most companies also included a restatement of 2004 financial figures in their 2005 reports for the purpose of comparability.

The sample is comprised of Dutch firms trading at the Euronext Amsterdam during the 2004-2005 IFRS transition periods that provided comparative data for BTDs under Dutch GAAP and IFRS. From a population of 199 firms listed in the Euronext Amsterdam during the sample selection date, the final sample size is trimmed down to 63 firms. This is after eliminating companies which are (1) non-residents; (2) considered fiscal investment institutions; (3) firms without comparative information at the sample selection date; and (4) firms with operating losses in 2004.

Non-resident firms are obviously eliminated since they prepare their annual reports under their respective local GAAPs or international accounting standards. Firms that are considered fiscal investment institutions in the

Netherlands are not included in the sample since they are exempted from corporate income taxation.

Table 1. Sample Selection

Firms listed in the Euronext Amsterdam (AMS) at the sample selection date	199
Non-resident firms	(47)
Firms without comparative information at the sample selection date	(68)
Firms that are considered Fiscal Investment Institutions	(5)
Firms with Net Loss/ Operating Loss	(16)
Final sample size	63

As for the third criteria, the absence of comparative data for these firms is due to either one or a combination of the following factors: (1) they have converted to Dutch GAAP prior to 2004; (2)they were eligible to delay implementation of IFRS until 2007; (3) they prepared their 2004 financial statements using accounting standards other than Dutch GAAP; (4) annual reports are only available in Dutch language and English translation poses as an issue; (5) firms are already delisted, have merged, or have been

acquired by other firms after the sample selection date and IFRS data are not available;(6) current tax expense data is missing in the *Compustat* database or not available in the financial statements. Finally, loss firms are also eliminated to minimize sample selection bias as discussed in the BTDs measurement in the previous section.

The Netherlands is selected for sampling purposes due to its unique institutional features and its setting best accommodates the framework of this study. It provides a unique testing ground to explore comparability in book-tax differences under the two accounting standards. The Netherlands is a constituent of the European Union that adopted IFRS for public reporting purposes in 2005. Though there was an attempt in the past to converge Dutch GAAP and IFRS, a lot of differences still remain as of 2004.

Another important consideration in the selection of region for sampling purposes is the level of book-tax conformity. Along with Estonia and Poland, the Netherlands is the only member state of the European Union with an independent tax regime like the United States and characterized by low conformity between book and tax accounting (PricewaterhouseCoopers, 2010). The level of

book-tax alignment is a factor to consider in sample selection to allow for comparability in the changes to BTDS resulting from IFRS adoption. Furthermore, the Netherlands is fairly represented in the European exchanges and it has the most number of publicly-listed firms compared to Estonia and Poland, which allows for a larger sample size.

Finally, the Netherlands has a stable general business conditions ranking number one in the Financial Standards Index, which translates to a high degree of compliance with standards for sound financial systems and presents the country as having a stable economic, political, and business environment. This is an important consideration since general business condition is a variable in the book-income gap model (Seidman, 2010). To minimize noise in the impact analysis of new accounting standards adoption to the book-income gap, as much as possible we want a general business condition that is stable with no observable fluctuations during the sample year. A concern with the Netherlands that may distort results on comparability of BTDs is the variations in corporate tax law from one period to another; but since testing is only limited to one year (2004), tax law effects are eliminated.

CHAPTER FOUR

FINDINGS AND RESULTS

Descriptive Statistics

Table 2 presents the summary statistics of values for BTDs under Dutch GAAP and IFRS, as well as calculated comparability indexes between the two accounting standards. Summary statistics is provided for entire sample size and also in consideration of outliers. This study identifies two outliers or firms with index of comparability values exceeding three standard deviations from the mean.

Table 2. Descriptive Statistics

		N	Mean	Median	Standard Deviation
Entire Sample	Dutch GAAP	63	.0265	.0169	.0325
	IFRS	63	.0294	.0167	.0375
	IC Values	63	3.2425	1.1802	8.0445
Excluding Outliers	Dutch GAAP	61	.0273	.0172	.0327
	IFRS	61	.0301	.0171	.0379
	IC Values	61	1.9835	1.1619	3.1538

Mean values of BTDs under the two accounting standards are close to each other at .0265 for Dutch GAAP and .0294 for IFRS. Considering the presence of two outliers, these mean values are recalculated and yielded a much lower mean under Dutch GAAP (.0273) as compared to IFRS (.0301). After eliminating outliers from the sample, these mean values suggest that, on average, firms have higher BTDs after converting to IFRS. Median scores for BTDs under the two accounting standards are almost identical in both sample sizes.

Moreover, the mean index of comparability (IC) value of BTDs is 3.2425. Since an index value equal to one (IC = 1) signifies that there is no difference between BTDs under Dutch GAAP and IFRS, an index value of 3.2425 suggests that BTDs under IFRS is, on average, 224% higher than under Dutch GAAP. However, this data includes outliers and after eliminating firms with extreme values from the sample, recalculated mean IC value is lower at 1.9835. Though it is much lower than the first calculation, the mean index value still implies that, on average, BTDs are higher under IFRS. This suggests that the mandatory switch to IFRS, on average, resulted to a 98% wider book-tax income gap.

The above findings are supported by results of firm-level analysis in Table 3, which suggests that more firms experience an increase in BTDs after converting to IFRS. Table 3 presents frequency distribution of index values of BTDs according to materiality level. The table shows that out of 63 firms, 41 firms or 65% of the total sample size exhibit increase in BTDs after the switch from Dutch GAAP.

Table 3. Frequency Distribution of Index of Comparability Values

Materiality Level	IC Values	No. of Firms
BTDs increased by ≥ 10%	≥ 1.100	34
BTDs increased by ≥ 5% ≤ 10%	1.050-1.099	6
BTDs increased by 5%	1.001-1.049	1
BTDs equal for Dutch GAAP and IFRS	1.000	0
BTDs decreased by 5%	0.950-0.999	1
BTDs decreased by ≥ 5% ≤ 10%	0.901-0.949	1
BTDs decreased by ≥ 10%	≤0.900	20

*Entire Sample (N=63)

In analyzing the effect of adopting new accounting standards on the book-tax income gap, absolute values of BTDs are used in testing. But through documenting the signs

of BTD values prior to testing, observations reveal that there are more positive BTDs than negative ones under both accounting standards. Positive BTDs means that book income is higher than taxable income; negative signed BTDs mean otherwise. Firm-level analysis also reveals that more firms exhibit positive BTDs under IFRS than in Dutch GAAP. Out of 63 firms, there are 41 firms with positive BTDs under Dutch GAAP and the number increased to 46 after conversion to IFRS. In addition to this, out of the entire sample, 36 firms exhibit an increase in positive BTD values. These suggest that the number of firms with book income greater than taxable income also increased after IFRS conversion.

However, verdict as to whether to accept or reject the first hypothesis could still not be reached based on these observations since the above metrics do not test for significance in the differences. The next section discusses this concern and provides answers to the research questions presented earlier.

Test of the Research Hypotheses

This section discusses the results that determine whether we reject or accept the null hypotheses described

in this research work. Having established that BTDs are higher for most firms after applying IFRS, this section presents findings on whether this observed widening of the book-tax income gap is statistically significant. In testing the hypotheses and analyses of results, total sample size is trimmed with the elimination of outliers in order to have a more reliable data set.

First Hypothesis

Results from parametric (*t*-test) and non-parametric (Wilcoxon signed rank test) tests verify whether we reject or accept the first null hypothesis, which states that there is no significant difference between BTDs under Dutch GAAP and IFRS. Standard *t*-test is used to examine whether or not index values significantly differ from one (IC=1).

Table 4. One-Sample T-Test

IC Values	N	*t*	df	Sig. (2-tailed)
Entire Sample	63	2.213	62	.031
Excluding Outliers	61	2.436	60	.018

*Significant at $p < .05$

Table 4 presents the outcome of the one-sample test at $t(60)=2.436$ with p-value of .018 significant at .05 materiality threshold. This result rejects the first null hypothesis. Therefore, this study confirms that there is significant difference between BTDs under Dutch GAAP and IFRS, and that the mandatory conversion to the international accounting standards resulted to an increase in BTDs and wider book-tax income gap for Dutch firms listed in the Euronext Amsterdam.

Findings from the Wilcoxon signed ranks test, a nonparametric statistical test assuming unequal distribution of sample, also supports rejection of the first hypothesis. Panel A in Table 5 shows a z-value of -1.684, which is significant at $p < .05$. This consistently indicates that BTDs between the two accounting standards significantly vary and that BTDs are larger under IFRS. Furthermore, a distribution of positive and negative ranks is shown in Panel B. Out of 61 firms, 22 exhibited lower BTDs values after transitioning to IFRS, while there are 39 firms with observable increased BTDs values as a result of the departure from Dutch GAAP.

Table 5. Wilcoxon Signed Ranks Test

Panel A. Statistical Results

	N	Z	Sig. (2-tailed)
Entire Sample	63	-1.835	.067
Excluding Outliers	61	-1.684	.092

*Significant at $p < .05$

Panel B. Frequency Distribution			
		Number	Mean Rank
Entire Sample	IFRS < Dutch GAAP	22	33.64
	IFRS > Dutch GAAP	41	31.12
	Ties	0	
	Total	63	
Excluding Outliers	IFRS > Dutch GAAP	22	32.32
	IFRS < Dutch GAAP	39	30.26
	Ties	0	
	Total	61	

Second Hypothesis

Building on the above-mentioned results that variation in BTDs under Dutch GAAP and IFRS are statistically significant, this section goes on to answer the second research question as to whether or not impact of IFRS

adoption on BTDs significantly vary by industry type. Categorization by industry type is based on Euronext Amsterdam's classification of each firm during the sample selection year.

Panel A of Table 6 presents a summary of the group mean for each industry included in the sample. Mean index values are all greater than one (IC>1) suggesting that, on average, BTDs increased in every industry with the adoption of IFRS. (Appendix D contains more detailed descriptive statistics for industry groups based on BTDs under Dutch GAAP and IFRS and comparability index values). The use of ANOVA and contrast analysis confirms whether or not this relationship has statistical significance. Panel B of Table 6 presents the analysis of variance between means of industry groups. The result, $F(5,55) = 1.079$, $p = .382$, indicates that average means of BTDs between industry groups do not significantly vary from each other. The second hypothesis stating that effect on BTDs after IFRS adoption do not vary depending on industry type, with none of the industries showing a material increase in BTDs more than others, is therefore accepted as true.

Table 6. Result by Industry Type

Panel A. Summary Statistics

Industry	N	%	Group Mean		
			Dutch GAAP	IFRS	IC
Basic Materials	22	36%	.0334	.0301	1.4782
Consumer Goods	11	18%	.0239	.0198	1.3741
Consumer Services	8	13%	.0150	.0374	2.7492
Industrial	5	8%	.0137	.0169	1.2004
Technology	6	10%	.0401	.0505	1.6238
Others	9	15%	.0268	.0301	3.9577
Total	61	100%	.0273	.0301	1.9835

Panel B. Analysis of Variance

Between Groups	Sum of Square	Df	Mean Square	*F*	Sig.
Between Groups	53.313	5	10.663	1.079	.382
Within Group	543.488	55	9.882		

*Significant at $p < .05$

Moreover, outcome of contrast analyses of variance between means in respective industries resulted to no significant difference in every industry pairs compared. Two types of multiple comparison test was conducted - the Scheffe test, which assumes a normal distribution of variances; and the Games-Howell test, which does not assume equal variances between means. Results from both measures support the acceptance of the second hypothesis that IFRS impact on BTDs do not significantly vary by industry. Robustness tests of equality of means using Welch ($F = 1.090$, $p = .396$) and Brown-Forsythe ($F = 1.111$, $p = .398$) also suggest that there is no significant difference between means of industry groups at .05 materiality threshold. See Table 3 in Appendix D for more information on these statistical results.

Third Hypothesis

The same procedure in testing the second hypothesis was followed in finding out if indeed BTDs after IFRS adoption vary depending on firm size. Categorization by firm size in this study is based on Euronext Amsterdam's compartment description of capitalization segments at the sample selection date. Firms that are considered large have

market capitalization of more than €1 billion; midcap firms have market capitalization in between €150 million and €1 billion, while small cap firms have less than €150 million of capitalization.

Panel A of Table 7 contains summary statistics of firms classified in three capitalization segments. Based on the comparability index values of BTDs, on average, all three capitalization compartment exhibit larger BTDs after the mandatory conversion to IFRS. For instance, the large capped group has a mean index of 1.4926, which indicates that BTDs for firms in this cap compartment increased by almost 50% after converting to IFRS. Firms belonging in the midcap and small cap segments also experienced an increase in BTDs after adopting the new international standards at mean values of 2.7116 and 1.3144 respectively. Appendix C contains more detailed information on these results.

Table 7. Result by Capitalization Segment

Panel A. Summary Statistics

Cap Size		Mean	Median
Large (N=17)	Dutch GAAP	.0322	.0230
	IFRS	.0321	.0262
	IC Value	1.4962	1.0551
Mid (N=27)	Dutch GAAP	.0203	.0135
	IFRS	.0240	.0127
	IC Value	2.7116	1.2044
Small (N=17)	Dutch GAAP	.0336	.0249
	IFRS	.0379	.0194
	IC Value	1.3144	1.1619
Total (N=61)	Dutch GAAP	.0273	.0172
	IFRS	.0301	.0171
	IC Value	1.9835	1.1619

Panel B. Analysis of Variance

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	25.962	2	12.981	1.319	.275
Within Groups	570.840	58	9.842		
Total	596.802	60			

*Significant at $p < .05$

To test whether or not these increases in BTDs values are statistically significant, comparability index values are subjected to ANOVA testing. A summary of results for the entire sample and sample excluding outliers is presented in Panel B of Table 7. ANOVA yielded results of $F(2,58) = 1.319$, sig at .05 materiality threshold and a *p*-value of .275, which is too high to reject the third hypothesis. These findings suggest that firms belonging to different market capitalization compartments show no significant differences in BTDs values and IFRS impact on the book-tax income gap is not influenced by capitalization segments.

Furthermore, contrast analyses to compare variance between means for group pairings (e.g. large cap vs. midcap, large cap vs. small cap), support the acceptance of the third hypothesis that indeed BTDs after IFRS adoption do not vary depending on firm size. Multiple comparisons tests employed are the Scheffe and Games-Howell. Pairwise comparisons of companies belonging to different market capitalization segments show no significant differences in BTDs as an impact of transitioning to IFRS. More detailed information on individual group level comparisons are

contained in Appendix D. These results are also supported by outcomes from robustness tests (Welch and Brown-Forsythe) on the equality of means.

This chapter discusses results of statistical measures utilized to address the research questions in this study. Results from these tests suggest that one implication of the mandatory conversion from Dutch GAAP to IFRS is the widening of the book-tax income gap. This study provides evidence that the increase in book-tax differences is significantly related with the adoption of the new accounting standards by Dutch firms trading at the Euronext Amsterdam in 2004. However, statistical evidence show that there are no significant differences on book-tax income gap across industries and capitalization compartments as a result of the transition.

CHAPTER FIVE

CONCLUSION

The primary objective of this study is to present preliminary evidence on how the adoption of the International Financial Reporting Standards (IFRS) impacts the book-tax income gap in the case of public firms in the Netherlands, a country with low book-tax alignment. This objective is accomplished through empirical investigation of data on book-tax differences (BTDs) from a sample of Dutch firms listed in the Euronext Amsterdam using 2004 IFRS and Dutch GAAP figures. Index of comparability (IC) values of BTDs under the two accounting regimes were calculated and tested using both parametric and non-parametric measures.

Collectively, findings from this present work support the inference that changes in accounting standards are informative of the book-tax income gap. Results suggest that the mandatory conversion to IFRS of Dutch firms beginning in 2005 has a statistically significant effect on BTDs and led to the widening of the book-tax income gap. Based on 2004 figures, outcome of the study shows a mean

index value of BTDs at 1.9835, which implies that, on average, IFRS adoption by Dutch firms resulted to approximately 98% wider book-tax income gap. Of the total sample size, 65% of firms show a significant increase in BTDs at 5% level of materiality. This shows that one of the consequences of IFRS adoption is less conformity with the tax accounting system compared to that under the Dutch GAAP. Furthermore, analysis of 2004 comparative data available for both accounting standards also reveals that there is a significant increase in positive BTDs, where book income is greater than taxable income, after IFRS conversion. However, further examination of the effect of IFRS on BTDs across industries and market capitalization compartments suggests no significant statistical difference on book-tax income gap across industries and firm sizes.

The use of IFRS is gaining momentum worldwide and having an understanding of how adopting a new set of accounting principles affect financial statement variables is important for proactive planning and managing key issues arising from changes in accounting rules. Understanding the effect of changes in accounting rules has important implications in the interpretation of BTDs in financial

analysis. Results from this study may serve as useful reference as more countries adopt or converge with IFRS especially for countries with low book-tax alignment such as the United States.

This study is limited in scope and recommends that for future research a comprehensive comparative analysis be conducted as to what specific changes in accounting standards cause the increased divergence in the book-tax income gap. Another area of concern recommended for further investigation is whether or not the source of the observed positive BTDs are all attributable to the adoption of IFRS. If not, how much of the change in BTDs could be attributed to other potential sources such as earnings management and tax avoidance? As discussed in the literature review, large positive BTDs are often seen as indicator of upward earnings management and a red flag related to tax sheltering issues. This study also recommends the examination on whether adoption of IFRS encourages tax noncompliance among firms that converted in 2005 and whether BTDs are still informative of tax noncompliance after IFRS conversion. The determination of the following areas of concern is left to future research.

APPENDIX A

LIST OF STANDARDS AND INTERPRETATIONS

TABLE 1

LIST OF IFRSs IN ISSUE AT APRIL 1, 2006

Title	Description
IFRS 1	First-time Adoption of International Financial Reporting Standards
IFRS 2	Share-based Payment
IFRS 3	Business Combinations
IFRS 4	Insurance Contracts
IFRS 5	Non-current Assets Held for Sale and Discontinued Operations
IFRS 6	Exploration for and Evaluation of Mineral Resources
IFRS 7	Financial Instruments: Disclosures
IFRS 8	Operating Segments
IFRS 9	Financial Instruments
IAS 1	Presentation of Financial Statements
IAS 2	Inventories
IAS 7	Cash Flow Statements of
IAS 8	Accounting Policies, Changes in Accounting Estimates and Errors
IAS 10	Events after the Balance Sheet Date
IAS 11	Construction Contracts
IAS 12	Income Taxes
IAS 16	Property, Plant and Equipment
IAS 17	Leases
IAS 18	Revenue

IAS 19	Employee Benefits
IAS 20	Accounting for Government Grants and Disclosure of Government Assistance
IAS 21	The Effects of Changes in Foreign Exchange Rates
IAS 23	Borrowing Costs
IAS 24	Related Party Disclosures
IAS 26	Accounting and Reporting by Retirement Benefit Plans
IAS 27	Consolidated and Separate Financial Statements
IAS 28	Investments in Associates
IAS 29	Financial Reporting in Hyperinflationary Economies
IAS 30	Disclosure in the Financial Statements of Banks and Similar Financial Institutions
IAS 31	Interests in Joint Ventures
IAS 32	Financial Instruments: Presentation
IAS 33	Earnings per Share
IAS 34	Interim Financial Reporting
IAS 36	Impairment of Assets
IAS 37	Provisions, Contingent Liabilities and Contingent Assets
IAS 38	Intangible Assets
IAS 39	Financial Instruments: Recognition and Measurement
IAS 40	Investment Property
IAS 41	Agriculture
SIC-7	Introduction of the Euro
SIC-10	Government Assistance - No Specific Relation to Operating Activities
SIC-12	Consolidation - Special Purpose Entities

IFRIC	Amendments to SIC-12 Scope of SIC-12 Consolidation of Special Purpose Entities
SIC-13	Jointly Controlled Entities - Non-Monetary Contributions by Ventures
SIC-15	Operating Leases - Incentives
SIC-21	Income Taxes - Recovery of Revalued Non-Depreciable Assets
SIC-25	Income Taxes - Change in the Tax Status of an Enterprise or its Shareholders
SIC-27	Evaluating the Substance of Transactions Involving the Legal Form of a Lease
SIC-29	Disclosure - Service Concession Arrangements
SIC-31	Revenue - Barter Transactions Involving Advertising Services
SIC-32	Intangible Assets
IFRIC 1	Changes in Existing Decommissioning, Restoration and Similar Liabilities
IFRIC 2	Members' Shares in Cooperative Entities and Similar Instruments
IFRIC 4	Determining whether an Arrangement Contains a Lease
IFRIC 5	Rights to Interests arising from Decommissioning Restoration and Environmental Rehabilitation Funds
IFRIC 6	Liabilities arising from Participating in a Specific Market - Waste Electrical and Electronic Equipment
IFRIC 7	Applying the Restatement Approach under IAS 29
IFRIC 8	Scope of IFRS 2
IFRIC 9	Reassessment of Embedded Derivatives

Source: KPMG (2006). IFRS compared to Dutch GAAP: An overview. Retrieved September 21, 2010, from http://www.kpmg. co.uk/pubs/IFRS_to_Dutch_GAAP_06.pdf

TABLE 2

LIST OF GUIDELINES ON ANNUAL REPORTING FROM THE DUTCH ACCOUNTING STANDARDS BOARD (DASB) AS OF APRIL 1, 2006

Title	Description
GAR 100	Introduction
GAR 110	Objectives and Basis Assumptions
GAR 115	Criteria for Recognition and disclosure of information
GAR 120	Valuation Principles
GAR 121	Impairment of Fixed Assets
GAR 122	Valuation Principles for Foreign Currencies
GAR 135	General Principles for the Determination of the Result
GAR 140	Changes in Accounting Policies
GAR 145	Changes in Accounting Estimates
GAR 150	Correction of Errors
GAR 160	Events after the Balance Sheet Date
GAR 190	Other General Matters
GAR 210	Intangible Fixed Assets
GAR 212	Tangible Fixed Assets
GAR 213	Investment Property
GAR 214	Financial Fixed Assets
GAR 215	Joint Ventures
GAR 216	Mergers and Acquisitions
GAR 217	Consolidation
GAR 220	Inventories

GAR 221	Work in Progress and Construction Contracts
GAR 222	Debtors
GAR 224	Prepayments and Accrued Income
GAR 226	Securities
GAR 228	Cash and Cash Equivalents
GAR 240	Equity
GAR 250	Liabilities - General
GAR 252	Provisions, Contingent Liabilities and Contingent Assets
GAR 254	Non-current Liabilities
GAR 256	Current Liabilities
GAR 259	Accruals and Deferred Income
GAR 260	Revenue Recognition on Intercompany Transactions
GAR 265	Comprehensive Income Statement
GAR 270	Income Statement
GAR 271	Employee Benefits
GAR 272	Income Taxes
GAR 273	Borrowing Costs
GAR 274	Government Grants and Compatible Facilities
GAR 290	Financial Instruments
GAR 291	Financial Instruments: Recognition and Measurement
GAR 292	Leasing
GAR 300	Function and Arrangement
GAR 305	Exemptions for Group Companies
GAR 315	Exemptions for Medium-sized Legal Entities
GAR 330	Related Parties

GAR 340	Earnings per Share
GAR 345	Discontinued Operations
GAR 350	Segments Information
GAR 360	Cash Flow Statement
GAR 370	Added-value Statement
GAR 390	Other Information to be Included in the Notes
GAR 394	Interim Reports
GAR 396	Publication
GAR 399	Audit
GAR 400	Director's Report
GAR 410	Other Information
GAR 420	Profit Appropriation Treatment of Losses
GAR 430	Key Figures, Ratios and Historical Summaries
GAR 600	Banks
GAR 605	Insurance Companies
GAR 610	Pension Funds
GAR 615	Investment Institutions
GAR 620	Cooperatives
GAR 630	Commercial Foundations and Associations
GAR 640	Non-profit Organizations
GAR 645	Officially Recognized Social Housing Institutions
GAR 650	Fundraising Institutions
GAR 655	Health Institutions

Source: KPMG (2006). *IFRS compared to Dutch GAAP: An overview*. Retrieved September 21, 2010, from http://www.kpmg. co.uk/pubs/IFRS_to_Dutch_GAAP_06.pdf

APPENDIX B

LIST OF SAMPLE FIRMS BY INDUSTRY TYPE AND CAPITALIZATION COMPARTMENT

TABLE 1

LIST OF SAMPLE FIRMS BY INDUSTRY TYPE
AND CAPITALIZATION SIZE

COMPANY	INDUSTRY	CAP SIZE
Akzo Nobel	Basic Materials	Large
Aalbert Industries	Basic Materials	Mid
Accell Group NV	Consumer Goods	Small
Aegon	Financial	Large
Athlon Holding	Financial	Mid
Amsterdam Commodities	Consumer Goods	Small
Arcadis	Basic Materials	Mid
ASML Holding NV	Technology	Large
Ballast Nedam	Industrial	Mid
Batenburg Beheer	Basic Materials	Small
Boskalis Westminster NV	Industrial	Mid
Brunel International NV	Basic Materials	Mid
CSM	Consumer Goods	Large
Crown Van Gelder	Basic Materials	Small
DSM	Basic Materials	Large
Docdata NV	Consumer Goods	Small
EADS	Industrial	Large
Eriks	Basic Materials	Mid
Fornix Biosciences	Healthcare	Small
Fugro	Oil and Gas	Large
Gamma Holding	Consumer Goods	Mid
Grontmij	Basic Materials	Mid
Heijmans	Basic Materials	Mid
Heineken Holding	Consumer Goods	Large
HES Beheer	Basic Materials	Small
HITT	Basic Materials	Small
Holland Colours	Basic Materials	Small
Hunter Douglas	Consumer Goods	Large
Imtech	Basic Materials	Mid
ING Groep	Financial	Large
Innoconcepts	Basic Materials	Mid
KAS Bank	Financial	Mid
Koninklijke Bam Groep NV	Industrial	Mid
Koninklijke Brill	Consumer Services	Small
Koninklijke KPN	Telecommunications	Large
Koninklijke Nedschroef	Basic Materials	Small
Koninklijke Philips	Consumer Goods	Large
Koninklijke Ten Cate	Basic Materials	Mid
Koninklijke Wessanen	Consumer Goods	Mid
Macintosh Retail Group	Consumer Services	Mid
Mediq/ OPG Group	Consumer Services	Mid
Nedap	Industrial	Mid
Neways Electronics	Basic Materials	Small

Nutreco	Consumer Goods	Mid
Nedfield/Tulip Computers	Technology	Small
Ordina	Technology	Mid
Quirius NV	Technology	Small
Reesink	Basic Materials	Small
Randstad Holding	Basic Materials	Large
Royal Dutch Shell	Oil and Gas	Large
Simac Techniek	Technology	Small
Sligro Food Group	Consumer Services	Mid
SMIT Internationale	Basic Materials	Mid
Stern Groep	Consumer Services	Small
Stork NV	Basic Materials	Mid
SBM Offshore	Oil and Gas	Large
Telegraaf Media Groep	Consumer Services	Mid
TNT NV	Basic Materials	Large
Unilever	Consumer Goods	Large
Unit 4 Agresso	Technology	Mid
Vopak	Basic Materials	Mid
Wegener	Consumer Services	Mid
Wolters Kluwer	Consumer Services	Large

APPENDIX C

STATISTICAL RESULTS FOR SAMPLE FIRMS GROUPED ACCORDING TO CAPITALIZATION COMPARTMENT

TABLE 1

DESCRIPTIVE STATISTICS

PANEL A. FOR ENTIRE SAMPLE

CAP SIZE		DUTCH GAAP	IFRS	IC VALUE
Large	N	18	18	18
	Mean	.0305	.0312	2.9709
	Median	.0201	.0219	1.0572
	Std. Deviation	.0343	.0386	6.4362
Mid	N	28	28	28
	Mean	.0196	.0232	4.5877
	Median	.0123	.0124	1.2316
	Std. Deviation	.0230	.0297	10.8523
Small	N	17	17	17
	Mean	.0336	.0379	1.3144
	Median	.0249	.0194	1.1619
	Std. Deviation	.0230	.0472	.9016
Total	N	63	63	63
	Mean	.0265	.0294	3.2425
	Median	.0169	.0167	1.1802
	Std. Deviation	.0325	.0325	8.0445

PANEL B. FOR SAMPLE EXCLUDING OUTLIERS

CAP SIZE		DUTCH GAAP	IFRS	IC VALUE
Large	N	17	17	17
	Mean	.0322	.0321	1.4962
	Median	.0230	.0262	1.0551
	Std. Deviation	.0345	.0396	1.5571
Mid	N	27	27	27
	Mean	.0203	.0240	2.7116
	Median	.0135	.0127	1.2044
	Std. Deviation	.0232	.0300	4.4680
Small	N	17	17	17
	Mean	.0336	.0379	1.3144
	Median	.0249	.0194	1.1619
	Std. Deviation	.0425	.0472	.9016
Total	N	61	61	61
	Mean	.0273	.0301	1.9835
	Median	.0172	.0171	1.1620
	Std. Deviation	.0327	.0379	3.1538

TABLE 2

CONTRAST ANLYSIS

PANEL A. Scheffe Test of Multiple Comparisons
Using Entire Sample

(I)	(J)	Mean Difference (I-J)	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Large	Mid	-1.6168	.803	-7.7284	4.4949
	Small	1.6566	.832	-5.1852	8.4983
Mid	Large	1.6167	.803	-4.4949	7.7284
	Small	3.2733	.423	-2.9468	9.4934
Small	Large	-1.6566	.832	-8.4983	5.1852
	Mid	-3.2733	.423	-9.4934	2.9468

*Equal variances not assumed

PANEL B. Scheffe Test of Multiple Comparisons
Using Sample that Excludes Outliers

(I)	(J)	Mean Difference (I-J)	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Large	Mid	-1.2154	.462	-3.6557	1.2249
	Small	.1819	.986	-2.5215	2.8853
Mid	Large	1.2154	.462	-1.2249	3.6557
	Small	1.3973	.362	-1.0430	3.8375
Small	Large	-.1819	.986	-2.8853	2.5215
	Mid	-1.3973	.362	-3.8375	1.0430

*Equal variances not assumed

PANEL C. Games-Howell Test of Multiple Comparisons
Using Entire Sample

(I)	(J)	Mean Difference (I-J)	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Large	Mid	-1.6168	.802	-7.8051	4.5716
	Small	1.6566	.538	-2.2609	5.5740
Mid	Large	1.6168	.802	-4.5716	7.8051
	Small	3.2733	.268	-1.8340	8.3807
Small	Large	-1.6566	.538	-5.5740	2.2609
	Mid	-3.2733	.268	-8.3807	1.8340

PANEL D. Games-Howell Test of Multiple Comparisons
Using Sample that Excludes Outliers

(I)	(J)	Mean Difference (I-J)	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Large	Mid	-1.2154	.408	-3.5140	1.0833
	Small	.1819	.909	-.9034	1.2672
Mid	Large	1.2154	.408	-1.0833	3.5140
	Small	1.3972	.272	-.7928	3.5873
Small	Large	-.1819	.909	-1.2672	.9034
	Mid	-1.3973	.272	-3.5873	.7928

Table 3

SUPPLEMENTARY TESTS

PANEL A. Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Entire Sample (n=63)	2.816	2	60	.068
Excluding Outlier (n=61)	4.297	2	58	.018

PANEL B. Robust Tests of Equality of Means

		Statistic	Sig.
Entire Sample (n=63)	Welch	1.777	.187
	Brown-Forsythe	1.205	.310
Excluding Outlier (n=61)	Welch	1.241	.301
	Brown-Forsythe	1.928	.160

APPENDIX D

STATISTICAL RESULTS FOR SAMPLE FIRMS GROUPED ACCORDING TO INDUSTRY TYPE

TABLE 1

DESCRIPTIVE STATISTICS

PANEL A. FOR ENTIRE SAMPLE

INDUSTRY		DUTCH GAAP	IFRS	IC VALUE
BASIC MATERIALS	N	24	24	24
	Mean	.0306	.0283	4.8251
	Median	.0173	.0130	1.0624
	Std. Deviation	.0420	.0465	12.2620
CONSUMER GOODS	N	11	11	11
	Mean	.0238	.0198	1.3741
	Median	.0256	.0121	.9729
	Std. Deviation	.0151	.0186	2.0240
CONSUMER SERVICES	N	8	8	8
	Mean	.0150	.0374	2.7492
	Median	.0119	.0306	2.1180
	Std. Deviation	.0101	.0295	2.1554
INDUSTRIAL	N	5	5	5
	Mean	.0137	.0169	1.2004
	Median	.0146	.0167	1.2044
	Std. Deviation	.0030	.0071	.3554
TECHNOLOGY	N	6	6	6
	Mean	.0401	.0505	1.6238
	Median	.0333	.0405	1.2484
	Std. Deviation	.0366	.0466	1.0796
OTHERS	N	9	9	9
	Mean	.0268	.0301	3.9577
	Median	.0100	.0201	1.1811
	Std. Deviation	.0387	.0386	6.4483
TOTAL	N	63	63	63
	Mean	.0265	.0294	3.2425
	Median	.0169	.0167	1.1802
	Std. Deviation	.0325	.0375	8.0445

PANEL B. FOR SAMPLE EXCLUDING OUTLIERS

INDUSTRY		DUTCH GAAP	IFRS	IC VALUE
BASIC MATERIALS	N	21	21	21
	Mean	.0229	.1772	.6958
	Median	.0110	.0133	.8745
	Std. Deviation	.0510	.5109	.8492
CONSUMER GOODS	N	11	11	11
	Mean	.0015	.0525	.0587
	Median	.0039	.0121	.7008
	Std. Deviation	.0292	.4493	2.4840
CONSUMER SERVICES	N	8	8	8
	Mean	.0029	.3073	.7034
	Median	.0062	.0546	1.2889
	Std. Deviation	.0187	1.2398	3.5662
INDUSTRIAL	N	5	5	5
	Mean	.0017	.5148	.2583
	Median	.0102	.0262	.6377
	Std. Deviation	.0154	.9265	1.3580
TECHNOLOGY	N	6	6	6
	Mean	.0310	-.1291	1.6238
	Median	.0248	.0405	1.2484
	Std. Deviation	.0460	.6285	1.0796
OTHERS	N	8	8	8
	Mean	.0141	-.5106	1.8541
	Median	.0064	.0673	1.1087
	Std. Deviation	.0490	1.3051	1.4150
TOTAL	N	59	59	59
	Mean	.0140	.0758	.7924
	Median	.0081	.0262	1.0362
	Std. Deviation	.0411	.8300	1.9170

TABLE 2

CONTRAST ANALYSIS

PANEL A. Games-Howell Test of Multiple Comparisons Using Entire Sample

	INDUSTRY	Mean Difference	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
BASIC MATERIALS	CONSUMER GOODS	4.5381	.761	-3.52657	12.6027
	CONSUMER SERVICES	3.8934	.966	-4.6850	12.4718
	INDUSTRIAL	4.3385	.700	-3.6482	12.3253
	TECHNOLOGY	2.9729	.803	-4.93329	10.8792
	OTHERS	.6391	1.000	-9.5063	10.7844
CONSUMER GOODS	BASIC MATERIALS	-4.5381	.761	-12.6027	3.5265
	CONSUMER SERVICES	-.6447	.722	-5.5857	4.2963
	INDUSTRIAL	-.1996	1.000	-3.3895	2.9904
	TECHNOLOGY	-1.5652	.999	-4.3983	1.2680
	OTHERS	-3.8990	.847	-11.8140	4.01588
CONSUMER SERVICES	BASIC MATERIALS	-3.8934	.966	-12.4719	4.6850
	CONSUMER GOODS	.6447	.722	-4.2963	5.5857
	INDUSTRIAL	.4451	.424	-4.4451	5.3353
	TECHNOLOGY	-.9205	.790	-5.7104	3.8695
	OTHERS	-3.2544	.993	-11.5449	5.0362
INDUSTRY	BASIC MATERIALS	-4.3385	.700	-12.3253	3.6482
	CONSUMER GOODS	.2000	1.000	-2.9903	3.3895
	CONSUMER SERVICES	-.4451	.424	-5.3353	4.4451
	TECHNOLOGY	-1.3656	.933	-4.1414	1.41022
	OTHERS	-3.6995	.789	-11.5927	4.1938
TECHNOLOGY	BASIC MATERIALS	-2.9729	.803	-10.8791	4.9332
	CONSUMER GOODS	1.5652	.999	-1.2680	4.3983
	CONSUMER SERVICES	.9205	.790	-3.8695	5.7104
	INDUSTRIAL	1.3656	.933	-1.4102	4.1414
	OTHERS	-2.3339	.884	-10.1965	5.5287
OTHERS	BASIC MATERIALS	-.6391	1.000	-10.7844	9.5063
	CONSUMER GOODS	3.8991	.847	-4.0159	11.8140
	CONSUMER SERVICES	3.2544	.993	-5.0362	11.5449
	INDUSTRIAL	3.6995	.789	-4.1938	11.5927
	TECHNOLOGY	2.33394	.884	-5.5287	10.1965

*Equal variances not assumed

PANEL B. Games-Howell Test of Multiple Comparisons Using Sample Excluding Outliers

INDUSTRY		Mean Difference	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
BASIC MATERIALS	CONSUMER GOODS	.6371	1.000	-1.9838	3.258
	CONSUMER SERVICES	-.0076	.745	-4.7784	4.7631
	INDUSTRIAL	.4375	.996	-2.3262	3.2012
	TECHNOLOGY	-.9281	1.000	-2.7499	.8938
	OTHERS	-1.1583	.862	-3.0537	.7371
CONSUMER GOODS	BASIC MATERIALS	-.6371	1.000	-3.2580	1.9838
	CONSUMER SERVICES	-.6447	.722	-5.5857	4.2963
	INDUSTRIAL	-.19965	1.000	-3.3895	2.9903
	TECHNOLOGY	-1.5652	.999	-4.39830	1.2680
	OTHERS	-1.7954	.847	-4.6912	1.1004
CONSUMER SERVICES	BASIC MATERIALS	.0076	.745	-4.7631	4.7784
	CONSUMER GOODS	.6447	.722	-4.2963	5.5857
	INDUSTRIAL	.4451	.424	-4.4451	5.3353
	TECHNOLOGY	-.9205	.790	-5.7104	3.86959
	OTHERS	-1.1507	.993	-5.9513	3.6499
INDUSTRIAL	BASIC MATERIALS	-.43751	.996	-3.2012	2.3262
	CONSUMER GOODS	.19960	1.000	-2.9903	3.3895
	CONSUMER SERVICES	-.4451	.424	-5.3353	4.4451
	TECHNOLOGY	-1.3656	.933	-4.1414	1.4102
	OTHERS	-1.5958	.789	-4.3962	1.2046
TECHNOLOGY	BASIC MATERIALS	.92801	1.000	-.8938	2.7499
	CONSUMER GOODS	1.5652	.999	-1.26800	4.3983
	CONSUMER SERVICES	.9205	.790	-3.8695	5.7104
	INDUSTRIAL	1.3656	.933	-1.4102	4.1413
	OTHERS	-.2302	.884	-2.4704	2.0099
OTHERS	BASIC MATERIALS	1.1583	.862	-.7371	3.0537
	CONSUMER GOODS	1.7954	.847	-1.1004	4.6912
	CONSUMER SERVICES	1.1507	.993	-3.6499	5.9513
	INDUSTRIAL	1.5958	.789	-1.2046	4.3962
	TECHNOLOGY	.2302	.884	-2.0099	2.4704

*Equal variances not assumed

PANEL C. Scheffe Test of Multiple Comparisons Using Entire Sample

INDUSTRY		Mean Difference	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
BASIC MATERIALS	CONSUMER GOODS	4.5381	.931	-5.9849	15.0611
	CONSUMER SERVICES	3.8934	.996	-7.9053	15.6921
	INDUSTRIAL	4.3385	.976	-9.8690	18.5460
	OTHERS	.6391	.981	-10.6573	11.9354
	TECHNOLOGY	2.9729	1.000	-10.2184	16.1643
CONSUMER GOODS	BASIC MATERIALS	-4.5381	.931	-15.0611	5.9849
	CONSUMER SERVICES	-.64470	1.000	-14.07377	12.7843
	INDUSTRIAL	-.1996	1.000	-15.7875	15.3883
	OTHERS	-3.899	1.000	-16.8890	9.0909
	TECHNOLOGY	-1.5652	.992	-16.2328	13.1025
CONSUMER SERVICES	BASIC MATERIALS	-3.8934	.996	-15.6921	7.9053
	CONSUMER GOODS	.6447	1.000	-12.7843	14.0737
	INDUSTRIAL	.4451	1.000	-16.0309	16.9211
	OTHERS	-3.2544	1.000	-17.2976	10.7889
	TECHNOLOGY	-.9205	1.000	-16.5287	14.6877
INDUSTRIAL	BASIC MATERIALS	-4.3385	.976	-18.5460	9.8690
	CONSUMER GOODS	.1996	1.000	-15.3883	15.7875
	CONSUMER SERVICES	-.4451	1.000	-16.92117	16.0309
	OTHERS	-3.6995	1.000	-19.8195	12.4206
	TECHNOLOGY	-1.3656	.996	-18.8658	16.1347
TECHNOLOGY	BASIC MATERIALS	-2.9729	.981	-16.1643	10.2184
	CONSUMER GOODS	1.5652	1.000	-13.1025	16.2328
	CONSUMER SERVICES	.9205	1.000	-14.6877	16.5287
	INDUSTRIAL	1.3656	1.000	-16.1347	18.8658
	OTHERS	-2.3339	.998	-17.5659	12.8981
OTHERS	BASIC MATERIALS	-.6390	1.000	-11.9354	10.6573
	CONSUMER GOODS	3.8991	.992	-9.0909	16.8890
	CONSUMER SERVICES	3.2544	1.000	-10.7889	17.2978
	INDUSTRIAL	3.6995	.996	-12.4206	19.8195
	TECHNOLOGY	2.3339	.998	-12.8981	17.5659

PANEL D. Scheffe Test of Multiple Comparisons Using Sample Excluding Outliers

INDUSTRY		Mean Difference	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
BASIC MATERIALS	CONSUMER GOODS	.6371	1.000	-1.8138	3.0880
	CONSUMER SERVICES	-.0076	.964	-2.7436	2.72843
	INDUSTRIAL	.4375	1.000	-2.8393	3.7145
	OTHERS	-.9281	1.000	-3.9764	2.1203
	TECHNOLOGY	-1.1583	.558	-3.8943	1.5776
CONSUMER GOODS	BASIC MATERIALS	-.6371	1.000	-3.0880	1.8138
	CONSUMER SERVICES	-.6447	.970	-3.7045	2.4151
	INDUSTRIAL	-.1996	1.000	-3.7513	3.3521
	OTHERS	-1.5652	1.000	-4.9072	1.7769
	TECHNOLOGY	-1.7954	.649	-4.8553	1.26444
CONSUMER SERVICES	BASIC MATERIALS	.0076	.964	-2.7284	2.7436
	CONSUMER GOODS	.6447	.970	-2.4151	3.7045
	INDUSTRIAL	.4451	.979	-3.3090	4.1992
	OTHERS	-.9205	.994	-4.4768	2.6359
	TECHNOLOGY	-1.1507	.986	-4.4433	2.1419
INDUSTRIAL	BASIC MATERIALS	-.4375	1.000	-3.7144	2.8393
	CONSUMER GOODS	.1996	1.000	-3.3522	3.7513
	CONSUMER SERVICES	-.4451	.979	-4.1992	3.3090
	OTHERS	-1.3656	1.000	-5.3531	2.6219
	TECHNOLOGY	-1.5958	.779	-5.3499	2.1582
TECHNOLOGY	BASIC MATERIALS	.9281	1.000	-2.1203	3.9764
	CONSUMER GOODS	1.5652	1.000	-1.7769	4.9072
	CONSUMER SERVICES	.9205	.994	-2.6359	4.4768
	INDUSTRIAL	1.3656	1.000	-2.6219	5.3531
	OTHERS	-.2302	.849	-3.7866	3.3261
OTHERS	BASIC MATERIALS	1.1583	.558	-1.5776	3.8943
	CONSUMER GOODS	1.7954	.649	-1.2644	4.8553
	CONSUMER SERVICES	1.1507	.986	-2.1419	4.4433
	INDUSTRIAL	1.5958	.779	-2.1583	5.3499
	TECHNOLOGY	.2302	.849	-3.3261	3.7866

Table 3

SUPPLEMENTARY TESTS

PANEL A. Levene Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Entire Sample (n=63)	1.927	5	57	.104
Excluding Outlier (n=61)	1.996	5	55	.094

PANEL B. Robust Tests of Equality of Means

		Statistic	Sig.
Entire Sample (n=63)	Welch	1.423	.257
	Brown-Forsythe	1.031	.415
Excluding Outlier (n=61)	Welch	1.090	.396
	Brown-Forsythe	1.111	.398

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