IFRS adoption in Research and Development Companies

Dr. Yusuf Mohammed Nulla, Ph.D.[1]

Abstract

Globally, the use of the IFRS in financial reporting is the requirement in many countries. However, the question of whether such a global transition towards a single set of accounting standards has been met by the presumed benefits of higher accounting quality and comparability yet remains unanswered. This paper primarily examines the effect of the mandatory IFRS adoption in Canada by the research and development companies. It was a comparative study between the Canadian GAAP financial reporting from 2008 to 2010 and IFRS financial reporting from 2011 to 2012. Since this research is an empirical study, the quantitative research method is applied. The research question of this research study is: Does IFRS adoption improve accounting quality in research and development companies?. This research finds that lower persistency and predictability in earnings; decrease in earnings influence to shareholder value; weak volatility in market price; better predictability of cash flow and financial forecasts; increase in accruals and timeliness loss of recognition; and decrease in research and development expenditures.

Key Words: IFRS, GAAP, accounting quality, financial reporting, organizational performance, income smoothing, and accruals.

I. Introduction

Over the past decade, the International Financial Reporting Standards (IFRS) has emerged as the dominant reference for financial reporting in most countries around the world. Primarily due to the influence of investors/shareholders demand, cost minimization in financial reporting, security listings requirements, foreign investments, free trade, and global competition. In the case of the United States, the home of the leading global stock indexes, NYSE and NASDAQ, the Securities and Exchange Commission has publicly expressed its interest or in transition towards adopting the IFRS from the U.S. GAAP. While there is extensive research worldwide on the impact of adopting IFRS, I believe that examining at the Canadian experience (recently adopted IFRS in 2011) may provide relevant information based on its culture and capital market, as previous studies did when the European countries adopted IFRS in 2005. It is also believed that this study results will provide relevant information to the United States accounting scholars and standard setter, FASB, as both countries GAAPs are comparable and the respective capital markets are similar in nature.

That is, research findings will provide some useful hints as to what the U.S. firms and markets will expect from the adoption of the IFRS. From 2011, the Canadian public companies are required to report the financial information using the International Financial Reporting Standards (IFRS) as mentioned earlier, a change of reporting culture from the Canadian GAAP. For two decades, Canada's accounting standard setter has a convergence policy towards the U.S. GAAP, primarily adopting the U.S. standards with some modification or reconciliation, primarily in the culture of rule-based standard, a stringent application of accounting regulations. The purpose of this preliminary empirical research on the IFRS, primarily characterized as principal-based standard (difficult to circumvent provision in the

[1] UGSM-Monarch Business School, Switzerland.

form of transaction), in Canada, to investigate whether the adoption of the IFRS by the Canadian research and development companies enhances accounting reporting quality.

To examine this important quest, as demanded each time the IFRS is implemented in respective countries; this research has pursued a comparative approach.

That is, first, it study the pre-IFRS period (2008-2010) under the Canadian GAAP and then compared with the IFRS period (2011-2012), to understand the nature of the accounting quality, along the defined accounting quality attributes of the reported earnings, accruals, persistency, value relevance, predictability, income smoothing, timeliness loss of recognition, and reporting aggressiveness. Previous studies concerning the European countries have shown an overall increase in earnings management in the post-adoption period, documented by an increase in income smoothing and no significant change in managing earnings towards a target. The findings deriving from the measurement of timely loss recognition indicate that the IFRS adoption is associated with a decrease in the timeliness of the recognition of large losses and with a contemporaneous increase in the timeliness in recognizing economic losses relative to gains in the reported income. As for the value relevance tests, results highlighted that the IFRS adoption increases the combined value relevance of the book value and earnings in particular, outcomes of relative value relevance analysis highlighted that earnings markedly improve its ability to explain stock prices in the post-adoption period compared to the pre-adoption one (Paglietti, P., 2009).

It is evident that the financial reporting presentation under the IFRS is much more detailed in nature relative to the Canadian GAAP (despite similar principle-based framework as IFRS) and the United States GAAP (rule-based framework). That is, under the IFRS, statement of operations items are detailed in nature such as amortization, purchases of materials, transportation costs, employee benefits, advertising costs, cost of sales, and cost of distribution. It is theoretically believed that the adoption of the IFRS is associated with the earnings becoming timelier, more volatile and more informative, making their introduction beneficial for investors and shareholders. The two most frequently claimed benefits associated with IFRS adoption are an increase in information quality, and an increase in accounting comparability. The highest quality standard indicates a standard that either reduces managerial discretion over accounting choices that are inherently disallowed smoothing or overstatement of earnings. According to Ball (2006) and Choi and Meek (2005), IFRS has the potential to facilitate cross-border comparisons, increase reporting transparency, decrease information costs, reduce information asymmetry and thereby increase the liquidity, competitiveness and efficiency of the markets.

The properties of the accounting numbers such as earnings smoothness and magnitude of accruals are affected not only by the underlying economic determinants and the exercise of the managerial judgments but also by the nature of the accounting standards. For example, the IFRS permits capitalizing development expenditures that were expensed under many domestic accounting standards. This has the effect on increasing earnings and reducing earnings volatility. Similarly, IFRS requires goodwill impairment rather than systematic amortization. Again, this would increase accruals and earnings except during periods when goodwill is impaired. Another example of a potential significant change in accruals is recognition of employee benefit expenses that were not recognized prior to the IFRS adoption. This would reduce accruals and earnings but potentially increase smoothing. The broader point is that the adoption of certain standards could alter the properties of earnings without necessarily changing the accounting quality.

According to Schipper and Vincent (2003), earnings are important to a firm for the reason that they are used as a summary measure of the performance of a firm by a large variety of users. Persistency of the earnings is said to be persistent when they recur over time, or when they are sustainable or permanent. It also refers to the extent to which an innovation (unexpectedness) in the earnings series causes investors to revise their future earnings expectations (Boonlert, 2004). Researchers measure the persistency of earnings by looking at the explanatory power of the past earnings to present earnings.

When the past earnings are not associated with the present earnings, the earnings are not persistent or not recurring.

Predictability is defined as the ability of current earnings to predict future earnings and cash flows from operations. Current and also past earnings are the input to forecasting the future earnings/cash flows. Smoothness is measured by the amount of variability of the cash flow and the variability of earnings (Leuz et al., 2003).

Smoothness can be seen as a desirable earning attribute as managers use information about their future income to smooth out momentary fluctuations. This will give more representative reported earnings, as these earnings contain future information. Value relevance is determined by measuring the correlation between the income variables (e.g. EPS) and the market price per share. According to Lang (1991) it is proven that the stock prices can be explained as a multiple of earnings. Market prices follow earnings, i.e. changes in earnings will affect the market prices. The higher the explanatory power of the earnings, the more value relevant the earnings are. Since more value relevant earnings would describe the firm's asset price more accurately, earnings are judged to be of high quality when they are high value relevant. Warfield and Wild (1992) suggests that the market returns should lead annual earnings and have a predictive power over the investors. If earnings have a greater predictive power under IFRS they should be anticipated much more before the release of the annual report under IFRS than under Canadian GAAP.

II. Literature Review

According to Penman (2002), who stated that, the quality of the earnings is based on the earnings persistency, predictive ability of the earnings. They view that earnings are to be of high quality when the firm's past earnings are strongly associated with its future earnings. Other researchers view earnings to be of higher quality when earnings are value relevant, for example, the earnings are strongly associated with the security's price (Francis and Schipper, 1999). Voulgaris, Stathopoulos, and Walker (2011) believed that IFRS adds noise to accounting numbers that makes reported earnings less useful for evaluating managerial performance. This is mainly due to the adoption of the fair value accounting, which potentially makes accounting numbers more value-relevant, but also more volatile and sensitive to market movements. In addition, they believed that whilst the IFRS may have made accounting earnings more useful for stock market valuation purposes, this may have been achieved at the expense of other purposes that accounting serves, i.e., stewardship/performance contracting. In other words as accounting numbers are designed to conform more and more closely with market values, then the less they are able to provide information over what is complementary to market values for evaluating performance.

Similarly, Kim and Suh (1993) believed that if accounting numbers become more sensitive to market movements than the accounting related signals, provides little additional information about managing performance, as they no longer screen out market related noise. Moreover, the move to fair value accounting makes accounting earnings figures more volatile (Barth et al. 2011). If the increase in earnings volatility is driven by events almost entirely outside the control of management then this also reduces the attractiveness of the earnings, as a basis for performance-based contracts. Ball (2006) and Choi and Meek (2005) believed that the IFRS has the potential to facilitate cross border comparability, increase reporting transparency, decrease information costs, reduce information asymmetry and thereby increase the liquidity, competition and efficiency of markets. In addition, Ball (2006) notes that the fair value orientation of the IFRS could add volatility to the financial statements, in the form of both good and bad information, the latter consisting of noise which arises from inherent estimation error and possible managerial manipulation.

Ahmed, Neel, and Wang (2012) states that, the effects of the mandatory IFRS adoption on the accounting quality critically depend upon whether the IFRS is of higher or lower quality than domestic GAAP and how they affect the efficacy of enforcement mechanisms.

By a higher quality standard they mean a standard that either reduces managerial discretion over accounting choices or inherently disallows smoothing or overstatement of earnings. If IFRS is of higher quality than domestic GAAP, and they are appropriately enforced, then we expect mandatory adoption of IFRS to improve accounting quality.

On the other hand, if IFRS are of lower quality than domestic GAAP or if IFRS weaken enforcement (for example because of increased discretion or flexibility) then it would expect to reduce accounting quality. Thus, the impact of IFRS on the accounting quality is an empirical question. This is supported by Leuz, Nanda, and Wysocki (2003), Barth, Landsman, and Lang (2008), Christenson, Lee, and Walker (2008), and Chen, Tang, Jiang, and Lin (2010), who believed that accounting choices that result in greater income smoothing, greater management of earnings to meet a target, and overstatement of earnings (or delayed recognition of losses) as compromising faithful representation of the underlying economics therefore, reduce accounting quality. Similarly, Barth et al. (2008) presents three reasons why the adoption of the IFRS could lead to improvements in the accounting quality. First, the IFRS eliminates certain accounting alternatives thereby reducing managerial discretion.

This could reduce the extent of opportunistic earnings management and thus improve accounting quality (Ewert and Wagenhofer, 2005). Second, IFRS is viewed as principles-based standards and thus are potentially more difficult to circumvent. For example, under a principles-based standard it should be more difficult to avoid recognition of a liability through transaction structuring. Third, IFRS permits measurements such as, use of fair value accounting which may better reflect the underlying economics than domestic standards. At the same time, Barth et al. (2008) also note two reasons why the adoption of IFRS may reduce accounting quality. First, IFRS could eliminate accounting alternatives that are most appropriate for communicating the underlying economics of a business thus forcing managers of these firms to use less appropriate alternatives thus resulting in a reduction in accounting quality. Second, because IFRS is principles-based, they inherently lacked detailed implementation guidance and thus afford managers greater flexibility (Langmead and Soroosh, 2009). For some important areas such as revenue recognition for multiple deliverables, the absence of implementation guidance would significantly increase discretion and allowable treatments, depending upon how they are interpreted and implemented. Given managers' incentives to exploit accounting discretion to their advantage documented in prior studies such as Leuz et al. (2003), the increase in discretion due to lack of implementation guidance is likely to lead to more earnings management and thus lower accounting quality, ceteris paribus.

Ahmed, Neel, and Wang (2012) stated that previous studies focused on a number of institutional factors that have impacted accounting quality. The evidence in previous studies suggests that the accounting quality is generally higher in strong enforcement countries relative to weak enforcement countries. This in turn suggests that there may be systematic differences in the effects of the IFRS adoption in strong enforcement versus weak enforcement countries. However, it is very difficult to make definitive predictions because the change in accounting quality from the pre-IFRS periods to the post-IFRS periods depends upon: (i) whether the IFRS is of higher or lower quality than the domestic GAAP, for example, whether they increase or decrease overall managerial discretion; and (ii) on the efficacy of enforcement mechanisms. For strong enforcement countries, if IFRS is of higher quality than domestic GAAP and they are appropriately enforced, expect an improvement in accounting quality. For example, if IFRS eliminates accounting alternatives that were opportunistically used by the managers, elimination of these alternatives would improve the accounting quality.

They also believed that strong enforcement partition has a significantly higher average rule of law score. That is, firms in the strong enforcement partition have lower (higher) average total assets, book-to-market, growth rates, and leverage (market values) relative to the weak enforcement partition.

In addition, they believed that if the IFRS are of lower quality than domestic GAAP in the sense that they increase managerial discretion, accounting quality would decline even in strong enforcement countries given that managers have incentives to exercise their discretion in their own interests. Furthermore, the accounting quality may decline after the mandatory IFRS adoption because principles-based standards are looser, on average, than domestic standards and thus, more difficult to enforce. Nelson (2003) concludes that aggressiveness of reporting decisions increases with the imprecision of the relevant reporting standard, based on a survey-based research.

In addition, they believed that even in strong enforcement countries, relatively loose standards can result in more opportunistic choices. This is supported by Paananen and Lin (2008), who find that evidence of a decline in accounting quality in Germany, strong enforcement country, after the mandatory IFRS adoption. Ball (2006) believes that in the absence of suitable enforcement mechanisms, real convergence and harmonization is infeasible, resulting in diminished comparability. Collectively, these studies suggest that loose standards can lead to a decline in accounting quality even in strong enforcement countries. On the other hand, in the weak enforcement countries, previous research studies such as of Leuz et al. (2003), Burgstahler et al. (2006), Holthausen (2009), and Hope (2003) argue that rules or standards are generally not effective, that is, without adequate enforcement, even the best accounting standards will be inconsequential. Extending this logic, even if the IFRS is of a higher quality than a domestic GAAP, they are unlikely to result in improvements in accounting quality in weak enforcement countries because they are unlikely to be properly enforced. Therefore, do not expect a change in accounting quality after the mandatory IFRS adoption for firms in weak enforcement countries. Armstrong et al. (2009) and Soderstrom and Sun (2007) believed that cultural, political and business differences may also continue to impose significant obstacles in the progress towards this single global financial communication system, since a single set of accounting standards cannot reflect the differences in the national business practices arising from differences in the institutions and cultures.

Ahmed, Neel, and Wang (2012) also finds in their study that there is an increase in income smoothing for the IFRS firms relative to benchmark firms after the mandatory IFRS adoption. Specifically, they find a significant decrease in the volatility of net income, the volatility of net income relative to the volatility of cash flows, and the correlation between cash flows and accruals for the IFRS firms relative to benchmark firms. Second, they find evidence of a significant increase in aggressive reporting of accruals for the IFRS firms relative to benchmark firms. Third, they find evidence of a significant reduction in timeliness of loss recognition for the IFRS firms relative to benchmark firms consistent with the increase in reporting aggressiveness suggested by the accrual tests. Finally, they believed that their evidence is consistent with meeting or beating earnings targets after controlling for variable, management, in benchmark firms.

In addition, they stated that while the evidence is not fully consistent across all proxies, taken together the results suggest that the accounting quality decreased after the mandatory IFRS adoption. Ball et al. (2000) finds that timeliness of loss recognition decreases significantly after the mandatory IFRS adoption relative to benchmark firms. Similarly, Paananen (2008) and Paananen and Lin (2008) find in their results that there is a decrease in financial reporting quality, an increase in earnings management, and a reduction in timeliness of loss recognition in Germany, following mandatory IFRS. Jeanjean and Stolowy (2008) finds no decline in the pervasiveness of the earnings management in Austria and UK but an increase in France. Christensen et al. (2008) finds that the incentives dominate standards in determining accounting quality around mandatory IFRS adoption.

Daske et al. (2008) shows that the capital market benefits around the mandatory adoption of the IFRS are unlikely to exist primarily because of IFRS adoption. Daske (2006) finds no evidence that the IFRS adoption decreases a firm's cost of capital. Atwood et al. (2010) finds that the earnings reported under the IFRS are no more or less persistent and are no more or less associated with the future cash flows than earnings reported under the local GAAP.

In addition, they suggest that the documented increase in analyst forecast accuracy following the IFRS is not the result of the differences in the underlying persistence of those earnings. Barth et al. (2008) shows that the voluntary adoption of the IFRS is associated with less earnings management (i.e. less earnings smoothing), timelier loss recognition and higher value relevance of accounting earnings. Hung and Subramanyam (2007) reaches similar conclusions about accounting quality for German voluntary adopters between 1998 and 2002. Horton, Serafeim, and Serafeim (2012) finds that forecast accuracy improves significantly after the mandatory IFRS adoption relative to firms that do not adopt IFRS.

In addition, the larger the difference between IFRS and local GAAP earnings the larger is the improvement in forecast accuracy, increasing the confidence that it is the IFRS adoption that causes the improvement in the information environment. Forecast accuracy improves more for analyst-firm pairs that are affected by either information or comparability benefits. Overall, they find that the increase in forecast accuracy is driven by manipulation.

III. Research Methodology

This research is an empirical comparative study between Canadian GAAP (2008-2010) and IFRS (2011-2012) periods, to understand the effect of IFRS adoption on the Canadian research and development companies that are listed on the Toronto Stock Exchange (TSX), in terms of accruals and research and development quality reporting. Fielding and Fielding (1986, pp. 34) stated that: "what is important is to choose at least one method which is specifically suited to explore structural aspects of the problem and at least one which can capture the essential elements of its meaning". This research study requires collecting, counting, and classifying data, and performing analyses on statistical findings. It requires a process to include a method of deductive reasoning by the use of the measurement tools to collect the relevant data. In addition, it requires only establishing associations among variables using effect statistics such as correlations.

As such, the quantitative research method will be selected for this research study. Bryman (1989) explained that the quantitative research method tests hypotheses and identifies patterns in variables whereas the qualitative method validates corporate information and informs some of the methodological decisions. With its origins in the scientific empirical tradition, the quantitative approach relies on the numerical evidence to draw conclusions, to test hypotheses or theory, and is concerned with: measurement, causality, generalization, and replication. Burns (2000) believed that the quantitative research method is infused with positivism and is based on a collection of quantifiable observations, which permits deduction of the laws and the establishment of relationships. In addition, Creswell (2009) stated that if problem calls for identification of factors that influence an outcome, the utility of an intervention, or understanding clear outcomes, then a quantitative approach is most suitable. Within a quantitative research method framework, longitudinal survey method will be adopted to collect five years of data from 2008 to 2012.

According to Zanaida and Fernando (2000), longitudinal design is seldom used in social science research; however, it is typically within financial investigations that have adopted positivist research philosophy. Buck et al. (2003) and McKnight and Tomkins (2004) believed that financial research is very typical for a positivist investigation. This is supported by Main & Johnson (1993), who believed that companies' annual reports are a common resource tool when examining archival data.

Accordingly, this study will collect financial data of companies from highly credible SEDAR (represents the Canadian Securities Commission) database. The sample will consist of 5 firms from the TSX/S&P index. The random sample method will be selected for this research study to avoid selection bias, as it is the purest form of probability sampling. Yates (2008, p. 27) believed that an unbiased random selection of individuals is important so that in the long run sample represents the population.

The surveys are believed to be useful when a researcher wants to collect data on phenomena that cannot be directly observed. It is a non-experimental, descriptive research method. Groves et al. (2004, pp. 4) stated: "survey is a systematic method for gathering information from (a sample of) entities for the purpose of constructing quantitative descriptors". As such, this research study will use the survey method to collect data from 2008 to 2012. The use of the regression models is a technique used for the modeling and analysis of the numerical data consisting of values of a dependent variable (or response variable) and independent variables predictor or explanatory variable. Regression is a tool for determining causal relations between two or more variables. The regression coefficient gives the strength of this relation.

When the regression is 1, the dependent variable is entirely explained by the independent variable, if the regression is 0, there is no relation whatsoever between the two variables. The regression equation shows how the dependent variable is explained by the independent variable. The strength of this relation is indicated by the regression coefficient or R^2 (Larsen and Marx, 2001). The F-test value indicates if there is evidence that the independent variable (in the case of the value relevance model these are the reported earnings, which will try to explain the market return) is linearly associated with the dependent variable (the market return in the value relevance attribute). The larger this F-statistic, the more useful the model. The critical value for the test depends on the sample size, i.e. the degree of freedom, and of course the arbitrary confidence interval. For this research, a confidence interval, or alpha, is chosen to be 5%, which is very typical in academic research.

Statistical Models:

This research study will try to understand the accounting quality through following:

Statement of Operations (Income Statement or Profit/Loss) approach:

$$\Delta NI = \Delta EPS + \Delta BVPS + \Delta MP + \Delta OCF + \Delta Accruals + \Delta R\&D$$

Where:
NI=Net income; TA=Total Assets; OCF=Operating Cash Flow; EPS=Earnings per share; BVPS=Book value per share; MP=Market price; R&D=Research and development

Regression Model 1 (Statement of Operations approach)

$$Y_1 = c + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + \epsilon$$

$Y_2 = \Delta NI$; c=constant predictor; B_1=influential factor for ΔEPS; B_2=influential factor for $\Delta BVPS$; B3=influential factor for ΔMP; B_4=influential factor for ΔOCF; B_5=influential factor $\Delta Accruals$; B_6=influential factor $\Delta R\&D$; ϵ=error; X_1=value of ΔEPS; X_2=value of $\Delta BVPS$; X_3=value of ΔMP; X_4=value of ΔOCF; X_5=value of $\Delta Accruals$; X_6=value of $\Delta R\&D$. Confidence level (α) was set at 5 percent.

Δ in NI is a dependent variable and represents the macro effect or added value to equity component. Δ in EPS is an independent variable and represents earnings persistency and predictability through net income and shares outstanding, provided shares does not change materially to influence EPS. Δ in BVPS is an independent variable and represents the accounting value for the shareholders. Δ in MP is an independent variable and represents a fair value measurement of the firm. Δ in OCF is an independent variable and represents operating capabilities and future cash earnings.

Δ in Accruals is an independent variable and represents reporting aggressiveness and income smoothing. Δ in R&D is an independent variable and represents the expenditure impact on the net result.

Research question

Does IFRS adoption improve accounting quality in research and development companies?

Hypotheses:

H_0: Adoption of the IFRS has decreased the accounting quality in research and development companies from 2011 to 2012.

H_1: Adoption of the IFRS has increased the accounting quality in research and development companies from 2011 to 2012.

IV. Results

Correlations: Statement of Operations Approach

Table 1: Correlations

Canadian GAAP vs. IFRS		Δ NI 08-10	Δ NI 11-12	Δ in EPS 08-10	Δ in EPS 11-12	Δ in BVPS 08-10	Δ in BVPS 11-12	Δ in MP 08-10	Δ in MP 11-12	Δ in OCF 08-10	Δ in OCF 11-12	Δ in Accruals 08-10	Δ in Accruals 11-12	Δ in R & D 08-10	Δ in R & D 11-12
Pearson Correlation	Δ in NI	1.000	1.000	.991	.108	.214	.070	.870	.196	.429	.439	.614	-.527	-.393	-.085
	Δ in EPS	.991	.108	1.000	1.000	.203	.622	.894	.666	.466	-.143	.588	.187	-.354	-.274
	Δ in BVPS	.214	.070	.203	.622	1.000	1.000	-.135	.951	-.392	-.114	.202	.153	-.091	-.154
	Δ in MP	.870	.196	.894	.666	-.135	.951	1.000	1.000	.569	.008	.371	.074	-.165	-.190
	Δ in OCF	.429	.439	.466	-.143	-.392	-.114	.569	.008	1.000	1.000	.107	-.413	-.092	-.114
	Δ in Accruals	.614	-.527	.588	.187	.202	.153	.371	.074	.107	-.413	1.000	1.000	-.019	.397
	Δ in R & D	-.393	-.085	-.354	-.274	-.091	-.154	-.165	-.190	-.092	-.114	-.019	.397	1.000	1.000

The above table 1 had shown the correlation results for the Canadian GAAP (pre-IFRS) period from 2008 to 2010 and the IFRS period from 2011 to 2012. Δ in EPS had changed from .991 under Canadian GAAP period to .108 under IFRS period, indicated that differences with respect to the persistency and predictability were found significant concerning the reported earnings under the Canadian GAAP and IFRS. Although these results at first sight had shown that under IFRS earnings exhibited significantly lower persistency and predictability, perhaps due to the use of fair value accounting under IFRS period had created volatility. Therefore, these attributes had shown accounting quality had significantly declined under IFRS in R&D companies. According to Schipper and Vincent (2003), permanent and less transitory earnings are more useful to the valuation process of a company, the earnings are judged to be of high (information) quality when they are highly persistent.

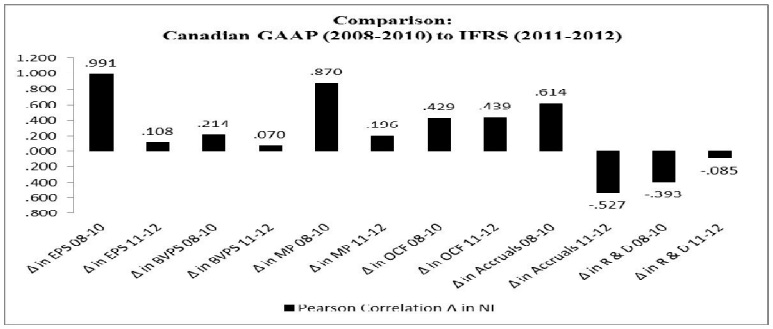
Δ in BVPS had changed from .214 under Canadian GAAP period to .07 under IFRS period, indicated that under IFRS earnings had weakly influenced the book value per share for shareholder value, therefore, the quality of accounting had declined. Δ in MP had changed from .870 under Canadian GAAP period to .196 under IFRS period, indicated that under IFRS, the market price movement is less volatile or sensitive, therefore reported earnings were less useful under IFRS period. Δ in OCF had changed from .429 under Canadian GAAP period to .439 under IFRS period, indicated that operating capability and future cash earnings had slightly increased under the IFRS accounting as such provided positive cash predictability or financial cash outlook, and perhaps less manipulation of income by the management. Δ in Accruals had changed from .614 under Canadian GAAP period to -.527 under IFRS period, indicated that under IFRS, had increased accruals (decreased income smoothing, timely loss recognition, and reduced certain accounting incentives) therefore, increase in accounting quality.

This result was similar to Barth et al. (2008) results, who found that the voluntary adoption of the IFRS is associated with less earnings management (i.e. less earnings smoothing), timelier loss recognition and higher value relevance of accounting earnings. Δ in R&D expenditures had changed from -.393 under Canadian GAAP period to -.085 under IFRS period, indicated that under IFRS, had reduced the R&D expenditures in the net income model perhaps due to recording lesser direct "expensed" vs. capitalization. It is believed that the properties of accounting numbers such as earnings smoothness and magnitude of accruals are affected not only by the underlying economic determinants and exercise of managerial judgments but also by the nature of accounting standards.

For example, the IFRS permits capitalizing development expenditures that were expensed under many domestic accounting standards. This has the effect of increasing earnings and reducing earnings volatility. Similarly, the IFRS requires goodwill impairment rather than systematic amortization. Again, this would increase accruals and earnings except during periods when goodwill is impaired. Another example of a potentially significant change in accruals is recognition of employee benefit expenses that were not recognized prior to IFRS adoption. This would reduce accruals and earnings, but potentially increase smoothing.

The broader point is that the adoption of certain standards could alter the properties of earnings without necessarily changing accounting quality. Following figure 1 is the comparative results as discussed:

Figure 1



Regression Coefficients:

Statement of Operations Approach

Canadian GAAP: $Y_{2008\text{-}2010}$=.169+.660X_1+.008X_2+302X_3-.013X_4 +.016X_5-.068X_6 (Table 4 in appendix B)

IFRS: $Y_{2011\text{-}2012}$=-.624+.077X_1-.025X_2+.239X_3+.057X_4-.162X_5+.325X_6

(Table 4 in appendix B)

The regression coefficients under the statement of operations approach for the IFRS period in the table 4 (appendix B), it was found that B_4 and B_6 were higher relative to the Canadian GAAP indicated that these betas were significant in the regression, providing much clearer evidence that positive shocks were transitory for the IFRS firms. However, it was found that B_1, B_2, B_3, and B_5 were lower, negative transitory shocks, relative to the Canadian GAAP. According to Brauer and Westermann (2010), who stated that a negative coefficient on the betas would imply a smooth (non-oscillating) impulse-response pattern. The larger the B, the faster is the reversion to the mean. B_1 (ΔEPS), B_3 (ΔMP), B_4 (ΔOCF), and B_6 (ΔR&D) were > 0 indicated that, positive influence to earnings predictability, fair market valuation, cash predictability, and research and development expenditures.

B_2 (ΔBVPS) and B_5 (ΔAccruals) were < 0, indicated that increased or decreased shareholder value had a reverse impact on the regression model; and negative losses had been recognized more timely than gains, "a smooth (non-oscillating) impulse-response pattern"[2]. In addition, , in the IFRS regression model. The F-tests results (large numbers characterized statistical model's usefulness) as provided in the table 3 (appendix A), had shown that the IFRS model (p >.05) was not valid relative to Canadian GAAP model. That is, the Canadian regression models had a relationship between dependent and independent variables than IFRS regression model.

Table 2

Model Summaryb Canadian (2008-2010)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.994[a]	.988	.979	.17633	.988	109.889	6	8	.000	.728

Model Summaryb IFRS (2011-2012)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.686[a]	.470	-.590	.62866	.470	.443	6	3	.818	1.647

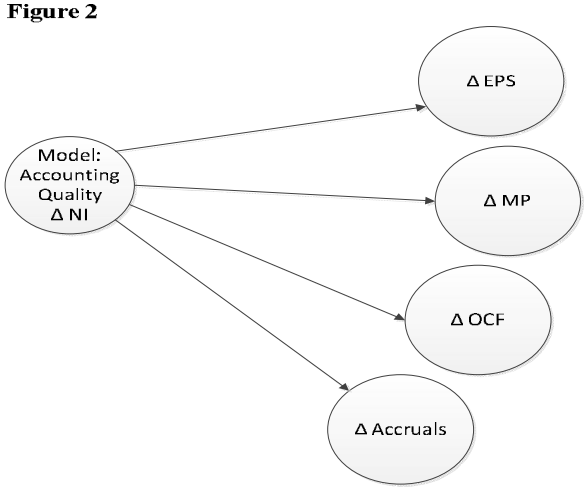
a. Predictors: (Constant), Δ in Accruals, Δ in BVPS, Δ in MP, Δ in OCF, Δ in EPS

b. Dependent Variable: Δ in NI

The above table 2, under the Canadian GAAP period, had shown average R^2 for the timeliness of 98.8%; and under IFRS GAAP period, had shown average R^2 for the timeliness of 47.0%, indicated that higher persistent earnings under Canadian GAAP than under IFRS. That is, the predictive value of earnings, represented by the variance in the persistency of the earnings had a high certainty (low degree of variance) in the future earnings, under Canadian GAAP. Therefore, IFRS model relating to R&D companies was weak (less predictive value of earnings). Beijerink (2008) found in his research that both IFRS and US-GAAP earnings were highly persistent, that is, R^2 of 82.6% for the IFRS pooled sample relative to 65.9% for the US-GAAP pooled sample. In the research of Jennings (2003) the researchers found similar results for the timeliness. However, Francis et al. (2004) found an average R^2 for the timeliness of 21.9% for the sample consisting of a large number of US firms for the period 1975-2001.

[2] Brauer and Westermann (2010)

Figure 2



The above figure 2 is the derived statistical models for the accounting quality resulted from the correlation results. That is, the accounting quality can be determined through the application of variables in the respective models for accruals (income smoothing and timeliness loss recognition); reporting aggressiveness; earnings persistency; value relevance; predictability; managerial discretion; and enforcement.

Vi. Conclusion

Globally, the use of the IFRS in financial reporting is the requirement for many countries, primarily due to the influence of investors/shareholders demand, cost minimization in financial reporting, security listings requirements, foreign investments, free trade, and global competition. However, the question of whether such a global transition towards a single set of accounting standards has been met by the presumed benefits of higher accounting quality and comparability yet remains unanswered. To contribute to our knowledge in this important topic I have investigated whether mandatory IFRS adoption in the Canadian research and development companies improves firms' accounting quality. This research finds that lower persistency and predictability in earnings; decrease in earnings influence to shareholder value; weak volatility in market price; better predictability of cash flow and financial forecasts; increase in accruals and timeliness loss of recognition; and decrease in research and development expenditures. Following table 5 summarizes the results:

Table 5: Summary of Accounting Quality Regression Results under IFRS relative to Canadian GAAP	
Δ EPS	Lower persistency and predictability in earnings; lower accounting quality under IFRS.
ΔBVPS	Decrease in earnings influence to shareholders value; lower accounting quality under IFRS.
ΔMP	Earnings provide weaker volatility to market price; lower accounting quality under IFRS.
ΔOCF	Better predictability of cash flow and financial forecasting; higher accounting quality under IFRS.
ΔAccruals	Increase in accruals; increase accounting quality under IFRS.
ΔR&D	Decrease in R&D expenditures; no direct effect on accounting quality under IFRS.

Moreover, this research finds no evidence suggesting that the decrease in earnings forecast accuracy is driven by earnings manipulation, as have an increased correlation between earnings and market price. Overall, this research concludes that accounting quality has been affected both positively and negatively after mandatory IFRS adoption, in contrast to previous studies that document evidence suggesting an increase or decrease in accounting quality after IFRS adoption. The quality of the accounting information is very often determined by the quality of the reported earnings. For this matter, researchers have made the quality of accounting information empirically operations by developing several attributes in order to determine the earnings quality. Because earnings can be decomposed into cash flows and accruals, several researchers use accruals quality to draw conclusions about the earnings quality (Dechow, Dichev, 2002, and Francis et al., 2004). On the other hand, Richardson (2003) interprets the quality of earnings when earnings are persistent, predictive ability of the earnings. They view that earnings be of high quality when a firm's past earnings are strongly associated with its future earnings. Other researchers view earnings to be of higher quality when earnings are value relevant, i.e. the earnings are strongly associated with the security's price (Francis and Schipper, 1999). This research finds that the results are consistent with both information and comparability effects between the two approaches of the statement of operations and the statement of financial position, as illustrated in the above table. Forecast accuracy improves for both liquidity and earnings.

Overall, this research concludes after the adoption of the IFRS, the accounting quality has a mixed influence on the financial reporting of the Canadian research and development companies.

References

Ahmed, A. S., M. J. Neel, and D. Wang. 2010, Does mandatory adoption of IFRS improve accounting quality? Preliminary evidence. Working paper, available at http: . . ssrn.com abstract=1502909, retrieved July 26, 2011.

Armstrong, C. S., M. Barth, A. Jagolinzer, and E. Riedl (2010), Market reaction to the adoption of IFRS in Europe, Accounting Review, 85 (1), 31-61.

Ashbaugh, H., and M. Pincus (2001), Domestic accounting standard, international accounting standards, and the predictability of earnings, Journal of Accounting Research, 39, 417–434.

Ball, R., Shivakumar, L. (2005), Earnings quality in UK private firms: comparative loss recognition timeliness, Journal of Accounting & Economics, 39, 83-128.

Ball, R. (2006), International financial reporting standards (IFRS): Pros and cons for investors, Accounting and Business Research (International Accounting Policy Forum), 5−27.

Ball, R., S. P. Kothari, and A. Robin (2000), The effect of international institutional factors on properties of accounting earnings, Journal of Accounting and Economics, 29 (1), 1-51.

Barth, M., W. Landsman, and M. Lang (2008), International accounting standards and accounting quality, Journal of Accounting Research, 46 (3), 467-98.

Basu, S. (1997), The conservative principle and the asymmetric timeliness of earnings. Journal of Accounting and Economics, 24 (1), 3-37.

Bryman, A. and Bell, E. (2003), Business Research methods. New York, Oxford University Press.

Buck, T., Bruce, A., Main, B. G. M., and Udueni, H. (2003), 'Long term incentive plans, executive pay and UK company performance', Journal of Management Studies, Vol. 40: 7, pp. 1709-1727.

Burgstahler, D., L. Hail, and C. Leuz (2006), The importance of reporting incentives: Earnings management in European private and public firms, The Accounting Review, 81 (5), 983-1016.

Burns, Robert E. (2000), Introduction to Research Methods. Sage Publications Ltd., 4th Edition.

Chen, H., Q. Tang, Y. Jiang, and Z. Lin (2010), The role of international financial reporting standards in accounting quality: Evidence from the European Union, Journal of International Financial Management & Accounting, 21 (3), 220-278.

Choi, F.D.S., and G. Meek (2005), International Accounting, 5th Edition, Prentice-Hall.

Christensen, H., E. Lee, and M. Walker (2008), Incentives or standards: What determines accounting quality changes around IFRS adoption? Working paper, University of Minnesota.

Christensen, H., E. Lee, and M. Walker (2009), Do IFRS reconciliations convey information? The effect of debt contracting, Journal of Accounting Research, 47, 1167–1199.

Creswell, John W. (2009), Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, 3rd Edition, Los Angeles, Sage Publications Inc.

Daske, H. L. (2006), Economic benefits of adopting IFRS or US GAAP – How the expected cost of equity capital really decreased?, Journal of Business Finance & Accounting, 33 (3-4), 379-373.

Daske, H., L. Hail, C. Leuz, and R. Verdi (2008), Mandatory IFRS reporting around the world: Early evidence on the economic consequences, Journal of Accounting Research 46 (5), 1065-142.

Ewert, R., and A. Wagenhofer (2005), Economic effects of tightening accounting standards to restrict earnings management, The Accounting Review, 80 (4), 1101-24.

Fielding, Nigel G., and Fielding , Jane L. (1985), Linking Data, Qualitative Research Methods, 4, 96-101.

Francis, J., R. LaFond, P. Olsson, and K. Schipper (2005), The market pricing of accruals quality, Journal of Accounting and Economics, 39 (2), 295–327.

Holthausen, R.W (2009), Accounting Standards, Financial Reporting Outcomes, and Enforcement, Journal of Accounting Research, 47 (2): 447-458.

Hope, O. (2003), Disclosure practices, enforcement of accounting standards, and analysts' forecast accuracy: An international study, Journal of Accounting Research, 41 (2), 235-272.

Horton, J., G. Serafeim, and I. Serafeim, (2013), Does mandatory IFRS adoption improve the information environment?, Harvard Business Review, 1-58.

Hung, M., and K.R. Subramanyam (2007), Financial statement effects of adopting International Accounting Standards: the case of Germany, Review of Accounting Studies, 12(4), 623–657.

Jeanjean, T., and H. Stolowy (2008), Do accounting standards matter? An exploratory analysis of earnings management before and after IFRS adoption, Journal of Accounting and Public Policy, 27 (6), 480–94.

Kim, O. and Suh, Y. (1993), Incentive efficiency of compensation based on accounting and market performance, Journal of Accounting and Economics, July, 25-53.

Lang, M., J. Raedy, and W. Wilson (2006), Earnings management and cross listing: Are reconciled earnings comparable to U.S. earnings?, Journal of Accounting and Economics, 42(1/2), 255-283.

Langmead, J. M., and J. Soroosh (2009), International financial reporting standards: The road ahead, CPA Journal, 79 (3), 16−24.

Leuz, C., D. Nanda, and P. D. Wysocki (2003), Earnings management and investor protection: An international comparison, Journal of Financial Economics, 69, 505−27.

Main, Brian G. M. and Johnston, J, (1993), Remuneration Committees and Corporate Governance Accounts, Accounting and Business Research, 23 (9), 357-362.

McKnight, P. J. and Tomkins, C. (1999), Top executive pay in the United Kingdom: a corporate governance dilemma, International Journal of the Economics of Business, 6 (2), 223-243.

Nelson, Mark W., Elliott, John A., Tarpley, L. (2003), How are earnings managed? Examples from auditors, Accounting Horizons, Supplement, 17-35.

Paananen, M (2008), Fair value accounting for goodwill under IFRS: An exploratory study of the comparability in France, Germany, and the United Kingdom, Working paper, available online at SSRN: http://ssrn.com/abstract=1275803, retrieved July 26, 2011.

Paananen, M., and C. Lin (2007), The development of accounting quality of IAS and IFRS over time: The case of Germany, Working paper, University of Hertfordshire.

Schipper, K., and L. Vincent (2003), Earnings quality, Accounting Horizons, 17, (Supplement), 97-110.

Soderstrom, N., and K. Sun (2007), IFRS adoption and accounting quality: A review, European Accounting Review, 16 (4), 675−702.

Voulgaris, G., K. Stathopoulos, and M. Walker (2011), IFRS and the Use of Accounting-basedPerformance Measures in Executive Pay, Working paper, University of Edinburgh.Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1883249.

Warfield, T. andWild, J. (1992), Accounting Recognition and the Relevance of Earnings as an Explanatory Variable for Returns, The Accounting Review, 67 (4), 821-842.

Yates, Daniel S. (2008), The Practice of Statistics, 3rd edition.

Zenaida, R and Fernando, Rajulton (2000), Theoretical and Analytical Aspects of Longitudinal Research, PSC Discussion Papers Series, 14 (5), Article 1.

Appendices

Appendix A:

Table 3

ANOVAa Canadian GAAP (2008-2010)						ANOVAa IFRS (2011-2012)					
	Sum of Squares	df	Mean Square	F	Sig.		Sum of Squares	df	Mean Square	F	Sig.
Regression	20.501	6	3.417	109.889	.000[b]	Regression	1.052	6	.175	.443	.818[b]
Residual	.249	8	.031			Residual	1.186	3	.395		
Total	20.750	14				Total	2.237	9			

a. Dependent Variable: Δ in NI to TA

b. Predictors: (Constant), Δ in EPS to MP, Δ in OCF to Accruals, Δ in NI to OCF, Δ in OCF to TA, Δ in NI to Accruals

Appendix B:

Table 4

Coeffficients: Canadian GAAP (2008 -2010)						Coeffficients: IFRS (2011 -2012)					
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta				B	Std. Error	Beta		
(Constant)	.169	.108		1.574	.154	(Constant)	-.624	.370		-1.687	.190
Δ in EPS	.660	.294	.730	2.244	.055	Δ in EPS	.077	.231	.207	.335	.760
Δ in BVPS	.008	.015	.055	.544	.602	Δ in BVPS	-.025	.071	-.528	-.348	.751
Δ in MP	.302	.433	.175	.698	.505	Δ in MP	.239	.593	.648	.403	.714
Δ in OCF	-.013	.080	-.010	-.160	.877	Δ in OCF	.057	.139	.205	.413	.707
Δ in Accruals	.016	.013	.108	1.220	.257	Δ in Accruals	-.162	.157	-.549	-1.037	.376
Δ in R & D	-.068	.050	-.099	-1.347	.215	Δ in R & D	.324	.632	.255	.512	.644

a. Dependent Variable: Δ in NI