

Full Length Research Paper

Review of international accounting information systems

Jeno Beke

Department of Accounting and Finance, Institute of Business and Management, Faculty of Business and Economics, University of Pécs, Hungary. E-mail: bekej@ktk.pte.hu.

Accepted 29 July, 2010

This paper traces the benefits of international accounting information systems-their contribution to standardization and harmonization by purposing and tasking for business management. In this review, the goal is to describe and summarize how the accounting information system can help management decisions and influence the business environment in a global scale. The unified, standardized accounting information system will lead to new types of analysis and data, furthermore with the possible integration of new indicators from the business management practice of certain countries. The purpose of this study was the measuring the differences between the national rules and the international methods by countries, then the valuing and analyzing their effects on the business environments. The study showed that both businesses earnings and stock returns effect on the management turnover. The businesses with lower labour productivity compared to their industry peers have greater incentives to adopt international accounting system. However, the results on turnover are sensitive to this change in variable specification. So the increase in the sensitivity of turnover to accounting performance post-adoption is primarily driven by heightened turnover sensitivity to accounting losses. The empirical results could be the author's suggestions for business management.

Key words: International information systems, accounting standards, harmonization, economic effects.

INTRODUCTION

In this review, the goal is to describe and summarize how the accounting information system can help management decisions and influence the business environment in a global scale. The unified, standardized accounting information system will lead to new types of analysis and data, furthermore with the possible integration of new indicators from the business management practice of certain countries. Historically, standardization of the international accounting information systems has tended to follow the integration of the markets served by the accounts. For example, the move to unified national accounting system in the US in the early 20th century followed the integration of the national economy. Similarly the present impetus for global accounting standards follows the accelerating integration of the world economy. Without the common accounting standards the cross-border portfolio and direct investment may be distorted, the cross-border monitoring of management by shareholders obstructed, and the cross-border contracting inhibited and the cost of these activities may

be needlessly inflated by complex translation (Meeks and Swann, 2009).

In case such multinational companies like Daimler Chrysler owning more than 900 subsidiaries, operating on 5 continents in more than 60 counties, the published financial results according to international standards is 1.5 times of the one according to German accounting standards. If earning after taxation (EAT) - deducted actual tax burdens - according to US Generally Accepted Accounting Principles (GAAP) is taken as 100 percent, due to differences between national accounting standards, EAT would be 25% more in UK, 3% less in France, 23% less in Germany and 34% less in Japan (Barth et al., 2007).

The purpose of the use of international accounting information system is that a single set of standards ensures similar transactions are treated the same by companies around the world, resulting in globally comparable financial statements. However, using the accounting standards consistently by firms we will find

that they are changeable, because they are depend on the varying economic, political, and cultural conditions in one state. Accounting standard-setters and regulators around the globe are planning to harmonize accounting standards with the goal of creating one set of high-quality accounting rules to be applied around the world (Whittington, 2008).

With increasing globalization of the marketplace, international investors need access to financial information based on harmonized accounting standards and procedures. Investors constantly face economic choices that require a comparison of financial information. Without harmonization in the underlying methodology of financial reports, real economic differences cannot be separated from alternative accounting standards and procedures. Harmonization is used as a reconciliation of different points of view, which is more practical than uniformity, which may impose one country's accounting point of view on all others. Organizations, private or public, need information to coordinate its various investments in different sectors of the economy. With the growth of international business transactions by private and public entities, the need to coordinate different investment decisions has increased. The first argument for the harmonization of accounting information systems is the existence of the multinational companies, who invest enormous efforts into the preparation of their financial reports in order to comply with the national standards. For these companies life would be much easier if the same rules would be applied to their subsidiaries all around the world. On the other hand this would be profitable for the investors as well as they could compare the enterprises' results without difficulties, which would spare both money and other resources for them. This would also lead to the reduction of the information diversity between managers and investors. The information diversity is a costly and can be blamed for the decrease of the managers' bonus, the increase of the equity's cost and the inaccuracy of the economical and the financial forecasts.

LITERATURE REVIEW

Prior researches have raised substantial doubt regarding whether a global accounting information system would result in comparable accounting around the world. But differences in accounting practices across countries can result in similar economic transactions being recorded differently. International accounting literature provides evidence that accounting quality has economic consequences, such as costs of capital (Leuz and Verrecchia, 2000), efficiency of capital allocation (Bushman and Piotroski, 2006) and international capital mobility (Guenther and Young, 2002). Prior researches (e.g. Meeks and Meeks, 2002) have raised substantial

doubt regarding whether a global accounting standard would result in comparable accounting around the world. But differences in accounting practices across countries can result in similar economic transactions being recorded differently. This lack comparability complicates cross-border financial analysis and investment.

One study (Epstein, 2009) compared characteristics of accounting amounts for companies that adopted International Financial Reporting Standards (IFRS) to a matched sample of companies that did not, and found that the former evidenced less earnings management, more timely loss recognition and more value relevance of accounting amount than the latter did. They found, that IFRS adopters had a higher frequency of large negative net income and generally exhibited higher accounting quality in the post-adoption period than they did in the pre-adoption period. The results suggested an improvement in accounting quality associated with using IFRS.

Another study (Barth et al., 2007) found that first time mandatory adopters experience statistically significant increases in market liquidity and value after IFRS reporting becomes mandatory. The effects were found to range in magnitude from 3 to 6% for market liquidity and from 2 to 4% for company by market capitalization to the value of its assets by their replacement value.

Daske et al. (2007) also found that the capital market benefits were present only in countries with strict enforcement and in countries where the institutional environment provides strong incentives for transparent filings. In the order IFRS adoption countries, market liquidity and value remained largely unchanged in the year of the mandate. In addition, the effects of mandatory adoption were stronger in countries that had larger differences between national GAAP and IFRS, or without a pre-existing convergence strategy toward IFRS reporting. The increased transparency promised by IFRS also could cause a similar increase in the efficiency of contracting between firms and lenders. In particular, timelier loss recognition in the financial statements triggers debt covenants violations more quickly after firms experience economic losses that decrease the value of outstanding debt (Ball and Shivakumar, 2005; Ball and Lakshmann, 2006).

Accounting theory argues that financial reporting reduces information asymmetry by disclosing relevant and timely information (Frankel and Li, 2004). Because there is considerable variation in accounting quality and economic efficiency across countries, international accounting systems provide an interesting setting to examine the economic consequences of financial reporting. The European Unions (EU's) movement to IFRS may provide new insights as firms from different legal and accounting systems adopt a single accounting standard at the same time. Improvement in the information environment following change to IFRS is contingent on at least two factors, however. First, improvement is based

upon the premise that change to IFRS constitutes change to a GAAP that induces higher quality financial reporting. For example, Ball et al. (2006a) find that firms adopting IFRS have less earnings management, more timely loss recognition and more value relevance of earnings, all of which they interpret as evidence of higher accounting quality. Second, the accounting system is a complementary component of the country's overall institutional system (Ball et al., 2006b) and is also determined by firms' incentives for financial reporting. La Porta et al. (1998) provide the first investigation of the legal system's effect on a country's financial system. They find that common law countries have better accounting systems and better protection of investors than code law countries. Other factors associated with financial reporting quality include the tax system (Daske and Gebhardt, 2006), ownership structure (Jermakovicz et al., 2007; Burgstahler et al., 2006), the political system (Leuz et al., 2006), capital's structure and capital market development (Ali et al., 2000). Therefore, controlling for these institutional and firm-level factors becomes an important task in the empirical research design. As a result of the interdependence between accounting standards and the country's institutional setting and firms' incentives, the economic consequences of changing accounting systems may vary across countries. Few papers have examined how these factors affect the economic consequences of changing accounting standards. For example, Pincus et al. (2007) find that accrual anomaly is more prevalent in common law countries. Maskus et al. (2005) found that accounting quality is associated with tax reporting incentives. Exploration of the interaction between these factors and the accounting information system can provide insights into differences in the economic consequences of changing accounting principles across countries.

To sum up, according to studies regarding the adoption of IFRS, the companies that adopted IFRS needed to spend less time with earnings management and recognized loss more timely. These companies also experienced an improvement in their accounting quality. The adoption of IFRS also raised market liquidity and the value of the company. But we also have to add that these positive effects can be experienced mostly in those countries where the institutional background is appropriate. To be sure, arriving at accounting standards that promote a more faithful representation of economic reality is extremely challenging. Indeed, as some have argued, the economics of a transaction are often in the eye of the beholder (Zeff, 2006).

No matter how similar the accounting standards in different countries are, there will be slight or even bigger differences in the way they are applied by companies due to the differences in the economical, political and cultural environment. A good example for how cultural differences can affect accounting practices is that in the countries which are characterized with small power distance and

weak uncertainty avoidance accounting measures are more likely to be used as an indicator of a manager's performance than as a measure of the effectiveness of policies and procedures prescribed for them. Various researches draw the conclusion that countries having different cultures have also different accounting rules and practices (Bradshaw et al., 2008).

METHODOLOGY

The purpose of this study was the measuring the differences between the national rules and the international methods by countries, then the valuing and analyzing their effects on the business decisions. In the KPMG-Analysis (2010) partners in large accountancy firms (Big Four) from more than 100 countries benchmarked the national accounting rules in their country against international accounting standards, focusing their attention on methods as of 31 December, 2008. This survey contains information on how local GAAP differs from International Accounting Standards (IAS) on incorporating recognition, measurement, and disclosure rules. For each country, the survey captures next types of differences from IAS:

- (a) Absence of recognition and measurement rules that are present in IAS (e.g. many countries do not require international standards),
- (b) Absence of disclosure rules that are present in IAS (e.g. common disclosures that are called for under IAS but not required under local GAAP),
- (c) Inconsistencies between local GAAP and IAS that could lead to differences for many enterprises, and
- (d) Other issues that could lead to differences between local GAAP and IAS for certain enterprises.

To analyze business adoption decision, the author require data on stock returns, accounting earnings, total assets, market capitalization, leverage, growth, foreign sales, and sales per employee. Financial and price data are from the Worldscope and SDC database. The sample comprises 100 IFRS adopting firms. For the IFRS adopting enterprises the adoption year is treated as event year 0. The analyze enterprises' adoption decision, the author required data on stock returns, accounting earnings, total assets, market capitalization, leverage, growth, foreign sales, and sales per employee one year prior to event year 0, and closely held shares for event year 0. Close_Held is measured in event year 0. Using the lagged year's measure results in more missing observations but does not affect the paper's inferences.

The author expands on the adoption decision models if the demand from internal performance evaluations is a factor in business decisions to adopt international accounting standards and relied on the recent GAAP 2006: A Survey of National Accounting Rules Benchmarked Against International Accounting Standards (Nobes, 2006) and he followed the next logistic regression model after the prior literature (Wu and Zhang, 2009):

$$\text{Prob [Adopt=1]} = \text{Logit} (a_0 + a_1 \text{Close_Held}_0 + a_2 \text{Labor_Prod}_{-1} + a_3 \text{RET}_{-1} + a_4 \text{ROA}_{-1} + a_5 \text{Size}_{-1} + a_6 \text{Lev}_{-1} + a_7 \text{Growth}_{-1} + a_8 \text{Foreign_Sales}_{-1}) \quad (1)$$

Table 1. Results of logistic analysis.

Effect*	Estimate	Standard error	Marginal (%)
Close_Held ₀	-0.00445	0.0026**	-0.64
Labor_Prod ₋₁	-0.00005	0.0003 **	-1.08
RET ₋₁	-0.1134	0.1447	-0.30
ROA ₋₁	-0.5609	0.7148	-0.31
Size ₋₁	0.2659	0.0461***	4.21
Lev ₋₁	1.3004	0.4882***	1.12
Growth ₋₁	-0.2883	0.2021	-0.50
Foreign_Sales ₋₁	1.2085	0.2301***	3.08

,* Indicate that a coefficient is significantly different from zero at the 10, 5 and 1% levels, respectively (one-sided tests for coefficients with predictions and two-sided tests for those without a prediction). *Marginal effects measure the changes in the predicted probability from a one standard deviation increase from the mean for a continuous variable and from 0 to 1 for an indicator variable with the other variables measured at the mean.

Where:

Close_Held : Percentage of closely held shares at the end of event year (event year of 2008 for the management turnover and employee layoffs analyses)

Labor_Prod: Labour productivity (sales per employee) minus the median labour productivity

RET: Annual raw stock return

ROA: Return on assets, accounting earnings is defined as net income before extraordinary items.

Size: Natural logarithm of market capitalization

Lev: Leverage, defined as long-term debt divided by total assets

Growth: Sales growth, current year's sales change divided by prior year's sales

Foreign_Sales: Foreign sales divided by total sales.

The regression results are reported in Table 1. The table reports the logistic reports to model business decisions to adopt IFRS. In Table 1 the coefficients estimates, standard errors, and the marginal effects are reported in columns (1) to (3), respectively. The Close_Held₀ has a negative coefficient, -0.00445, and significant at the 0.05 level. The marginal effect suggests that a one standard deviation increase in the percentage of closely held shares decreases the adoption likelihood by 0.64%. This support our argument that the greater demand for more informative and conservative accounting earnings due to performance evaluations at more widely held businesses increases these business' incentives to adopt international accounting standards. The percentage of closely held shares can also vary with business' incentives to access the capital market as more closely held business may have lower demand for external capital. This is the reason why the author controls for various factors related to business financing needs in the regression model. To the extent the controls are adequate, the author's finding on Close_Held are consistent with compensation contracting demands affecting business decisions to adopt international accounting standards. The coefficient on Labor_Prod₋₁ is -0.00005 negative as expected and significant as the 0.05 level. The marginal effect indicates that a one standard deviation increase in labour productivity reduces the likelihood of adoption by 1.08%.

The author analyzed CEO turnover-to-performance sensitivities separately for the adopting standards samples with the next model:

$$\text{Prob [CEO_Turnover}_{t=1}] = \text{Logit} (a_0 + a_1 \text{DROA}_{t-1} + a_2 \text{DRET}_{t-1} + a_3 \text{Post} + a_4 \text{Post} * \text{DROA}_{t-1} + a_5 \text{Post} * \text{DRET}_{t-1} + \sum b_j \text{Control variable}_j) \quad (2)$$

Where:

CEO_Turnover; 1 if there is a CEO turnover in event year t; 0 otherwise.

DROA; 1 if ROA of event year t-1 is negative, and 0 otherwise.

DRET; 1 if annual stock return of event year t-1 is less than 20% and 0 otherwise.

Post; 1 of a firm-year observation is post-event year 0, and for pre-event year 0 observations (event year 0 itself is removed).

The dependent variable, CEO_Turnover_t, is an indicator equal to 1 there is a CEO turnover in year t and 0 otherwise. Post is an indicator variable, equal to 1 if the firm-year is post-event year 0, and 0 otherwise (event year 0 itself is removed from the analysis). The author includes the explanatory variables from the earlier adoption decision regression (except for ROA and RET) to control for business incentives to adopt international accounting standards and their potential impact on CEO turnover. These variables are measured around year t. The results for model (2) are reported in Table 2. The insignificant coefficient on Post*DRET_{t-1} is inconsistent with an overall increase in the performance sensitivities of CEO turnover at the adopting firms that might result from concurrent organizational changes other than accounting changes. The next model (3) is an analysis of layoff-to-performance sensitivities:

$$\text{Prob [Layoff}_t = 1] = \text{Logit} (a_0 + a_1 \text{DROA}_{t-1} + a_2 \text{DRET}_{t-1} + a_3 \text{Post} + a_4 \text{Post} * \text{DROA}_{t-1} + a_5 \text{Post} * \text{DRET}_{t-1} + \sum b_j \text{Control variable}_j) \quad (3)$$

The dependent variable, Layoff_t, is an indicator, equal to 1 if there is a reduction of a business employee headcount of more than 5% in year t, and 0 otherwise. The explanatory variables on the right-hand

Table 2. CEO Turnover-to-performance sensitivity analysis.

Effect	Estimate	Standard error
DROA _{t-1}	-0.2611	0.2469
DRET _{t-1}	0.0221	0.2449
Post _t	-0.0415	0.1456
Post _t * DROA _{t-1}	0.8062***	0.3092
Post _t * DRET _{t-1}	0.0810	0.1960
Close_Held _t	0.0007	0.1965
Labor_Prod _{t-1}	-0.0001	0.0002
Size _{t-1}	0.0857**	0.0406
Lev _{t-1}	-0.5109	0.0406
Growth _{t-1}	-0.2152	0.4063
Foreign_Sales _{t-1}	-0.2949	0.2092

,*Indicate that a coefficient is significantly different from zero at the 10, 5 and 1% levels, respectively (one-sided tests for coefficients with predictions and two-sided tests for those without a prediction).

Table 3. Employee layoff-to-performance sensitivity analysis.

Effect	Estimate	Standard error
DROA _{t-1}	0.2805*	0.1838
DRET _{t-1}	0.2016**	0.1050
Post _t	0.0269	0.1162
Post _t * DROA _{t-1}	0.5345**	0.2628
Post _t * DRET _{t-1}	0.1968	0.1403
Close_Held _t	0.0033*	0.1985
Labor_Prod _{t-1}	-0.0006	0.0004
Size _{t-1}	-0.0177	0.0289
Lev _{t-1}	0.3978	0.3831
Growth _{t-1}	-0.1266	0.2115
Foreign_Sales _{t-1}	-0.0563	0.1546
ΔForeign_Sales _t	-0.2631	0.6219
Growth _t	-4.1791 ***	0.5093

*The estimation results, **,***Indicate that a coefficient is significantly different from zero at the 10, 5 and 1% levels, respectively (one-sided tests for coefficients with predictions and two-sided tests for those without a prediction).

side are the same as those in model (2) on management turnover, except for the addition of several control variables. Since the change in employee headcount can reflect contemporaneous changes in a businesses overall scale of operations, the author includes sales growth (Growth), change in foreign sales (ΔForeign_Sales), and an indicator variable for fixed assets disposal (Fix_Disposal), for year t.

The results for model (3) are reported in Table 3. The adopting firms' employee layoffs are more response to accounting performance post-adoption. On the control variables, the author found that businesses with higher labour productivity, that are larger, with greater contemporaneous and lagged sales growth, and less frequent layoffs. On the other hand, businesses with higher leverage, with divestitures have more frequent employee layoffs.

EMPIRICAL RESULTS

The author expanded on the adoption decision models and tests using regression functions if the demand from internal management performance evaluations is a factor in businesses' decisions to adopt international accounting system. The marginal effect suggest that a one standard deviation increase in the percentage of closely held shares decreases the adoption likelihood by 1.25 or 5% of unconditional adaptation probability of 20% (100/500). This supports that the greater demand for more informative and conservative accounting earnings due to management performance evaluations at more widely held businesses increases these companies' incentives to adaptation international accounting system. This suggests that businesses with lower labour productivity compared to their industry peers have greater incentives to adopt international accounting system. The study showed that both businesses earnings and stock returns affect the management turnover. Controlling for the effects of macro-economic conditions and employee layoffs by including the market return in each country it was pointed that the coefficients on market returns had been insignificant in the various regressions. Analyzing the changes in labour productivity at the adopting businesses the tests did not show a significant decreasing in the productivity over the last 5 years. It could be that businesses' labour productivity is persistently low, not necessarily deteriorating continuously, in the several years leading up to the adaptation. Meanwhile, there is a significant increase in labour productivity over event years. The author measured earnings and stock performances with indicator variables of negative Return on Assets (ROA) and stock returns respectively. He replaced the indicators with continuous measures of ROA and stock returns. The inferences on employee layoffs are unaffected. However, the results on turnover are sensitive to this change in variable specification. This suggests that the increase in the sensitivity of turnover to accounting performance post-adoption is primarily driven by heightened turnover sensitivity to accounting losses. The empirical results of measuring and analyzing in details their pros and cons effects on the business environment there could be the author's suggestions for business management.

Conclusion

The present impetus for global accounting information system follows the accelerating integration of the word economy. The application of international financial reporting standards will allow greater comparison of international financial results. More sources and reports will be available to a greater audience of analysts to follow trends in countries where previously due to different

regulations and thus different reports these were less meaningful. The unified accounting information system will probably lead to new types of analysis and data, furthermore with the possible integration of new indicators from the practice of certain countries.

The accounting information system differences matter even to financial analysts who specialize in collecting, measuring and disseminating business information about the covered companies suggests that there are potential economic costs, associated with variation in national rules across countries. Besides it is a very important task for managers and researchers to value and analyze the effects of international accounting standards on the business environment, especially their contribution to harmonization and globalization. While a large body of this study is devoted to understanding the causes and consequences of the adoption of international accounting standards, researcher's attention has thus far focused almost exclusively on the informational benefits for the business environments, like evolution of business turnover, employees and the management performance.

REFERENCES

- Ali A, Hwang LS, Trombley MA (2000). "Accruals and Future Stock Returns: Tests of the Naïve Investor Hypothesis." *J. Account. Auditing. Finance.* 15(2) 45 – 63.
- Ball R, Robin A, Wu S (2006). Are timeliness and conservatism due to debt or equity markets? An international test of „contracting“ and „value relevance“ theories of accounting. Manuscript, University of Chicago.
- Ball R, Robin A, Sadka G (2006). "The effect of international institutional factors on properties of accounting earnings." *J. Account. Econ.* 29: 417-434.
- Ball R, Laksmann S (2005). „Earnings quality in UK private firms“. *J. Account. Econ.* 39: 83-128.
- Ball R, Shivakumar L (2005). "The effect of international institutional factors on properties of accounting earnings." *J. Account. Econ.*, 29: 417-434.
- Barth E, Landsman R, Lang H (2007). *International Accounting Standards and Accounting Quality*. Research Paper, Stanford University Graduate School of Business.
- Burgstahler D, Hail L, Leuz C (2006). "The importance of reporting incentives: earnings management in European private and public firms" 23: 48-69.
- Bushman R, Piotroski J (2006). "Financial reporting incentives for conservative accounting: the influence of legal and political institutions". 27: 148-161.
- Daske H, Gebhardt G (2006). "International Financial Reporting Standards and Experts. Perceptions of Disclosure Quality." *Abacus*, 42(3/4).
- Daske H, Hail L, Leuz C, Verdi R (2007). "Adopting a Label: Heterogeneity in the economic Consequences of IFRS Adoptions." *J. Bus. Finance. Account.* 33(3)&(4): 329-375.
- Frankel MR, Li X (2004). "Characteristic of a Firm's Information Environment and the Information Asymmetry between Insiders and Outsiders." *J. Int. Bus. Stud.* 37(1): 229-259.
- Guenther A, Young P. (2000). "Financial Reporting Environments at International Capital Mobility." *J. Account. Res.* 8: 41-57.
- Jermakovicz K, Kinsey P, Wulf I (2007). "The Value Relevance of Accounting Income Reported by DAX-30, German Companies." *J. Int. Financ. Manage. Account.* 18(3): 611-641
- KPMG-Analyzis (2010). Budapest
- La Porta R (1998). "Law and Finance." *J. Pol. Econ.* 106: 1113-1155.
- Leuz C, Verrecchia RE (2000). "The economic consequences of increased disclosure." *J. Account. Res.* 38: 91-124.
- Li K, Meeks G (2006). The impairment of purchased goodwill: effects on market value. Working Paper. Institute of Chartered Accountants in England and Wales. Centre for Business Performance.
- Maskus KE, Otsuki T, Wilson JS (2005). An empirical framework for analyzing technical regulations and trade. In. S.Henson,J.S., Wilson (eds): *The WTO and Technical Barriers to Trade*. Cheltenham, Edward Elger.
- Meeks G, Meeks J (2002). *Towards a Cost-Benefit Analysis of Accounting Regulation*. London. Centre of Business Performance.
- Meeks G, Swann P (2009). "Accounting standards and the economics of standards." *Account. Bus. Res.* 39(3): 191-210.
- Nobes G (2006). *A Survey of National Accounting Rules Benchmarked Against International Accounting Standards* London.
- Pincus M, Rajgopal S, Venkatachalam M (2007). "The Accrual Anomaly: International Evidence." *Account. Rev.* 6: 89-111.
- Wu S, Zhang P (2009). *International Accounting Standards and Internal Performance Evaluation*. *Account. Rev.* 7: 1283-1311.
- Zeff R (2006). *The Empirical Economics of Standards*. DTI, Economics Paper. No.12. London: Department of Trade and Industry.