

Do variations in domestic GAAP around the world help or hinder financial markets?

1. Background

There are variations in domestic GAAP around the world.

I - ONE VIEW OF THIS SITUATION is that the variations are driven simply by the subjective decisions of national standard setters, and this gives a rationale for the International Accounting Standards Committee (IASC) to develop common standards which will be acceptable in most (if not all) financial markets.

Even if this view is accepted, there are further issues. Are the variations in domestic GAAP sufficiently large to require the work of the IASC? How large do national variations have to be before they interfere with operations of financial markets? Should IASC standards specify a single method of accounting for a given transaction, or should it be trying to specify a set of commonly acceptable methods for the same transaction?

Another important issue concerns how we measure the extent of variations in domestic GAAP. What is large in this context? Before we can answer this we need to establish how accurate and precise accounting numbers need to be, which of course depends on what the numbers are used for.

II - AN ALTERNATIVE VIEW is that domestic GAAP reflects the economic substance of the domestic economy. Therefore variations in domestic GAAP are not only permissible, but necessary. A good example is research and development. In a country with strong and enforceable patent laws, it might make sense to capitalise some R&D expenditure. However, in an economy without such protection of R&D from its institutions, capitalising R&D would not be justifiable. The expenditure should not be capitalised because it cannot meet the test of being an asset.

2. The main types of research

The purpose of these notes is to outline the main types of research which have been undertaken to move this debate further on. In brief:

I - WHAT ARE THE VARIATIONS IN ACCOUNTING CHOICE AROUND THE WORLD

One type of research has been simply identifying the accounting variations across the world. This has been done largely by firms of professional accountants. An excellent review of UK, US and IAS GAAP is given by PricewaterhouseCoopers "International Accounting Standards: similarities and differences, IAS, US GAAP and UK GAAP".

II - HOW IS ACCOUNTING INFORMATION USED?

Although we are becoming clearer about how accounting information is linked to the valuation of equity (see my lecture notes on "Book values in company valuation") there is very little evidence on how precise accounting numbers have to be.

Exceptions to this include the papers by:

Bouwman, Frishkoff and Frishkoff, "The relevance of GAAP based information: a case study exploring some uses and limitations", *Accounting Horizons*, December 1995, 22-47 (see my lecture notes on "How is GAAP information used?"); and

Barker, "FRS 3 and analysts' use of earnings", *Accounting & Business Research*, Spring 2000, (30/2).

The Bouwman et. al. paper suggest that financial statements are used in a very general way for becoming familiar with the company and for identifying potential investment outliers (both good and bad). The Barker paper paints a similar picture. ; he finds that analysts: do not have accounting as their core competence, interpret earnings rather superficially, and regard non accounting information as at least as important as financial statements.

Although neither papers make the connection with international accounting standards, their evidence suggests that small variations in domestic GAAP might be acceptable to financial markets.

III - HAVE FINANCIAL MARKETS SUFFERED FROM VARIATIONS IN DOMESTIC GAAP?

This view, that variations in domestic GAAP should not really affect the operation of financial markets is echoed in a short article by Richard Goeltz, "International accounting harmonisation: the impossible (and unnecessary) dream", *Accounting Horizons*, March 1991, 85-88 (see my lecture notes on "Are international accounting standards necessary and feasible")

Goeltz notes:

1. Domestic standards take many years to develop, so how long will we have to wait for internationally agreed standards!
2. International investment has boomed despite the existence of international accounting standards, so what's the problem.
3. Finally, he suggests that international investment has more important problems than a common set of accounting methods. He infers that having a set of IASC standards would make very little difference to the cost of capital for such ventures.

IV - MEASURING THE INFORMATIVENESS OF DOMESTIC GAAP TO DOMESTIC INVESTORS

This line of research measures how informative domestic GAAP is to the domestic investors. The finding that the domestic informativeness varies across countries constitutes a prima facie case that existing variations are too large. For example, if US GAAP is found to be more informative to US investors than French GAAP is to French investors, then it may be that US investment in France is hindered by the limitations of French GAAP. Research along these lines includes the following papers:

Alford J Jones Leftwich and Zmijewski, "The relative informativeness of accounting disclosures in different countries", *Journal of Accounting Research*, Supplement 1993, 183-223.

Ali & Hwang, "Country specific factors related to financial reporting and the value relevance of accounting data", *Journal of Accounting Research*, Spring, 2000, 1-22.

Ball, Kothari & Robin, "The effect of international institutional factors on properties of accounting earnings", *Journal of Accounting & Economics*, vol 29/1 Feb 2000, 1-51. The results of this paper will be summarised later in these notes.

V - HOW DO DOMESTIC MARKETS RESPOND TO NON DOMESTIC ACCOUNTING INFORMATION?

Another way of tackling the importance of common accounting standards is to see how markets respond to non domestic GAAP information. For example, when a non US company raises funds in the US and reports to the US stock exchange, it is required to produce (Form 20-F) a reconciliation of their results (which are measured using their own domestic accounting) with what would be reported under US GAAP. This gives an opportunity to see what additional information is provided by US GAAP over the domestic GAAP.

Research along these lines includes the following papers:

Chan & Seow, "The association between stock returns and foreign GAAP earnings versus earnings adjusted to US GAAP", *Journal of Accounting & Economics*, February 1996 vol 21/1, 139-158.

Rees, "The information contained in reconciliations based on US accounting principles by non US companies", *Accounting & Business Research*, Autumn 1995, 301-310.

Rees & Elgers, "The market's valuation of nonreported accounting measures: retrospective reconciliations of non-US and US GAAP", *Journal of Accounting Research*, Spring 1997, 115-127

3. Measuring the informativeness of domestic GAAP to domestic investors

In this section, we illustrate this particular approach to identifying the importance (or otherwise) of a common set of international standards, by examining

Ball, Kothari & Robin, "The effect of international institutional factors on properties of accounting earnings", *Journal of Accounting & Economics*, vol 29/1 Feb 2000, 1-51.

This is a substantial paper and a summary cannot reflect the care with which the arguments are put forward. However, the main ideas and results in the paper are as follows.

BKR classify countries in to:

common law countries: Australia, Canada, UK and USA

In these countries, political influence in accounting standard setting is low, being determined primarily in the private sector. The main role of accounting is to reduce the information asymmetry between the managers of companies and investors.

code law countries: France, Germany and Japan

In code law countries, the asymmetry between managers and owners gets resolved by insider communication (for example, major shareholders will be members of the board of directors). The main role of accounting is to enable stable payouts to be made to the stakeholders: shareholders, the tax authorities, and employees (if they are eligible for bonuses). Since investors do not need financial statements to resolve information asymmetry issues, it is left to the government to devise the accounting code. Since the government is also responsible for tax code it is not surprising that the two codes are similar.

I - ACCOUNTING INCOME AND ECONOMIC INCOME

One of the experiments that the authors run is to compare the behaviour of accounting income with economic income which is proxied by changes in the market value of equity. Two main features of the relationship are investigated, timeliness and conservatism. Timeliness refers to the speed with which accounting income captures economic income. Conservatism refers to the speed with which bad news is incorporated in accounting income, relatively to good news.

The model they run is based on Basu, Journal of Accounting and Economics, December 1997, 3-37.

$$NI = b_0 + b_1 RD + b_2 R + b_3 R \cdot RD \quad (1)$$

where

NI is the earnings yield, accounting income scaled by lagged share price

R is the change in market value scaled by lagged price (note that the change is not market adjusted)

These two variables represent the normal earnings-returns association. However, the equation also includes a dummy variable RD which captures whether the stock return is negative

RD is 1 when the stock return is negative
is 0 otherwise).

In this model, the coefficient b_1 captures the change in the constant (b_0) when the stock return is negative and the coefficient b_3 captures the change in the slope (b_2) when the stock return is negative. If accounting income incorporates bad news quicker than good news, then we would expect that b_3 would be positive. That is, the scalar applied to economic income to get accounting income would be larger for bad news.

The results from estimating the Basu equation is given in their Table 2. The main thrust of their results is captured in the table below.

Contemporaneous association between earnings (accounting income) and returns				
NI = $b_0 + b_1 RD + b_2 R + b_3 R \cdot RD$ (Equation 1)				
	b_2	b_3	R ² (%)	N
Common law countries	0.02 (7.07)	0.31 (39.1)	14.4	25,447
Code law countries	0.04 (13.27)	0.01 (2.19)	5.2	9,154

This table shows that in common law countries accounting income is more closely associated with economic income than in code law countries since the R² (the goodness of fit) is larger. The degree of conservatism is larger for common law countries, since b_3 is larger than in code law countries. The result above are from a regression which is pooled across time and across countries (within the common and code law groups). However, the findings are similar when the equation is estimated on individual countries and for individual years.

Another aspect to the difference between countries concerns the differential R^2 for good news and bad news. Their Table 3 (summarised below) shows that for bad news there is far less noise in the earnings number for common law countries (12.2%) than for code law countries (1.7%). Furthermore, code law countries incorporate good news less noisily than common law countries (3.3% vs. 0.4%).

Contemporaneous association between earnings (accounting income) and returns, with separate regressions for positive and negative returns.						
$NI = b_0 + b_1 R$						
	Good news			Bad news		
	b_1	R^2 (%)	N	b_1	R^2 (%)	N
Common law countries	0.02	0.4	15,222	0.33	12.2	10,225
Code law countries	0.04	3.3	4,464	0.05	1.7	4,690

But why should common law countries have such conservative accounting? Essentially, bad news needs to be disclosed by managers in order to avoid investors claiming (through litigation) that the disclosure of bad news is untimely. In code law countries, this is not such an issue because the information asymmetry between managers and investors is dealt with in a different way, and not through the disclosure of public financial statements.

II - ACCOUNTING INCOME AND DIVIDENDS

In order to further investigate the behaviour of accounting income, it is compared with the informativeness of dividends. The results are given in their Table 5, which is summarised below.

Contemporaneous association between dividends (DIV) and returns				
$DIV = b_0 + b_1 RD + b_2 R + b_3 R \cdot RD$				
	b_2	b_3	R^2 (%)	N
Common law countries	-0.01 (-25.23)	0.05 (35.67)	8.4	25,447
Code law countries	0.01 (10.08)	0.01 (3.78)	5.5	9,154

DIV = dividend yield = dividends scaled by lagged share price

The above table runs the same regression equation as for earnings, but with dividends replacing earnings. A number of features are apparent:

- 1 For common law countries, the coefficient b_3 (conservatism) is far smaller for dividends (0.05) than for earnings (0.31). This fits with the notion first suggested by Lintner (in 1956) that companies are reluctant to cut dividends following bad news.

- 2 Although the R^2 for common law countries falls from 14.4% to 8.4%, for code law countries it is much the same (5.2% and 5.5%). This suggests that in code law countries accounting income and dividends have similar timeliness. In contrast, accounting income in common law countries is more timely than dividends.

The rationale that BKR give is that in code law countries, since information asymmetry is not solved by public disclosure in financial statements there is very little incentive for companies to disclose earnings in excess of dividends, particularly since tax will be paid on the earnings disclosed. Therefore earnings are tied closely to dividends. In common law countries, disclosed earnings are not so closely linked to taxable earnings, which is fortunate since the public disclosure of accounting earnings is used to inform investors.

III - IMPLICATIONS FOR INTERNATIONAL ACCOUNTING STANDARDS

BKR say that in view of their results, it is not surprising that the accounting standards promulgated by IASC should reflect more of a common law approach than a code law approach. Cross border investors are not likely have their information asymmetry resolved by insider communication. They need earnings to be informative.

However, within the group of common law countries there is substantial variation, and it is not clear at all as to which common law accounting rules should drive international standards. For example, BKR Table 2 which reports estimates of equation 1 also gives the estimates for the individual common law countries and this summarised below.

Contemporaneous association between earnings (accounting income) and returns									
NI	=	b_0	+	b_1 RD	+	b_2 R	+	b_3 R. RD	(Equation 1)
				b_2		b_3		R^2 (%)	N
Australia				-0.01 (-0.53)		0.37 (8.63)		9.1	1,321
Canada				0.00 (0.12)		0.40 (17.21)		17.0	2,901
USA				0.03 (8.57)		0.29 (34.02)		14.7	21,225
UK				0.04 (10.14)		0.15 (13.32)		13.8	5,758

The results show that in Canada accounting income is the most unresponsive to good news, and the most responsive to bad news, which pushes up the goodness of fit to 17%. Accounting income in the UK has the opposite characteristics; it is responsive to good news and fairly unresponsive to bad news. But who says what is the right balance?

One of the fundamental findings of the BKR paper is that there seems to be good reasons for the current differences in accounting measurement between code law and common law countries. Presumably then, there are institutional differences which explain the variation within common law countries. But international standards, if accepted, are to be used domestically as well for international investment. Therefore, international standards will do harm to domestic

companies **not** wishing to raise international capital, as well as potentially enabling some companies to raise international capital.

The potential for the misdirection of resources is staggering. Instead of having a **few** companies prepare two sets of accounts (one for domestic purposes and another to satisfy international shareholders) there is a possibility that many companies will have to prepare accounts which are unnecessarily timely and conservative for their purposes. Presumably, companies which adopt IASC GAAP in code law countries will have to pay tax on the IAS earnings. It may be that these companies will land up managing their real activities to minimise the tax bill, whereas they currently manage their reporting activities.

4. How do domestic markets respond to non domestic accounting information?

Another way of assessing whether IASC standards are worth the hassle is to see what happens now, when companies raise capital in non domestic capital markets. How does the non domestic capital market respond to accounting numbers measured using domestic GAAP of the company? We shall summarise a number of these studies.

Rees, "The information contained in reconciliations based on US accounting principles by non US companies", Accounting & Business Research, Autumn 1995, 301-310.

This study examines the US market's reaction to reconciliations of domestic earnings per share to US GAAP when the disclosure is first made to the US market.

The data used in this study is taken from 1982-91, and based on non US companies filing a 20-F registration form in the US. The largest countries represented in 558 observations are UK (196), Canada (150), Holland (46), Sweden (38) and Australia (36). The variables used in the study are as follows.

- REC_t = the difference (in the foreign currency) between the company's US GAAP earnings per share at time t and the eps measured in the domestic accounts.
- rate = the exchange rate between the US\$ and the local currency when the 20-F form is filed.
- UR = rate. $(REC_t - REC_{t-1})$ = the unanticipated adjustment to eps under US GAAP, measured in US\$, assuming that last year's REC is a good proxy for what the market is expecting this year.
- R = the market adjusted return of the company on the US market over 4 days ending on the third day after the 20-F filing.
- EXRT = the movement in the US\$ / local rate during the 4 day event window. This is needed because the company generates its earnings in the local currency; if the local currency strengthens (weakens) against the US\$, then the US\$ price of the stock will rise (fall) as the earnings of the company will be worth more (less) in terms of US\$.

The regression equation that is estimated is

$$R = b_0 + b_1 UR + b_2 EXRT$$

t statistic	-0.0022 (-0.8)	0.08 (2.59)	0.87 (4.1)	R ² 0.03
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The result indicates that the adjustment to US GAAP is informative to the US stock market in the days surrounding its disclosure. The coefficient on b_1 is positive and significant. This suggests that US GAAP contains some value relevant information that is not disclosed in the domestic GAAP. However, the source of the adjustment is not identified.

Although the results show clearly that the US market reacts to the adjustment, the factors driving the results are far from clear. For example, it may be that the US market is used to interpreting performance according to US GAAP and that the costs of interpreting the domestic GAAP are too large. Another explanation is that US investors believe that certain agency considerations mean that certain aspects of performance are too risky to recognise. All this is perfectly understandable. However, it does not necessarily imply that US GAAP is a superior measure of performance and that US GAAP would be better than domestic GAAP in the *domestic* country.

Chan & Seow, “The association between stock returns and foreign GAAP earnings versus earnings adjusted to US GAAP”, *Journal of Accounting & Economics*, February 1996 vol 21/1, 139-158.

This study, published around the same time as Rees, looks at the *annual* association between US returns and performance measured under US GAAP and the domestic GAAP of foreign companies listed in the US.

The years covered are 1987-1992 and involves 144 observations from 45 companies. The variables used in the study are as follows.

- R_t = the fiscal year return of the company in the US market
- XU_t = the US GAAP earnings for year t, scaled by beginning of fiscal year stock price
- XF_t = the foreign GAAP earnings for year t, scaled by beginning of fiscal year stock price

They run two regressions

$$R_t = b_0 + b_1 XU_t + b_2 XU_{t-1} \tag{1}$$

$$R_t = b_0 + b_1 XF_t + b_2 XF_{t-1} \tag{2}$$

The first explains US returns with US GAAP earnings (and lagged). The second explains US returns with domestic GAAP of the foreign companies.

They vary the experimental design in a number of ways (for example, by measuring returns over a 15 month, rather than a 12 month, window and using market adjusted returns rather than raw returns), but the results are robust to the variations. The main findings are summarised below.

Davidson & MacKinnon J test of the annual association between US GAAP, domestic GAAP earnings and 12 month raw returns

R = b₀ + b₁ XU_t + b₂ XU_{t-1} + b₃ Predictions from equation (2)				
	b ₁	b ₂	b ₃	R ² (%)
t statistic	-0.98 -0.84	1.03 1.07	1.58 4.09	29
R = b₀ + b₁ XF_t + b₂ XF_{t-1} + b₃ Predictions from equation (1)				
	b ₁	b ₂	b ₃	R ² (%)
t statistic	4.78 4.04	-1.91 -2.32	-0.24 -0.73	29

They conduct a Davidson & MacKinnon J test. They estimate equation (2) and put the predicted values in to equation 1. The significance of the b₃ coefficient gives what extra information there is from domestic GAAP over and above that contained in US GAAP. The first result shows that when the predicted values from domestic GAAP are included, they are significant and there is no information from US GAAP which explains returns.

Turning the tables on domestic GAAP, the second result shows that the predicted values from US GAAP do not add any further information to domestic GAAP which is significant in explaining returns.

Therefore it seems that domestic GAAP outperforms US GAAP. But why? One interpretation is that foreign GAAP captures the economic fundamentals more effectively over the longer run (two years) than US GAAP; eventually these fundamentals are captured by price. This is consistent with the idea that accounting standards vary across economies largely because the economic fundamentals vary. Of course, there may be some aspects in which US GAAP is superior to the domestic GAAP, but in the grand scheme of things, these are relatively small since US GAAP adds *nothing* to the explanatory power of domestic GAAP.

The justification for such a conclusion is examined further in the paper. In Table 5 they distinguish between countries whose stock returns are highly correlated with those in the US and those that are not. They find that the superiority of domestic GAAP over US GAAP is much larger in those countries where stock returns have a low correlation with the US stock returns. This suggests that domestic GAAP tends to capture economic aspects of performance which eventually are recognised by the US investors.

But how is this consistent with the results in Rees above? The answer to this is simply conjecture. However, it may be that investors initially react to US GAAP adjustments because they are familiar with the properties of US GAAP and its implications for the future. They cannot fully interpret the signals of the domestic GAAP of the foreign companies. However, as the future unfolds, the events anticipated by the domestic GAAP signals are gradually realised, and at this time are impounded in to US prices. This is similar to the Ou & Penman story (Financial statement analysis and the prediction of stock returns, Journal of Accounting & Economics, Nov 1989, 295-329); the market ignores information in the balance sheet about future earnings; but as the economic conditions captured by the balance sheet take place, the market impounds them.

This interpretation is consistent with a paper by

Rees & Elgers, “The market’s valuation of nonreported accounting measures: retrospective reconciliations of non-US and US GAAP”, Journal of Accounting Research, Spring 1997, 115-127

Somewhat surprisingly, Rees does not refer to her previous 1995 paper. In this 1997, she examines *retrospective* reconciliations to US GAAP and finds that the information they contain is already impounded in price. Probably the 1995 study is not mentioned because it might appear inconsistent with the later 1997 results.

However, there might be no inconsistency. As suggested above, initially, US investors react to US GAAP because this is the measurement system they are familiar with. However, as time goes by the information contained in domestic GAAP about future events is realised and at this time is impounded in US stock prices. Therefore it is not surprising that retrospective reconciliations do not contain incremental information since the conditions anticipated by domestic GAAP have already taken place.