EUROPEAN CROSS-BORDER INFORMATION TRANSFERS AND THE IMPACT OF ACCOUNTING STANDARDS REGIME CHANGES

BRIEFING

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Earnings news released by one firm has been shown to impact the stock price of non-announcing peer-group firms. Information spillovers from one firm to others are known as information transfers (ITs). Analysis of the phenomenon to date has been restricted to earnings-related information transfers between firms resident in the same country. However, declining barriers to international trade and greater capital mobility are causing firms to conduct a larger fraction of their business across national boundaries. As sectors become more globalised, information about firms in one country is becoming increasingly relevant for firms based in other countries. Accordingly, this study examines the extent to which investors extrapolate earnings information across national boundaries from announcing to non-announcing firms, a phenomenon that we refer to as cross-border ITs.

Our analysis comprises two main components. We begin by providing descriptive evidence on the incidence and magnitude of cross-border ITs among European firms in response to profit warnings (ie, voluntary trading updates that signal a material deterioration in profitability and earnings for the announcing firm relative to market expectations). Results indicate that profit warnings released by firms in one country affect the share prices and earnings forecasts of their foreign non-announcing peers. Further tests reveal that cross-border ITs are similar in size to domestic information transfer effects.

Having documented the presence of cross-border ITs, our second set of tests explores how cross-country variation in financial reporting practices affects this phenomenon. International variation in financial reporting rules and accounting quality mean that cross-border ITs are not guaranteed, even when firms share a common ‘state-of-the-world’. We therefore test whether international variation in accounting practices acts as a barrier to cross-border ITs, and whether the move to globally consistent financial reporting rules in the form of International Financial Reporting Standards (IFRS) is associated with an increase in cross-border ITs. Using a large sample of annual earnings announcements released by European firms between 1997 and 2007, results provide little evidence that IFRS adoption has led to an increase in cross-border ITs. Our findings suggest that cross-country differences in financial reporting do not necessarily prevent investors from conducting international comparative analyses and that the comparability benefits associated with IFRS adoption may be more subtle than our earnings announcement tests are capable of detecting.
Prior research illustrates how firm-specific news impacts stock prices of non-announcing firms. Information spillovers from announcing to non-announcing firms are known as information transfers (ITs) and in the accounting literature the phenomenon has been linked to a variety of earnings-related news events including earnings announcements (Firth 1976, Foster 1981, Clinch and Sinclair 1987, Han and Wild 1990, Freeman and Tse 1992), management earnings forecasts (Baginski 1987, Han, Wild and Ramesh 1989, Pyo and Lustgarten 1990), and profit warnings (Tse and Tucker 2006). Evidence on accounting-related ITs is important because it indicates that investors consider information from a range of alternative sources when determining an investment strategy for a particular firm (Dietrich 1989).

Prior research has focused mainly on earnings-related ITs between domestic firms. However, as sectors become more international and the proportion of business transacted across national boundaries grows, so the relevance of financial results released by firms in one country for assessing the performance and value of foreign peer firms is increasing. Against this backdrop of increasing globalisation, our project documents evidence on the extent of cross-border earnings-related ITs and whether cross-country differences in accounting quality affect the form and magnitude of such transfers.

The essence of our research is perhaps best illustrated by the following example.

On 23 June 2003, Dutch brewing giant Heineken announced that half-yearly earnings growth would remain flat. Not only did the news prompt a 12% drop in Heineken’s share price; it also caused shares in Interbrew (Belgium) and Carlsberg (Denmark) to fall by 4 and 5%, respectively (Financial Times, 24 June 2003). Clearly, investors and analysts considered news about Heineken’s performance useful in updating expectations for other firms in the global brewing sector. An increasing number of firms are also choosing international peers for performance benchmarking purposes. For example, the majority of FTSE 100 firms benchmark performance targets in one or more elements of executive compensation plans against international peer firms. Mining giant Anglo American PLC is an illustrative case: it determines executive directors’ bonuses by benchmarking earnings performance against a portfolio of 12 other mining stocks, the majority of which are domiciled and listed outside the UK. With firms, analysts and portfolio managers taking an increasingly global stance, the impact of cross-border ITs on equity prices is set to grow.

We investigated the cross-border IT phenomenon by conducting two large-scale empirical analyses of European firms. The first set of tests utilised a sample of profit warnings (i.e., voluntary trading updates that signal a material deterioration in profitability and earnings relative to market expectations) to assess the form and magnitude of cross-border ITs. Results suggest that profit warnings affect investors’ perceptions of comparable foreign non-announcing firms. On average, comparable non-announcing firms are associated with negative abnormal stock returns,
abnormally high trading volume, and downward revision in analysts’ earnings forecasts during the announcement window. These findings suggest that profit warnings are associated with statistically significant contagion effects in the cross-section. Further, the average market effects for foreign non-announcers are statistically indistinguishable from those experienced by domestic non-announcers, suggesting that cross-border ITs are at least as significant as comparable domestic effects. Insofar as our sample period is characterised by considerable cross-country accounting diversity, evidence of cross-border transfers of a similar form and magnitude to those observed between firms within a country suggests that GAAP differences do not necessarily prevent investors from conducting international comparative analyses. A more detailed analysis of cross-border ITs among European firms in response to profit warnings is reported in Alves, Pope and Young (2009).

Having established the presence of cross-border earnings-related ITs among European firms, our second set of tests used annual earnings announcements to examine the consequences of international accounting diversity on the cross-border IT phenomenon. While analysts and investors specialising in a particular sector are compelled to think globally, their investment decisions are complicated by internationally diverse accounting practices. International variation in financial reporting quality suggests that cross-border earnings-related ITs are not automatically guaranteed even when two or more entities share a common ‘state-of-the-world’. We therefore examine the extent to which cross-border ITs associated with earnings information are contingent on accounting quality. Our primary measure of accounting quality is the use of International Financial Reporting Standards (IFRS). Proponents claim that IFRS represent a set of high-quality financial reporting rules that help improve the informativeness and cross-border comparability of firms’ published financial statements. Improved international comparability coupled with better information on firms’ own operations implies that financial statements prepared under IFRS should contain more globally transferable information than statements prepared using idiosyncratic domestic accounting procedures. Our findings, however, yield no robust evidence to support the prediction that cross-border earnings-related ITs have increased in Europe as a result of transition to IFRS. To the extent that cross-border ITs provide a lens through which to assess the impact of initiatives aimed at harmonising global accounting practices, our findings suggest that IFRS adoption has not had a noticeable effect in improving the international comparability of earnings information at the announcement date.

The remainder of this report is structured as follows. The following section reviews the extant literature and locates our empirical tests. Section 3 reports evidence on the form and magnitude of cross-border accounting ITs using a comprehensive sample of profit warnings disclosed by European-listed firms. Section 4 discusses the intervening effect of international accounting diversity on the nature of cross-border ITs and summarises the results of empirical tests designed to test these predictions. Section 5 discusses our research findings and highlights opportunities for future research.
2. BACKGROUND AND MOTIVATION

Information transfers occur when an announcement made by one firm contemporaneously provides information about the performance and value of one or more non-announcing firms (Schipper 1990: 97). The majority of IT research in accounting has focused on earnings-related announcements. Firth (1976) was the first paper to test whether earnings announcements impact stock prices of reporting firms’ non-announcing industry peers. Firth’s (1976) results for UK firms support the view that announcing firms’ earnings contain information relevant for valuing non-announcing firms. Subsequent research confirms this result (Foster 1981, Clinch and Sinclair 1987, Han and Wild 1990, Freeman and Tse 1992, Jon and Lee 1992), while other studies have examined ITs associated with management earnings forecasts (Baginski 1987, Han, Wild and Ramesh 1989, Pyo and Lustgarten 1990), profit warnings (Tse and Tucker 2006), and earnings restatements (Xu, Najand and Ziegenfuss 2006, Gleason, Jenkins and Johnson 2008). The general conclusion is that earnings-related news events are associated with statistically significant transfers of information from announcing to non-announcing firms, although the economic magnitude of the effect tends to be small.

Earnings surprises may impact announcing firms’ peers in one of two ways. Surprises that signal a change in the size of the overall sector pie are expected to affect announcing and non-announcing firms similarly, with favourable (unfavourable) news leading to positive (negative) shocks for both groups. These same-sign ITs are often labelled contagion effects. Conversely, holding demand constant within a sector, an earnings innovation reported by one firm may signal a shift in its competitive position with respect to other firms in the same sector, with a negative (positive) surprise implying good (bad) news for its non-announcing peers. Opposite-sign information transfers that reflect a redistribution of sector profits are often labelled competitive effects. Although both types of transfer have been documented in the literature (Lang and Stulz 1992, Firth 1996a), on balance the evidence suggests that contagion effects dominate in the cross-section (Firth 1976, Foster 1981, Clinch and Sinclair 1987, Han and Wild 1990, Tse and Tucker 2006).

While prior research reveals interdependencies among firms’ share prices based on key accounting disclosures and major corporate events, results are almost exclusively confined to within-country effects. To the best of our knowledge, Firth (1996b) is the only published study that tests for evidence of international earnings-related ITs. Firth (1996b) investigates ITs between US and UK firms in relation to corporate earnings announcements. Findings indicate statistically significant earnings ITs, although average cross-border effects are systematically smaller than corresponding

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1 Finance researchers have examined the information transfer phenomenon in a variety of corporate contexts including bankruptcy filings (Lang and Stulz 1992), bank failures (Aharony and Swary 1983), merger proposals (Eckbo 1983), dividend initiations (Firth 1996a), stock repurchases (Hertzel 1991), management buyouts (Slovin, Sushka and Benneck 1991), corporate accidents (Bowen, Castanias and Daley 1983), and public securities’ offerings (Szewczyk 1992).

2 Notable exceptions include studies examining the Latin American debt crisis (Madura, White and McDaniel 1991, Diaz and McLeay 1996) and the effects of the Enron scandal (Cahan, Emanuel and Sun 2005).
within-country transfers. While these findings suggest that institutional, regulatory, and financial reporting differences between the US and UK are not sufficient to prevent cross-border extrapolation of corporate earnings surprises, Firth (1996b) is quick to acknowledge that cross-border ITs are more likely to exist in his sample than for many other groups of countries because of the strong linkages between US and UK financial markets and corporate activities. An unresolved question is whether analysts and investors extrapolate earnings information across national boundaries in the face of more substantial institutional, legal, political, cultural and financial reporting differences.

A key assumption regarding the incidence of cross-border earnings ITs is that firm-specific accounting releases contain common information useful in updating expectations about non-announcing firms (Schipper 1990). While this assumption may be reasonable in well-developed financial reporting systems, its validity may be more questionable in jurisdictions where the quality of financial reporting is low or where the accounting system is designed for purposes other than reflecting periodic performance (e.g., tax-based systems). Variation in social, economic and political factors can lead to deep-rooted differences in financial reporting practices across countries, resulting in substantial variation in the quality and comparability of published financial statement information (Ball, Kothari and Robin 2000, Hung 2000, Leuz, Nanda and Wysocki 2003). Prior research suggests that financial statement quality and comparability are likely to affect users’ ability to extrapolate earnings information across national boundaries. In the context of cross-border ITs, comparability problems are expected to hamper users’ ability to infer information about non-announcing firms from peer firms’ earnings announcements. To date, however, academic research has not examined how financial statement quality or international comparability affect cross-border ITs.
3. EVIDENCE OF CROSS-BORDER ACCOUNTING ITs IN EUROPE

3.1 OVERVIEW
Given the lack of evidence concerning cross-border earnings-related ITs, the first goal of our project was to provide descriptive evidence on the incidence and magnitude of the phenomenon for a large sample of firms drawn from a wide range of countries. We selected profit warning announcements as the basis for our IT tests. Such events offer several design advantages in the context of our study. First, since earnings-related ITs are likely to be small and difficult to detect (Schipper 1990, Firth 1996b), sharp tests are required to reject the null hypothesis of no information spillover. Prior research indicates that the scope for earnings transfers is increasing in the magnitude of the earnings surprise (eg, Firth 1996b). Profit warnings, which are associated with material earnings surprises (Kasznik and Lev 1995, and Clarke 2001, Helbok and Walker 2003, Collett 2004), therefore provide a natural setting in which to test for cross-border IT effects. Second, unlike earnings announcements which require the surprise component to be estimated by the researcher, profit warnings represent earnings surprises by construction (because firms only issue a warning when performance differs from prevailing market expectations). Consequently, our tests are not constrained by availability of analyst forecast data, which can be patchy in some countries.

3.2 SAMPLE AND DATA
We test for evidence of cross-border ITs in response to profit warning announcements using a comprehensive sample of firms listed on major European stock exchanges. Restricting the analysis to European-listed firms yields a sufficiently broad cross-section of economic, political and regulatory environments to facilitate a relatively rich analysis of cross-border effects while ensuring that earnings information remains relevant for non-announcing firms (by confining the analysis to a single economic zone).

Profit warnings announced between January 1997 and December 2007 by European publicly traded firms form the basis of our analysis. Profit warning data are obtained from JCF Quant/Factset (now ExtelConnect). One important limitation associated with the JCF Quant/Factset database is that details of warnings are limited to the identity of the announcing firm and the date of announcement; information concerning the magnitude of the surprise, the reason(s) for the performance shortfall, and the level of the profit and loss account to which the warning relates (eg, revenue, operating profit, net income, etc) are not available in machine-readable format. We considered collecting these data manually, but the scope of the task proved infeasible. Findings discussed in the remainder of this briefing do not therefore control directly for these potentially important effects and as such our conclusions should be interpreted with this caveat in mind.
The sample period begins in 1997 because coverage of profit warning announcements on JCF is limited prior to this date. Stock market data and financial statement data required for our empirical tests are collected from Datastream. The intersection of the JCF and Datastream databases yields an initial set of 6,135 European firms and 2,482 profit warnings. Filtering the initial sample to remove investment trusts, firms that JCF does not allocate to a specific industry sector, observations with missing data, profit warnings where no comparable foreign non-announcer is available, and countries or industry-year combinations with fewer than three firms, yields a final sample of 4,283 firms drawn from 29 countries, and 1,357 profit warnings issued by firms in 20 countries. As revealed in Figure 1, the sample is dominated by firms from the major European exchanges, with 29% of firms (1,228) listed in the UK, 12% (509) listed in France, and 9% (380) listed in Germany. Sample firms are drawn from a broad cross-section of industries (112 of the 130 JCF international industry portfolios).

Figure 1: Distribution of profit warnings by country of announcing firm

Figure 2 documents the incidence of profit warnings over time. The pattern of warnings in our sample follows the business cycle (Clarke 2001). The highest incidence of warnings coincides with the stock market slow-down in 2001 and 2002 whereas periods of strong economic growth such as 1997–2000 and 2004–2006 are characterised by fewer warnings. Most firms (3,479) did not issue a warning during our sample period. Of the 804 firms that did issue a warning, 497 (62%) issued a single
warning, 165 firms (20%) issued two warnings, and 142 firms (18%) issued three or more warnings. Information technology services account for the largest fraction of warnings (firms) in the final sample at 4% (3%). The proportion of sample firms issuing at least one warning is highest for the UK (62%), Finland (52%) and the Netherlands (45%). Conversely, sample firms in Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Slovakia, Slovenia, and Turkey do not appear to have issued any profit warnings captured by the JCF database.

![Figure 2: Distribution of profit warnings by calendar time](image)

### 3.3 RESEARCH METHODS

Our analysis examines whether profit warnings issued by firms resident in one country convey information to stock market investors about the performance and value of similar non-announcing firms in other countries. For each profit warning announced by firm \(i\) in country \(k\) we identify all comparable foreign non-announcing firms at the event date. A key research design issue in the earnings IT literature is the procedure used to identify comparable non-announcing firms. We use the following three methods to isolate foreign non-announcing peers:

- The first method defines non-announcing peer firms as those in the same industrial sector as the announcer (Firth 1976, Foster 1981, Pownall and Waymire 1989, Han and Wild 1990). Industry groupings are defined according to the JCF sector classification. The advantages of this approach include its simplicity. Nevertheless, the procedure is likely to represent a relatively crude grouping method given the difficulty of allocating firms to industries (particularly for those operating in multiple sectors);
The second method, which is in spirit of Ramnath (2002), classifies firms as comparable non-announcers if they share at least \( n \) equity analysts with the announcer. For each profit warning we identify all foreign non-announcers that share at least \( n \) common analysts with the announcing firm. No constraints are placed on industry membership so that announcing and non-announcing firms can be drawn from different JCF international industry portfolios. In the absence of clear guidance about the appropriate number of shared analysts to use we experiment with a range of values for \( n \) between five and 15;

The third method classifies non-announcing firms as peers based on the extent to which their stock returns correlate with those of announcers. This approach involves computing the pairwise return correlation between each announcing firm and every foreign non-announcer, with comparable non-announcers defined as those with a correlation coefficient greater than an arbitrary cut-off point. Correlations are computed using daily returns for days -150 to -25 relative to the profit warning announcement. A potential problem with this method is that peer firms are identified using the same variable that is subsequently employed to detect IT effects (ie, price).

Prior research uses a variety of metrics to measure the extent of accounting-related ITs. These include announcement-period abnormal stock returns (Han and Wild 1990, Firth 1996a, Thomas and Zhang 2006), announcement-period abnormal trading volume (Weigand 1996), and analysts’ earnings forecast revisions (Pownall and Waymire 1989, Firth 1996a, Ramnath 2002). In the absence of compelling theoretical benefits associated with any one approach, and because each metric is expected to measure transfer effects with error, we use all three constructs. Appendix 1 provides detailed definitions of the metrics used in our empirical tests.

3.4 INITIAL FINDINGS ON CROSS-BORDER ITs IN RESPONSE TO PROFIT WARNINGS

Results using the three approaches for identifying comparable firms discussed in the previous section yield broadly similar conclusions. In the interests of parsimony we therefore focus our discussion on findings obtained using the simplest approach that relies on industry classification.

Consistent with the existence of cross-border ITs we find evidence of statistically significant stock price reactions for comparable foreign non-announcing firms in response to profit warning announcements. The average (median) non-announcing peer firm experiences a price fall of -0.14% (-0.12%) on the day a warning is issued, and a cumulative abnormal return of -1.29% (-0.29%) over the three-day window centred on the announcement date. Warnings therefore appear to represent bad news for the typical foreign non-announcing firm, consistent with the contagion effects documented by extant research (eg, Tse and Tucker 2006). The mean non-announcer also experiences a statistically significant downward revision in analysts’ consensus earnings forecast during the 12-day period ending 10 days after a warning is issued.
As documented in previous studies of domestic ITs, however, average spillover effects tend to be economically small. Conversely, tests using abnormal trading volume indicate more pronounced effects: mean announcement-period trading volume is approximately double the normal level for comparable foreign non-announcers (significant at the 0.01 level). Overall, these findings provide evidence that profit warnings generate cross-border ITs that on average involve contagion effects.

For comparative purposes we also computed IT effects for domestic non-announcers. Consistent with prior research, statistically significant contagion effects for domestic same-sector non-announcing firms are evident. More pertinent to our analysis, however, is the relative magnitude of domestic and cross-border results. Although returns for domestic non-announcing peer firms in response to a profit warning tend to be more negative than for foreign non-announcing peers, differences are small and statistically insignificant in most cases. A similar pattern is evident for absolute abnormal returns and analyst forecast revisions: average cross-border effects are broadly comparable with ITs.

One factor expected to impact the incidence and magnitude of cross-border information transfers is the proximity and sequencing of a warning relative to warnings issued by comparable firms. For example, one might expect warnings released early in a given trading cycle to have higher IT potential than those issued later in the financial year (because the majority of sector-specific information conveyed in early warnings has already been incorporated into price by the time subsequent warnings are announced).3 We therefore conducted a series of tests to explore this issue. Despite the intuitive nature of such an analysis, the absence of a standardised reporting cycle makes implementing empirical tests surprisingly difficult because it is hard to determine the first warning in the sequence when firms have different fiscal year-ends. Accordingly, we view this analysis as exploratory. Consistent with evidence reported by Foster (1981) for domestic ITs, our findings provide no evidence that the magnitude of cross-border ITs is any larger (smaller) for profit warnings that precede (follow) warnings announced by peer firms. The extent to which this null result reflects the absence of such effects (contrary to the predictions of market efficiency), or our inability to design an empirical test powerful enough to detect the presence of significant effects, is an open question.

In supplementary tests we sought to determine the extent to which announcer and non-announcer nationality influenced the incidence and magnitude of cross-border ITs. To assess the impact of announcer nationality, we group non-announcing peer firms according to the country of the announcer. (For example, where the announcing firm is German, we examine the market reaction for all non-German non-announcing peer firms.) Results are presented in Figure 3a and 3b.

3 Prior research examining domestic ITs has tested whether market reactions are larger (smaller) for early (late) warners and the results are mixed. For example, Foster (1981) finds no evidence of such an effect, while Clinch and Sinclair (1987) and Freeman and Tse (1992) document that subsequent announcements are less informative.
Figure 3a: The impact of announcer nationality on the market reaction of foreign non-announcing peer firms to profit warnings

Figure 3b: The impact of announcer nationality on the market reaction of foreign non-announcing peer firms to profit warnings
A similar approach was used to assess the impact of non-announcer nationality by grouping observations according to non-announcing firms’ nationality. (For example, we pool across all German same-sector non-announcers regardless of the nationality of announcing firms.) Results are reported in Figure 4a and 4b.

The analysis suggests that both announcing and non-announcing firms’ nationality may influence the form and magnitude of the information transfer. Profit warnings announced by French firms and firms in countries classified as ‘Others’ appear to produce relatively large transfers for comparable foreign non-announcers, whereas German and UK announcers are consistently associated with transfers that are more moderate in magnitude. Nevertheless, country rankings vary across our four market metrics, rendering precise ordering difficult. Similar conclusions emerge when announcement-period effects are grouped according to non-announcing firms’ nationality, where no single country or group of countries is associated with consistently strong or weak effects. While country-level effects therefore appear important for understanding the incidence and magnitude of cross border ITs, robust insights regarding specific countries are hard to establish.

Growth in the volume of cross-border trade and harmonisation of international financial reporting practices over time suggest that the magnitude of cross-border ITs may vary across our sample period.
However, annual comparisons of cross-border ITs against domestic ITs provide no evidence of growth in the relative magnitudes of cross-border IT effects over time. Instead, the average market response for comparable foreign non-announcers is similar to that observed for domestic non-announcers throughout our sample period. Accordingly, we find no evidence that cross-border effects have increased over time in line with advancing globalisation.

### 3.5 Explaining Cross-Sectional Variation in Cross-Border ITs

To shed further light on the properties of cross-border ITs associated with profit warnings we sought to explain the announcement-period market response for comparable foreign non-announcers using a series of firm-, industry- and country-level attributes. The analysis employs a multiple regression model where the dependent variable is defined as abnormal stock returns, abnormal trading volumes, or analysts’ forecast revisions for comparable foreign non-announcers. The factors used to explain cross-sectional variation in the sign and magnitude of cross-border ITs include:

- The magnitude of the earnings surprise conveyed by the profit warning (proxied by the cumulative abnormal stock returns experienced by the announcing firm over the three-day window centred on the profit warning release date);
- The scope for rapid transfer of pertinent information between the announcing firm and foreign non-announcing peer firms (proxied by the presence of at least one common equity analyst on I/B/E/S);
• The extent to which the performance and value of announcing and non-announcing foreign peer firms are determined by a common set of factors (proxied by the degree to which firms’ stock prices co-vary during the pre-announcement period);

• Stage in the business cycle, with more pronounced cross-border ITs in response to profit warnings predicted during periods of economic contraction because announcements are more likely to capture systemic performance problems within a sector;

• Geographic proximity (because neighbouring countries are expected to be culturally and economically more similar, thereby increasing the scope for cross-border ITs);

• International exposure of both announcing and non-announcing peers firms (proxied using geographic segmental revenues or their inclusion in Morgan Stanley’s MSCI global stock index);

• A series of other variables including firm size, GAAP reporting regime, and analyst following.

Findings are summarised as follows. Evidence that cross-border ITs are increasing in the magnitude of the earnings surprise and the degree of covariance between non-announcing firms’ stock returns and those of the corresponding announcer is evident in regressions estimated for abnormal returns. Results using abnormal returns also suggest that cross-border ITs are more pronounced when warnings are issued during periods of economic contraction; and similar effects are also apparent using forecast revisions (contagion subsample only). In contrast, there is no evidence that cross-border ITs are more pronounced when announcers and non-announcers share at least one common analyst or similar economic and social backgrounds. Finally, few systematic patterns are evident among the control variables. Perhaps most notably, firm size displays little consistent association with the magnitude of cross-border information transfers.4

Viewed collectively our analysis provides mixed evidence concerning the determinants of cross-border transfers. On the one hand, many of our test variables display some evidence consistent with their predicted impact on cross-border ITs. On the other hand, no variable is consistently significant (with the predicted sign) across regressions estimated using different market response metrics. In addition, the explanatory power of our regression models is typically poor.

4 The lack of a firm-size effect is initially surprising given that one might expect large, multinational firms to be especially sensitive to cross-border effects. One explanation for the absence of a size effect could be a consequence of our treatment of multinational and cross-listed firms, which we assign to their country of origin. Insofar as such firms’ accounting results reflect events in other countries, it becomes hard to disentangle cross-border effects from domestic effects, and therefore to pin down information transfers for large firms.
4. THE IMPACT OF ACCOUNTING QUALITY

4.1 OVERVIEW
While analysts and investors specialising in a sector are compelled to think globally, their investment decisions are complicated by internationally diverse accounting practices. Research indicates that investors and analysts extrapolate earnings information across national boundaries (Firth 1996b). However, investors reading foreign financial statements are frequently confronted with unfamiliar reporting rules and country-specific nuances. Indeed many countries’ financial reporting rules are not designed to reflect underlying economic performance (Revsine, Collins and Johnson 2001, Ball, Kothari and Wu 2003). International variation in financial reporting quality suggests that cross-border ITs are not automatically guaranteed even when two or more entities share a common ‘state-of-the-world’. Accordingly, international diversity in the quality and comparability of financial statement data is expected to affect cross-border earnings-related ITs.

Prior research demonstrates a link between accounting quality and the information content of earnings for announcing firms. For example, single country studies suggest that investors consider earnings surprises to be less useful when earnings quality is low (Bhattacharayan, Black, Christensen, and Larson 2003, Lougee and Marquardt 2004, Hribar, Jenkins and Johnson 2006), while at the international level Defond, Huang and Trezevant (2007) find that the information content of earnings is lower for firms and countries characterised by low accounting quality. If low quality earnings impede investors’ ability to evaluate announcing firms’ performance and value, it is also expected to yield fewer insights about non-announcing peer firms. Furthermore, earnings may be informative about own firm performance without being informative about peer firm performance due to comparability problems. Comparability is one of the essential qualitative characteristics of useful accounting information (Financial Accounting Standards Board 1980, International Accounting Standards Board 1989). Low accounting comparability has been linked with cross-country differences in the way investors value earnings (Land and Lang 2002), and the demand for improved comparability has been one of the main factors underlying the push to harmonise international accounting practices. In our second set of empirical tests we therefore investigate the extent to which cross-border accounting-related ITs are influenced by the informativeness and comparability of published earnings data.

4.2 INTERNATIONAL FINANCIAL REPORTING STANDARDS
Our primary measure of accounting quality is the adoption of IFRS. IFRS seek to overcome diversity in financial reporting recognition, measurement and disclosure rules applied in different countries. Proponents claim that IFRS represent a set of high-quality financial reporting rules that help improve the informativeness and cross-border comparability of published financial statements. By harmonising reporting practices around a set of uniform, high-quality standards, IFRS aim to produce transparent, internationally comparable financial information that is more understandable to foreign investors, thus enabling firms to attract more capital from investors outside their home country (Revsine, Collins and Johnson 2004: 1011, Ernst and Young 2004: 14). We therefore
examine the impact of IFRS adoption on the incidence and magnitude of cross-border earnings-related ITs.

Several features of IFRS are expected to affect investors’ ability to extrapolate earnings information across national boundaries from announcing to non-announcing firms. First, improved comparability between entities’ published results lies at the heart of financial statements prepared under IFRS (e.g., IAS 1, Ernst and Young 2004: 133). Highlighting the benefits to financial statement users associated with IFRS adoption by European-listed groups, Ernst and Young argue that:

‘… analysts will perhaps for the first time have truly transparent and comparable data about all companies within a particular industry on a pan-European … basis. Companies will be benchmarked against their cross-border competitors and key performance indicators will be compared.’ (Ernst and Young 2004: 59).

Second, in contrast to commercial- and tax law-oriented financial reporting systems, financial statements prepared under IFRS are required to give a ‘fair presentation’ of the underlying economic conditions experienced by an entity during the reporting period (IAS 1). All else equal, standards that represent periodic performance faithfully are expected to improve the informativeness of reported earnings. Third, IFRS are developed with the aim of producing high-quality accounting information. Prior research documents that IFRS adoption is associated with improvements in accounting quality (Barth, Landsman, Lang and Williams 2008, Hung and Subramanyam 2007, Barth, Landsman and Lang 2008), and that higher accounting quality leads to improved earnings informativeness (DeFond, Hung, Trezervant 2007). Greater earnings comparability, fairer presentation of underlying economic performance, and higher earnings quality are expected collectively to increase the scope for information transfers between international peer firms. We therefore test whether earnings prepared according to IFRS are associated with more pronounced cross-border ITs than earnings prepared under national standards.

While the above prediction emphasises the proposed benefits of IFRS with respect to cross-border ITs, we acknowledge the existence of factors working against this prediction. For example, our hypothesis is based on the premise that IFRS adoption is synonymous with a reduction in international accounting diversity and that the resulting IFRS earnings number is more informative about firms’ underlying economic performance. Several factors, however, suggest that this perspective may oversimplify the process and proposed benefits of IFRS adoption. First, adoption of international accounting standards does not guarantee internationally uniform accounting practices due to inconsistencies in the application, regulation and enforcement of accounting practices. Truly uniform international accounting practice requires development of generally accepted ways of employing IFRS. However, as Ernst and Young (2004: 53) highlight, while a comprehensive set of IFRS currently exists, a set of international GAAP remains a distant goal. The proposed comparability benefits associated with IFRS adoption and the resulting impact on cross-border ITs therefore remain an open empirical question.
Second, IFRS are based on a balance sheet model of financial reporting where the emphasis is on measuring the fair value of net assets. To the extent that income measurement under such a model relies heavily on changes in the fair value of assets and liabilities, earnings are likely to be significantly more volatile than those produced under a pure historic cost model. Some commentators have expressed concern that increased income statement volatility could reduce the informativeness of earnings as a summary measure of underlying economic performance (Dichev 2008; Penman 2007). All else equal, such an effect is likely to work against observing an increase in cross-border earnings-related ITs following IFRS adoption. Indeed, the presence of a higher proportion of transitory fair value-adjustments could even increase the amount of idiosyncratic information in reported earnings and thereby reduce the scope for ITs (Schipper 1990; Pyo and Lustgarten 1990).

4.3 SAMPLE, DATA AND RESEARCH METHODS
Empirical tests of the impact of IFRS on the incidence and magnitude of cross-border ITs are based on a sample of annual earnings announcements made by European firms over the period 1997 through to 2007. To address this question, we focus on news events where accounting measurement and recognition issues are potentially more important in determining the informativeness of the news, i.e., earnings announcements. We assume that the average magnitude of news effects related to economic fundamentals is random in time and that the average pre-IFRS economic fundamental effect is not different to the average post-2005 effect. Assuming no structural shifts in economic effects, any change in cross-border ITs around this time can be attributed to accounting effects. We acknowledge that the focus on earnings announcements is not without problems. In particular, earnings announcements are often accompanied by other (non-accounting) information such as forecasts of future performance. Where this supplementary information communicates material information to market participants, we are unable to distinguish information transfers specific to earnings announcements from transfers caused by supplementary disclosures. Further, if there are contemporaneous changes in the importance of common economic fundamentals, any changes in ITs that might be observed might not be related to the accounting regime change.

For earnings announcement $j$ released by firm $i$ in country $k$ at time $t$, we identify all comparable foreign non-announcing firms ($\text{country} \neq k$) with market data at time $t$. Based on findings reported in Section 3.4, we identify foreign comparable non-announcing firms based on industry membership. Sensitivity tests conducted using shared analysts and pairwise correlations in returns yield results that are entirely consistent with those reported below.5

Annual earnings announcement dates are obtained from I/B/E/S, as are the consensus earnings forecasts used to compute the surprise component of the earnings.

5 In contrast to the analysis outlined in Section 3 which used JCF industry classifications, these tests are based on Datastream level-four sector definitions. We use Datastream classifications because JCF data are not required for these tests; using Datastream avoids sample erosion associated with matching the Datastream and JCF databases.
announcement. The final sample comprises firm-year observations that satisfy the following criteria: share price data are available from Datastream for the period surrounding the earnings announcement; at least three comparable foreign non-announcers with price data are available during the announcement period; no other earnings announcement is made by another firm in the same Datastream level-four industry group within four days; the absolute earnings surprise for the announcing firm is greater than the average absolute earnings surprise for the population (applied to ensure that our sample contains significant news events); and sample firms belong to countries and industry-years with at least three observations. The final sample of announcers and non-announcers includes 217,272 firm-year observations for 5,764 firms and is drawn from 30 European countries. The subset of annual earnings announcements consists of 6,918 announcements made by 2,871 firms from 27 countries. Surprises are evenly split between good and bad news: 3,501 (50.6%) are positive and 3,417 (49.4%) are negative. Consistent with our profit warnings sample described in Section 3, the sample of earnings announcements is dominated by firms from the major European stock exchanges: UK firms account for 39% of earnings announcements, followed by French firms (12%) and German firms (8%).

We use the three metrics discussed in Section 3.3 and described in more detail in Appendix 1 to measure cross-border ITs in response to earnings announcements. We also followed Defond, Hung, Trezervant (2007) and examined changes in announcement-period abnormal return variance. However, problems with the distributional properties of this metric led us to drop this variable.6

Two complementary approaches are used to assess the link between IFRS and cross-border earnings-related ITs in response to annual earnings announcements. The first approach, which is based on a pooled levels design, decomposes earnings announcements into IFRS and LOCAL GAAP and then compares the magnitude of cross-border ITs across the two groups. The second approach, which is based on a changes specification, compares the characteristics of cross-border ITs before and after IFRS adoption. These changes tests examine the switch from LOCAL to IFRS as a result of both mandatory adoption of IFRS by European-listed groups for year ends beginning on or after 1 January 2005, and the switch from LOCAL to IFRS by firms that voluntarily adopted IFRS in the pre-2005 period.

4.4 DESCRIPTIVE STATISTICS
The average announcing firm in our sample experiences a market-adjusted abnormal return of 0.26% on the earnings announcement day. When we partition on the sign of the earnings surprise, the average market-adjusted return is 2.77% for positive surprises and -2.21% for negative surprises. Average abnormal trading volume during a three-day window centred on the announcement day for announcers is 3.72 (2.99)

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6 While mean values provided evidence of abnormally high return variance (ie, abnormal return variances greater than one) around earnings announcements for announcing firms, median values were consistently less than 0.7 implying lower-than-normal return variation during the announcement window. Defond, Hung, Trezervant (2007) report similar results but restrict their analysis and discussion to means.
times the norm. The average revision in analysts’ consensus earnings forecasts is marginally negative at -0.03%. At the country level, UK and Dutch announcers are associated with the largest market impact: the average announcement-day abnormal return (trading volume) is 0.64% (5.14) for UK firms and -0.66% (3.74) for Dutch firms.

Consistent with the evidence of cross-border earnings-related ITs reported in Section 3 for profit warnings, the median foreign non-announcing peer firm experiences significantly negative abnormal returns (-0.07%) and significantly higher trading volume (1.9) on the announcement day. Effects are substantially larger when we partition the sample according to the size of the earnings announcement. Similar results hold for the three-day announcement window centred on the earnings release date. Conditioning on the nationality of earnings announcers reveals marginally more pronounced ITs when the announcer is from the UK, Netherlands and Italy.

4.5 THE IMPACT OF IFRS

Preliminary tests involved univariate comparisons of cross-border IT effects conditional on the GAAP regime employed by announcing and comparable foreign non-announcing firms prior to mandatory IFRS adoption in 2005. Firms using national GAAP at the earnings announcement date are designated LOCAL reporters while those using IFRS are designated IFRS reporters. The resulting 2×2 contingency table yields the following four reporting combinations:

a. Both announcing and comparable foreign non-announcing firms use IFRS;
b. Announcers use IFRS while comparable foreign non-announcers use LOCAL;
c. Announcers use LOCAL while comparable foreign non-announcers use IFRS;
d. Both announcing and comparable foreign non-announcing firms use LOCAL.

Focusing initially on the GAAP characteristics of announcing firms, tests provide little systematic evidence that IFRS-based earnings announcements (groups a and b) are associated with more pronounced cross-border earnings-related ITs (relative to groups c and d). For example, while median abnormal trading volume for non-announcers is higher when the announcing firm reports under IFRS, mean abnormal volumes for non-announcers are larger when the announcing firm is LOCAL (as are median abnormal returns for non-announcing firms). Similarly mixed findings are apparent when we allow for differences in the GAAP characteristics of both announcers and non-announcers by comparing cross-border IT effects for all the four reporting combinations above. There exists weak evidence that cross-border IT effects are largest for the LOCAL to LOCAL subset (group d). However, results vary according to the specific market metric employed and consistent patterns are hard to isolate. More importantly in the context of our analysis, we are unable to find any evidence to support the prediction that cross-border ITs are more pronounced for IFRS reporters. Results and conclusions are unchanged for multivariate regression-based tests that
control for a variety of firm- and announcement-specific characteristics including firm size, industry membership, nationality, and the sign and magnitude of the earnings surprise.

Our second set of tests focus on the subset of cases where the announcing firm voluntarily switched from LOCAL to IFRS in the period prior to mandatory IFRS adoption in 2005. These ‘changes’ tests compare the magnitude of cross-border ITs before and after a switch in reporting model for the same announcing firm and as such help to control for other factors that might affect the incidence and size of the IT. As with our first set of tests described above, these changes tests yield mixed results. Analyses that employ abnormal stock returns reveal evidence of a slightly stronger cross-border IT effect when announcers report using LOCAL GAAP compared to when they report under IFRS. In contrast, volume-based tests provide some evidence that abnormal trading volume for comparable foreign non-announcers is higher when announcers report according to IFRS. Note, however, that even in the cases where statistical differences are apparent, the economic significance of the effect tends to be small. Once again, therefore, the analysis provides no robust evidence to support the view that high-quality accounting in the form of IFRS is associated with larger cross-border earnings-related IT effects.

Our third set of tests compares the characteristics of cross-border ITs before and after mandatory adoption of IFRS by European listed firms in 2005. We split the sample of earnings announcers into two groups: earnings announcements relating to financial year ends prior to mandatory IFRS adoption (labelled pre-2005 period) and earnings announcements relating to financial year ends where IFRS is applied (labelled post-2005 period). Comparing the magnitude of cross-border earnings-related ITs for the pre-2005 and post-2005 sub-periods reveals no evidence that IT effects increased following the move to IFRS. Indeed, there is some (albeit very weak) evidence using abnormal return and trading volume metrics that cross-border ITs were more pronounced in the pre-2005 period. These findings do not change when we employ a regression framework to control for additional announcement-, firm- and time-specific factors that may influence the magnitude of cross-border ITs.

Tests described above assume implicitly that transition to IFRS impacted all firms in all countries in a similar manner. In reality, of course, since local GAAP regimes across European countries varied considerably pre-IFRS, the impact of IFRS adoption on the quality of financial reporting (and hence on the magnitude of cross-border ITs) is likely to differ across countries. In an attempt to address this issue, we ranked countries

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7 We excluded the earnings announcements relating to the last year prior to IFRS adoption from the pre-2005 period because it is unclear how the commercial databases from which we collect financial statement data to construct a number of our control variables dealt with that year. In many cases data vendors appear to have replaced financial statement results reported in local GAAP with IFRS comparatives and as such the report data do not represent the information to which the market reacted.

8 Similarly, transition to IFRS is likely to have impacted differentially on firms in a given country depending on the nature of their operations and activities.
according to the average magnitude of the change in the published earnings and book values resulting from the introduction of IFRS, and tested whether the change in cross-border IT effects varied according to these rankings. Empirical results provide no evidence of a link between the financial statement impact of the transition to IFRS and changes in the magnitude of cross-border ITs in response to IFRS adoption.

4.6 SUMMARY
The aim of this analysis was to investigate the link between financial reporting quality, as proxied by the use of IFRS, and the magnitude of cross-border earnings-related ITs. Collectively, our results provide little evidence to support the prediction that IFRS adoption led to an increase in the incidence of cross-border earnings-related ITs. Instead, our tests reveal an absence of any robust association between cross-border ITs and GAAP regime. Our findings suggest that cross-country differences in financial reporting do not necessarily prevent investors from conducting international comparative analyses and that the comparability benefits associated with IFRS adoption may be more subtle than our earnings announcement tests are capable of detecting.

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9 Specifically, we used the CD version of the Extel database to compare published results in the last year prior to IFRS adoption with historical comparative data published in the first set of financial statements prepared under IFRS. Firm-level changes in earnings and book values are averaged to produce country-level measures of IFRS impact, which are then used to create country-level rankings.
This briefing summarises results of a project designed to examine the extent to which earnings information releases provide information about the performance and value of comparable foreign non-announcing firms. Information spillovers from announcing to non-announcing firms are known as information transfers (ITs). A substantial body of research documents evidence of ITs between peer firms within a particular country (ie, domestic ITs). In contrast, the extent to which earnings announcements provide information about foreign non-announcing peer firms (ie, cross-border ITs) remains an open empirical question. We test for evidence of cross-border ITs among European firms using a comprehensive sample of profit warnings issued between 1997 and 2007. Results provide evidence of statistically (but not economically) significant cross-border IT effects that are similar in magnitude to domestic ITs. Foreign non-announcing peer firms experience abnormal stock price movements, unusually high levels of stock trading activity, and significant revisions in analysts’ consensus earnings forecasts in response to profit warning announcements. Our findings extend prior research by demonstrating that investors extrapolate earnings information across national boundaries despite considerable cross-country differences in economic, social, political and regulatory conditions.

In addition to representing an interesting topic in its own right, cross-border ITs also provide a framework in which to explore the consequences of international accounting diversity. While analysts and investors specialising in a specific sector are compelled to think globally, their investment decisions are complicated by internationally diverse accounting practices. International variation in financial reporting rules and quality mean that cross-border ITs are not guaranteed, even when firms share a common ‘state-of-the-world’. We therefore test whether international variation in accounting practices acts as a barrier to cross-border earnings-related ITs, and whether the move to globally consistent financial reporting rules in the form of IFRS is associated with an increase in the incidence and magnitude of cross-border ITs. Empirical tests based on annual earnings announcements released by a large sample of European firms provide no support for the prediction that cross-border ITs are increasing in accounting quality, as represented by a switch to IFRS.

Insofar as cross-border ITs serve as a lens through which to assess whether initiatives aimed at improving international comparability are succeeding, our findings suggest that little has changed, at least at the earnings announcement date. Several factors could account for this result including inconsistent application, regulation and enforcement of IFRS, or greater income statement volatility caused by an increasing emphasis on fair value reporting. In addition, because our IFRS tests focus on earnings announcements we ignore the benefits of better and more comparable financial statement disclosures, the majority of which are not available at the earnings announcement date. Insofar as improved financial statement disclosure represents one of the primary benefits of IFRS adoption, further research on disclosure quality and changes therein may help shed additional light on the comparability gains to adopting IFRS.
Our analysis provides a modest step towards developing a better understanding of how investors extrapolate earnings information across national boundaries. Accordingly, many potentially interesting avenues for further research remain unexplored. For example, it seems likely that our large sample analysis pools together a small number of material cross-border ITs with a large number of negligible responses. Further research aimed at identifying the factors that distinguish material cross-border ITs from the vast majority of immaterial cases could yield interesting insights. Results also indicate differences in the nature of cross-border ITs: while contagion effects appear to dominate in the cross-section, earnings news is often associated with opposing market effects for non-announcing firms. However, our understanding of the factors that lead to contagion versus competitive ITs remains limited. Further research aimed at developing a better understanding of such effects represents a promising avenue for future work. Finally, while large sample studies using machine-readable data provide insights into the cross-border impact of profit warnings and earnings announcements, the approach has its limitations. Future work using interviews and field studies could provide a complementary means of understanding how analysts and markets process accounting information.
Prior research uses a variety of metrics to measure the extent of accounting-related information transfers including announcement-period abnormal stock returns, announcement-period abnormal trading volume, and analysts’ earnings forecast revisions. We employ all three constructs in our empirical tests. This explains how we measured each of these three constructs.

We use market-adjusted returns to measure abnormal stock price movements around the announcement of a profit warning. Daily abnormal returns (AR) for firm $i$ from country $k$ on day $t$ are computed as:

\[ AR_{ijt} = R_{ijt} - RM_{jt} \]

where $R$ is the Datastream return for firm $i$ on day $t$ and $RM$ is the corresponding value-weighted market return in country $k$:

\[ RM_{jt} = \sum_{k=1}^{n} \left( \frac{R_{kjt} \times MV_{kjt}}{\sum_{k=1}^{n} MV_{kjt}} \right) \]

where $MV$ is the market value of firm $j$ on day $t$ and $J$ is the population of stock exchange-listed firms (including firm $i$) in country $k$ with returns available from Datastream on day $t$. Sensitivity tests were also conducted using both raw stock returns and abnormal returns estimated using the market model. We also examined the impact of using alternative announcement windows, as well as removing zero return observations. Although results display slight variation across alternative specifications, the overall tenor of our findings and conclusions does not change.

Since profit warnings may lead to the transfer of negative or positive news to non-announcing firms conditional on the competitive nature of the sector (Schipper 1990), tests are conducted using both signed and absolute abnormal return measures.

Our second information transfer measure is abnormal trading volume ($AV$) during the period surrounding the profit warning announcement. If profit warnings contain information relevant for valuing announcing firms’ peers then we should observe abnormally high levels of trading activity for non-announcers when a warning is issued. Following Bailey, Li, Mao and Zhong (2003) and Bailey, Karolyi and Salva (2006), announcement-period abnormal trading volume is computed as:

\[ AV_{it} = \frac{\sum_{t-25}^{t+25} VOL_{it}}{\sum_{t-150}^{t-25} VOL_{it}} N \]
where \( \text{VOL} \) is the trading volume for firm \( i \) on day \( t \) and \( N \) is the number of trading days from \( t-150 \) to \( t-25 \). Unlike directional market-based measures such as price, trading volume provides an absolute measure of the market response to an announcement and as such is capable of capturing both positive and negative information transfers.

If profit warnings contain new insights concerning the expected performance of non-announcing firms then one might expect peer firms’ analysts to respond by updating their earnings forecasts to reflect such changes. Accordingly, our third measure of information transfers focuses on revisions in analysts’ earnings forecasts. Analysts’ forecast revisions \( (FR) \) in response to profit warning \( p \) announced on day \( t \) are computed as the change in the I/B/E/S mean consensus annual one-period-ahead earnings per share (eps) forecast:

4) \[
FR_p = \frac{\text{EPS}_{it+n} - \text{EPS}_{it-k}}{P_{im-l}}
\]

where \( \text{EPS} \) is the I/B/E/S mean consensus annual one-period-ahead eps forecast for firm \( i \), \( \text{EPS}_{it-k} \) is the last consensus eps forecast available prior to profit warning announcement date \( t \) \( (k = \text{days -180 to -2}) \), \( \text{EPS}_{it+n} \) is the first consensus eps forecast available after the profit warning announcement \( (n = \text{days -1 to 10}) \), and \( P_{im-l} \) is the last available I/B/E/S stock price for the month preceding announcement date \( t \). Where no consensus forecast is recorded on I/B/E/S between days -2 and -180, the value of \( FR \) is set to missing to reduce the impact of stale forecasts. We constrain \( n \) at 10 days to limit the chance of subsequent events (in particular additional warnings) contaminating the forecast revision metric. Using a short revision window yields a relatively conservative forecast update metric. \( FR \) is set equal to zero when no new I/B/E/S consensus eps value is published during days -1 to 10 to reflect the absence of a forecast revision.
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