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DOCUMENTOS DE TRABALHO **WORKING PAPERS**

GESTÃO **MANAGEMENT**

Nº 01/2009

CROSS-BORDER INFORMATION TRANSFERS: EVIDENCE FROM PROFIT WARNINGS ISSUED BY EUROPEAN FIRMS

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October, 2008

Abstract

This paper reports evidence on cross-border accounting information transfers associated with profit warning announcements. Using a sample of firms from 29 European countries, we find that negative earnings surprises disclosed by firms in one country affect investors' perceptions of comparable nonannouncing firms in other countries. The form and magnitude of cross-border effects is consistent with domestic transfers. Tests explaining variation in cross-border information transfers provide some (albeit rather limited) evidence that effects vary according to a range of firm-, industry- and country-level characteristics.

Keywords: Information transfers; Profit warnings.

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Financial support was provided by Fundação para a Ciência e Tecnologia – Portugal (ref. SFRH/BPD/34034/2006).
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We are grateful for helpful comments and suggestions from Martin Walker and seminar participants at the Financial Reporting and Business Communication Conference (Cardiff, 2007), the Portuguese Finance Network Conference (Coimbra, 2008), the 2008 Annual Meeting of the European Accounting Association, and the ESRC/CAIR Conference (Manchester, 2008). We are also grateful to OMAN Ltd for providing the Morgan Stanley MSCI data. Support was provided by the Centre for Business Performance at the Institute of Chartered Accountants in England and Wales, the International Centre for Research in Accounting, and the European Commission (INTACCT research training network, project no. 35850)

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1. Introduction

Prior research provides evidence of within-country information transfers in response to earnings-related news (Firth 1976, Foster 1981, Clinch and Sinclair 1987, Han and Wild 1990, Freeman and Tse 1992, Baginski 1987, Han, Wild and Ramesh 1989, Pyo and Lustgarten 1990, Tse and Tucker 2006). In contrast, the extent to which investors and analysts extrapolate earnings information across national boundaries has been largely overlooked in the literature despite the relentless globalisation of capital and product markets. This paper reports evidence on the incidence and magnitude of cross-border accounting information transfers within Europe.

The essence of our study 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 percent drop in Heineken's share price; it also caused shares in Interbrew (Belgium) and Carlsberg (Denmark) to fall by four and five percent, respectively (*Financial Times*, 24 June 2003). Clearly, investors and analysts considered news of Heineken's performance useful in updating expectations about other firms in the European brewing sector. With more firms transacting a larger fraction of their business across national boundaries, the relevance of financial results released by firms in one country for their foreign peers is likely to be on the rise.

We test for evidence of cross-border information transfers using profit warnings (i.e., voluntary trading updates that signal a material deterioration in profitability and earnings relative to market expectations). Our analysis utilises 4,283 firms from 29 European countries over the period January 1997 through December 2007. Restricting the analysis to European-listed firms represents a compromise between scope and feasibility. It also yields a sufficiently broad cross-section of economic, political and regulatory environments to facilitate a relatively rich analysis of cross-border effects, while simultaneously ensuring that

earnings information remains relevant for nonannouncing firms (by confining the analysis to a single economic zone).

Tests provide evidence that negative earnings surprises affect investors' perceptions of comparable foreign nonannouncing firms. The average market-adjusted price reaction for foreign nonannouncers is statistically negative, suggesting that contagion effects dominate in the cross-section. Nonannouncing firms are also associated with abnormally high trading volume and downward revision in analysts' earnings forecasts during the announcement window. Comparing the magnitudes of within- and cross-country transfers reveals that the average market reaction for foreign nonannouncers is statistically similar to that experienced by domestic nonannouncers. Cross-sectional tests provide evidence that cross-border transfers vary according to firm-, industry- and country-level characteristics. However, results are far from clear cut: findings vary across alternative market response metrics; associations are not symmetric with respect to contagion and competitive effects; and the explanatory power of the models is typically low.

Evidence concerning cross-border information transfers contributes to prior research in several ways. First, Firth (1996a) is the only published study to our knowledge that directly tests whether investors and analysts extrapolate earnings information across national boundaries from announcing to nonannouncing firms. While Firth's (1996a) results provide evidence consistent with cross-border information transfers associated with corporate earnings announcements, his analysis is restricted to just two countries with strong economic and institutional links (the US and UK). Despite these commonalities, however, Firth (1996a) documents asymmetry in the strength of cross-border transfers, with significantly larger effects observed for US announcers. Our analysis extends Firth (1996a) by documenting the presence of earnings-related information transfers in a more extensive set of countries characterised by a broader range of political, legal, and financial reporting arrangements. Second, evidence on cross-border earnings information transfers speaks to the ongoing debate surrounding the impact of international accounting diversity on the usefulness of financial statement data. The demand for improved harmonisation of international financial reporting

practices to facilitate better comparative analysis is one of the main driving forces behind the adoption of International Financial Reporting Standards (IFRS). To the extent that our sample period is characterised by considerable cross-country accounting diversity, evidence of cross-border transfers similar in 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.

The remainder of the paper is organised as follows. Section 2 locates our analysis within the extant literature. Section 3 describes the research design and introduces the sample and data used to test for evidence of cross-border earnings-related information transfers. Section 4 presents univariate evidence regarding the incidence and magnitude of cross-border transfers. Section 5 investigates cross-sectional variation in the magnitude of cross-border information transfers. Section 6 summarises a series of sensitivity tests designed to assess the robustness of our results. Section 7 concludes.

2. Background, motivation and research question

Information transfers occur when an announcement made by one firm contemporaneously provides information about the performance and value of one or more nonannouncing firms (Schipper 1990: 97). In the accounting literature, the majority of information transfer research has focused on earnings-related announcements and events.[1] Using a small sample of UK firms, Firth (1976) tested whether earnings announcements impact stock prices of reporting firms' nonannouncing industry peers. Firth's (1976) results support the view that announcing firms' earnings contain information relevant for valuing nonannouncing firms. Subsequent research by Foster (1981), Clinch and Sinclair (1987), Han and Wild (1990), Freeman and Tse (1992), and Jon and Lee (1992) explored intra-industry information transfers in relation to US firms' earnings announcements, while other studies

[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 1996b), stock repurchases (Hertzel 1991), management buyouts (Slovin, Sushka and Bendeck 1991), corporate accidents (Bowen, Castanias and Daley 1983), and public securities offerings (Szewczyck 1992).

have examined information transfers 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 conclusion emerging from this body of work is that earnings-related news events are associated with statistically significant transfers of information from announcing to nonannouncing firms, although the magnitude of the market reaction for nonannouncers tends to be considerably smaller than that observed for announcers.

Earnings surprises containing state-of the-sector information may impact announcing firms' peers in one of two ways. Surprises that signal changes in the size of the overall sector pie are expected to affect announcing and nonannouncing firms similarly, with favourable (unfavourable) news leading to positive (negative) shocks for both groups. These same-sign information transfers are often labelled contagion effects. Conversely, holding demand within a sector constant, 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 nonannouncing peers. Opposite-sign information transfers that reflect a redistribution of a constant industry pie are often labelled competitive effects. Although examples of both types of transfer have been documented in the literature (Lang and Stulz 1992, Firth 1996a), evidence for earnings-related information transfers 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. 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). To the best of our knowledge, Firth (1996a) is the only published study that tests for evidence of cross-border information transfers in the context of earnings disclosures. Firth (1996a) investigates information transfers between US and UK firms associated with corporate earnings announcements.

Findings reveal evidence of statistically significant earnings information transfers, although the cross-border effects are reliably smaller than corresponding within-country transfers. US announcers are associated with larger cross-border transfers than UK announcers, reflecting the international importance of the US corporate sector coupled with earlier reporting by US firms relative to their UK counterparts with comparable fiscal year ends.

Evidence presented by Firth (1996a) reveals that institutional, regulatory, and financial reporting differences between the US and UK are not sufficient to prevent cross-border extrapolation of corporate earnings surprises. As Firth (1996a) acknowledges, however, cross-border earnings information transfers are more likely to exist between this pair of countries than many other groups of nations 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 substantial institutional, legal, political, cultural and financial reporting differences. This paper seeks evidence on this issue.

We explore the form and magnitude of cross-border information transfers associated with profit warning announcements. Profit warnings offer several research design advantages with respect to our analysis. First, since earnings information transfers are likely to be small and difficult to detect (Schipper 1990, Firth 1996a), high power 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 (e.g., Firth 1996a). Profit warnings, which are associated with dramatic valuation effects for announcing firms (Kasznik and Lev 1995, and Clarke 2001, Helbok and Walker 2003, Collett 2004), therefore provide a potentially powerful context in which to test for cross-border transfer effects. Second, whereas periodic earnings announcements require estimation of the surprise component, profit warnings represent earnings surprises by construction. Consequently, our tests are not constrained by the availability of analyst forecast data, which can be patchy in some European countries. Third, because profit warnings do not follow a systematic disclosure pattern during the fiscal year, they help overcome the problem of cross-event

contamination common to other accounting disclosures such as annual or interim earnings announcements that cluster in calendar time.

3. Sample, data and methods

3.1. Sample selection

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 nonannouncing firms in other countries. For each profit warning announcement in country *k* we identify all comparable foreign nonannouncing firms at the event date (including firms that warned at other times during the sample period). Warnings announced between January 1997 and December 2007 by European publicly traded firms form the basis of our tests.[2] Profit warning data are obtained from JCF Quant/Factset (now ExtelConnect). The sample period begins in 1997 because coverage of profit warning announcements on JCF is limited prior to this date.

The sample selection procedure involves first identifying all European-listed firms included in the JCF proprietary international industry portfolios with market capitalisation data for at least one fiscal year-end during the sample period.[3] The resulting sample comprises 11,835 firms from 30 countries. The total number of profit warnings available on JCF for these firms during the sample window is 3,635.[4] Financial statement and market data required for our tests are drawn from Datastream. While only 6,135 firms (52%) from the initial JCF sample are located on Datastream, the corresponding reduction in the profit warning sample to 2,482 observations is less than 32 percent. This is consistent with our matching procedure

[2] Rules governing when and how European firms issue warnings vary across countries. For example, Berglund and Westerholm (2007) note that Finish Supervisory Authority rules require firms to warn when performance or financial position is worse or better than expected. Similar rules exist in the UK (e.g., PSI Rule 1 and Rule 2). In contrast, firms in some countries never issue warnings, suggesting the absence of any regulatory requirement for firms to update investors in situations where expectations and actual performance are materially misaligned.

[3] Firms are considered European-listed when their JCF primary stock listing code refers to a recognised European exchange.

[4] Previous versions of our paper focused on the last warning issued by a firm in a given fiscal year because JCF only retained the final announcement for firms issuing multiple warnings during a fiscal

excluding a disproportionately high number of small firms that are less likely to warn. This preliminary sample is then refined as follows. First, observations with missing announcement-period price data required for our market reaction tests are excluded. Second, profit warnings for which a comparable foreign nonannouncer cannot be identified at the event date are excluded because our tests require at least one foreign nonannouncing peer firm. Third, profit warnings released within four days of a warning issued by another firm in the same sector are excluded to avoid possible contamination caused by overlapping event windows. Fourth, warnings with non-negative announcement-period abnormal returns for the issuing firm are removed because such observations further complicate our analysis.[5] Fifth, firms classified by JCF as investment trusts are excluded due to the unique nature of their regulatory and financial reporting environment. We also drop firms that JCF does not allocate to a specific industry sector. Finally, countries and industry-year combinations with fewer than three firms are excluded because it is hard to draw meaningful conclusions about cross-border information transfers from such sparse data. The final sample consists of 4,283 firms drawn from 29 countries, and 1,357 profit warnings issued by firms from 20 countries. Most firms (3,479) did not warn during our sample period. Of the 804 announcing firms, 497 (62 percent) issued a single warning, 165 firms (20 percent) warned twice, and 142 firms (18 percent) issued three or more warnings. Sample firms are drawn from 112 of the 130 JFC international industry portfolios. Information technology services account for the largest fraction of warnings (firms) in the final sample at 4% (3%). Panel A of table 1 summarises the sample selection process.

Panel B of table 1 reports the frequency of firms and warnings by country. The sample is dominated by firms from the major European exchanges, with 29 percent of firms (1,228) listed in the UK, 12 percent (509) listed in France, and 9 percent (380) listed in

year. Following a database upgrade in late 2007 JCF now reports all profit warning announcements. We therefore recollected our sample of warnings to avoid potential sampling biases.

[5] Non-negative price responses for the 365 announcements in our initial sample are most likely caused by 'positive' warnings (see footnote 4 for evidence that regulations in some European countries require firms to warn when actual performance *exceeds* expectations). Sensitivity tests reveal that including these cases does not impact materially on our findings and conclusions.

Germany. A similar pattern is evident for profit warnings. Untabulated statistics indicate that the proportion of sample firms issuing at least one warning is highest for the UK (62 percent), Finland (52 percent) and the Netherlands (45 percent). Conversely, sample firms in Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Slovakia, Slovenia, and Turkey do not issue warnings. Panel C of table 1 reports the distribution of profit warnings by calendar year. The pattern of warnings tracks 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.

3.2. Measuring information transfers

Prior research uses a variety of metrics to measure accounting-related information transfers including 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 reasons for favouring one particular approach over another, and because each metric is expected to measure transfer effects with error, we report results for all 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:

$$AR_{ijt} = R_{ijt} - RM_{jt}, \tag{1}$$

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

$$RM_{jt} = \sum_{k=1}^{n} \left(R_{kjt} \times \frac{MV_{kjt}}{\sum_{k=1}^{K} MV_{kjt}} \right), \tag{2}$$

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*.[6] Since profit warnings may lead to the transfer of negative or positive news to nonannouncing 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 nonannouncers 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:

$$AV_{it} = \frac{VOL_{it}}{\sum_{s=t-150}^{t-25} VOL_{is} \Big/ N}, \tag{3}$$

where *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 nonannouncing 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 IBES mean consensus annual one-period-ahead earnings per share (eps) forecast:

$$FR_{ip} = \frac{EPS_{it+n} - EPS_{it-k}}{P_{im-1}}, \tag{4}$$

[6] Tests were repeated 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

where *EPS* is the IBES mean consensus annual one-period-ahead eps forecast for firm *i*, EPS_{t-k} is the last consensus eps forecast available prior to profit warning announcement date *t* (*k* = days -180 to -2), EPS_{t+n} is the first consensus eps forecast available after the profit warning announcement (*n* = days -1 to 10), and P_{m-1} is the last available IBES stock price for the month preceding announcement date *t*. Where no consensus forecast is recorded on IBES 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 IBES consensus eps value is published during days -1 to 10 to reflect the absence of a forecast revision.

3.3. Identifying comparable nonannouncing firms

A key research design issue in the earnings information transfer literature is the procedure for identifying comparable nonannouncing firms. Consistent with prior research on domestic information transfers (Firth 1976, Foster 1981, Pownall and Waymire 1989, Han and Wild 1990), our main tests rely on industry classification to identify peer firms. Industry groupings are defined according to the JCF sector classification. The advantages of this approach include simplicity, transparency, and minimal additional data requirements imposed on the sample. Nevertheless, the approach represents a relatively crude and potentially noisy grouping method given the difficulty of allocating firms to industries (particularly for those operating in multiple sectors). Accordingly, the industry-based method is likely to yield relatively low power tests of the information transfer hypothesis. To address this concern, we report supplementary tests in section 6.2 using two alternative approaches to identifying nonannouncing peer firms.

4. Preliminary results

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zero return observations. Although results display slight variation across alternative specifications, the

4.1. Announcer effects

Using profit warnings as the basis for exploring the cross-border information transfer phenomenon is predicated on the assumption that warnings represent significant news events for announcing firms (which in turn lead to spillover effects for nonannouncing peer firms). Prior research documenting how markets react to profit warnings is confined to the US and UK. Accordingly, table 2 reports abnormal returns, abnormal trading volume, and analysts' earnings forecast revisions for our sample of European warnings. Since trading volume and analyst forecast data are missing for a substantial fraction of observations, sample sizes are smaller when these metrics are employed.

Pooled sample results reported in panel A indicate a significant negative market reaction for announcing firms: the average (median) announcement-day abnormal return is -10.9 percent (-6.4 percent), while the equivalent three-day cumulative abnormal return (CAR) centred on the announcement date is -13.4 percent (-8.7 percent).[7] In addition, trading volume for the average (median) announcing firm is 7.7 (4.1) times higher than normal on the announcement day (p-value < 0.01, two-tailed test). Finally, the consensus eps forecast for the average announcing firm falls by 0.3 percent of price during the 12-day window ending 10 days after the profit warning announcement (p-value < 0.01, two-tailed test). Collectively, these results confirm that European profit warnings contain substantial information about the performance and value of announcing firms.

Panel B of table 2 presents evidence on the market response to profit warning announcements by country. A consistent pattern of negative announcement-period abnormal returns and abnormally high trading volume is evident for announcing firms in most countries. In contrast, findings for forecast revisions are less pronounced in many countries. The market response to warnings is particularly apparent for UK announcers, where the mean

overall tenor of our findings and conclusions does not change.

[7] Similar (though slightly less pronounced) effects are evident if the 365 warnings associated with non-negative announcement-period abnormal returns are retained in the sample. For this combined sample of 1,722 warnings, the median announcement-day abnormal return is -3.9 percent while the median 3-day CAR is -6.4 percent.

announcement-day abnormal return (3-day CAR) is -14.1 percent (-16.3 percent).[8] Cross-country comparisons reveal that announcer effects may not be equivalent across all countries in our sample, suggesting the need to control for announcing firms' country of listing when assessing the incidence and magnitude of cross-border information transfers.

4.2. Initial evidence on cross-border information transfers

Table 3 reports evidence on cross-border information transfers in response to profit warnings. Results for comparable domestic transfers (i.e., where nonannouncing firm *j* is listed in the same country as announcing firm *i*) are also presented in table 3 for comparison.[9]

Abnormal returns presented in columns 3-4 reveal statistically significant stock price reactions for comparable foreign nonannouncing firms in response to profit warning announcements. The average (median) nonannouncing peer firm experiences a price fall of -0.14 percent (-0.12 percent) on the day a warning is issued, and a CAR of -1.29 percent (-0.29 percent) over the three-day window centred on the announcement date. Warnings therefore appear to represent bad news for the typical nonannouncing firm, consistent with the contagion effects documented by extant research (e.g., Tse and Tucker 2006). However, the directional effect of warnings on the value of foreign nonannouncing peer firms is much less uniform than for announcers: a substantial fraction of nonannouncers (46 percent) experience non-negative announcement-day abnormal returns. Cross-border information transfers associated with profit warnings do not therefore appear limited to simple contagion effects. Instead, the impact of warnings appears to be a more complex phenomenon associated with gains for some nonannouncers (e.g., through actual or expected increases in market share) and losses for others. As documented in previous studies of domestic information transfers, average spillover pricing effects tend to be economically small (despite their statistical

[8] Results for the UK are consistent with those documented by Clarke (2001) for the period 1994-2000 and Collett (2004) for the period 1995-2001. Announcement day returns are less negative than those reported by Helbok and Walker (2003) for the period 1992-1998.

[9] The domestic sample is smaller than the cross-border sample for two reasons. First, there are fewer warnings with sufficient nonannouncers. Second, the pool of potential nonannouncers is smaller, resulting in fewer comparable firms for each announcement (and since a firm may be a nonannouncer for more than one warning the effect is multiplicative).

significance). These small magnitudes, coupled with measurement error in abnormal returns, could also account for observed heterogeneity in our pricing results.

Insofar as profit warnings are associated with contagion effects for some nonannouncers and competitive effects for others that are roughly symmetric in magnitude, analysis of average signed returns could mask separately nontrivial negative and positive price reactions. Accordingly, columns 6-7 in table 3 present findings for absolute abnormal returns.[10] Results reveal relatively large and statistically significant pricing effects: mean (median) absolute announcement-day returns are equal to 184 (99) basis points, while the cumulative effect for days -1 to +1 exceeds 440 (190) basis points. In absolute terms, therefore, cross-border transfers appear economically significant. The large magnitude of absolute abnormal returns (relative to signed returns) is further evidence that profit warnings lead to contagion and competitive effects for nonannouncers that net off when aggregated in a signed return metric.

Columns 9-10 and 12 in table 3 present results for abnormal trading volume and analyst forecast revisions, respectively, in response to profit warning announcements. Mean announcement-period trading volume is approximately double the normal level for comparable foreign nonannouncers (significant at the 0.01 level). The mean nonannouncer 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. Although medians are closer to zero, nonparametric tests confirm the presence of abnormally high trading volume and downward revisions in analysts' forecast. Overall, these findings are consistent with the abnormal return results and provide further evidence that profit warnings generate cross-border information transfers that on average involve contagion effects.

[10] We explored results for foreign nonannouncers conditional on whether the sign of their announcement-period abnormal returns is the same as that observed for announcers (contagion subsample) or opposite to that observed for announcers (competitive subsample). Splitting the sample on the basis of contagion versus competitive effects reveals statistically and economically significant signed abnormal returns of approximately one percent in magnitude in both samples. However, whereas announcement-period abnormal returns in the contagion subsample are negative, those in the competitive subsample are positive.

Comparative results for domestic nonannouncers are reported beneath the cross-border findings in table 3. Consistent with prior research, statistically significant contagion effects for domestic same-sector nonannouncing firms are evident. More relevant to our analysis, however, is the relative magnitude of domestic and cross-border results. Firth (1996a) predicts and finds that domestic information transfers for UK and US firms are larger than corresponding cross-border effects. Results reported in table 3 for signed abnormal returns suggest a different pattern. Although domestic returns tend to be more negative than cross-border returns, differences are small and statistically insignificant in most cases. Only median announcement-day returns are significantly more negative for the domestic sample (at the 0.05 level). A similar pattern is evident for absolute abnormal returns and analyst forecast revisions: average cross-border effects are broadly comparable with domestic information transfers. While differences between domestic and cross-border effects are apparent for abnormal trading volume, conclusions are sensitive to choice of announcement window. The absence of systematic differences in the magnitudes of domestic and cross-border effects, and the extent to which this reflects increased levels of globalisation and cross-border trade, is a theme that we return to in section 6.2.

4.3 Country-level results

Table 4 reports cross-border information transfers by country. Panel A presents evidence for foreign same-sector nonannouncers conditional on the nationality of the announcing firm. (For example, where the announcing firm is French, panel A reports the market reaction for all non-French nonannouncing peer firms.) We restrict the discussion to median values because distributions for the market reaction metrics are characterised by extreme observations. Significant cross-country variation in medians is evident for all four metrics suggesting that announcer nationality may influence the informativeness of the warning for foreign nonannouncers. There is some evidence that announcers from France and countries classified as Others tend to produce the largest impact on comparable foreign nonannouncers whereas German and UK announcers are consistently associated with

statistically significant transfers that are more moderate in magnitude. However, country rankings are unstable across the different market metrics making reliable ordering impossible. Similar results are apparent in panel B where announcement-period effects are grouped according to nonannouncing firms' nationality. (For example, we pool across all French same-sector nonannouncers regardless of the nationality of announcing firms.) While significant cross-country variation is again evident across all four metrics, consistent patterns are hard to detect because country rankings vary depending on the particular market reaction variable examined.

Overall, findings presented in table 4 suggest that both announcing and nonannouncing firms' nationality may influence the form and magnitude of the information transfer. However, country effects vary considerably according to the particular market reaction metric examined and no single country or group of countries is associated with consistently strong or weak effects.

5. Cross-sectional analysis

To shed further light on the properties of cross-border information transfers associated with profit warnings we augment average market reaction results with cross-sectional tests that relate the announcement-period market response for comparable foreign nonannouncers to a series of firm-, industry- and country-level attributes. The following section develops our empirical predictions and explains our modelling strategy. Results are reported in section 5.2.

5.1. Predictions and model

It is well established that investors' response to earnings-related news is positively associated with the magnitude of the earnings surprise. While the majority of prior research reports evidence for announcing firms (e.g., Foster, Olsen and Shevlin 1984), findings from the information transfer literature demonstrate that domestic information spillovers are also increasing in the size of the announcing firm's earnings surprise (Foster 1981, Thomas and

Zhang 2006). Firth (1996a) extends the analysis to cross-border transfers between US and UK firms and finds similar evidence. Consistent with Firth (1996a), therefore, we predict that cross-border information transfers in response to profit warnings are increasing in the magnitude of the negative earnings surprise observed for the announcing firm. The announcement-period abnormal return experienced by the issuing firm represents an indirect proxy for the surprise component in a warning.[11] Accordingly, we predict that cross-border information transfers will be more (less) pronounced for profit warnings accompanied by large (small) negative abnormal returns.

Timely information transfers rely partly on the assumption that investors in nonannouncing firm *j* are able to identify and process relevant information released by firm *i*. Evidence of information transfers is therefore expected to be more dramatic when the barriers to identifying and processing pertinent information are low. One factor expected to help facilitate information exchange between firms is common analyst following. Analysts specialise in processing earnings-related information and understanding its implications for announcers and their competitors. For example, analysts' reports routinely discuss and evaluate earnings-related information from the perspective of an announcer's sector in general and its peers in particular. Comparative analysis of the type performed by equity analysts is expected to facilitate information exchange between peer firms. Moreover, since analysts specialise by sector (Ramnath, Rock, and Shane 2008), firms with common analysts may be considered more comparable than those characterised by wholly independent analyst coverage (Ramnath 2002). Accordingly, the absence of at least one shared analyst may proxy for firms between which earnings information transfers are unlikely to occur. Collectively, these factors suggest that the scope for information transfers between any given firm pair will be more pronounced when both are tracked by at least one common analyst.

[11] As Firth (1996a: 314) discusses, a problem with this approach is that the association between stock returns of announcing and nonannouncing firms may be due to misspecification of the expected return model (e.g., market-adjusted returns fail to control for industry-related factors). The alternative approach is to use to a direct measure of earnings surprise. Unfortunately, JCF does not report information concerning the magnitude of the earnings surprise associated with a profit warning.

Cross-border information transfers are also expected to be larger when announcing and comparable nonannouncing firm performance is determined by a common set of factors (Firth 1996a). A simple measure of relatedness for any given pair of firms is the degree to which their respective stock prices covary.[12] We therefore expect the magnitude of cross-border information transfers associated with profit warnings to be increasing in the degree of covariation between nonannouncing firms' stock returns and those of the corresponding announcer.

The amount of common industry information contained in a profit warning is likely to vary over time with the business cycle. All else equal, warnings issued during periods of economic prosperity are more likely to reflect problems specific to an announcer rather than generic sector-wide trends. Conversely, warnings issued during periods of economic slowdown are more likely to capture systemic performance problems within a sector. As a result, the magnitude of cross-border information transfers is expected to be larger for profit warnings issued during periods of economic contraction.

Intra-industry cross-border information transfers are also expected to be contingent on the prevailing competitive structure within a sector. For example, earnings surprises are expected to provide particularly useful information for assessing the performance and value of announcers' peers in industries where firms follow similar strategies and face exposure to comparable market pressures. In contrast, earnings surprises are likely to be less informative about nonannouncing firm performance and value in sectors characterised by greater product market segmentation and strategic differentiation. The level of strategic differentiation (direct competition) is expected to be decreasing (increasing) in the degree of industry concentration. We therefore expect cross-border information transfers in response to profit warnings to be more pronounced in concentrated industries.

[12] Firth (1996a) focuses on the extent to which nonannouncers' earnings covary with those of the announcing firm, based on 10 years of quarterly earnings changes. The absence of quarterly data in Europe and an insufficient time-series of annual observations for most firms prevent us from adopting a similar approach.

Stronger cultural and economic links are predicted to reduce barriers to cross-border information flows by increasing investors' ability to obtain and interpret firm-specific information (Bell, Correia de Silva and Premanis, 2006: 15). To the extent that social and fiscal differences inhibit the flow of information between firms in different countries, cross-border information transfers are expected to be more pronounced between firms from countries with shared economic and cultural traditions (Firth 1996a). Our proxy for the strength of cultural and economic integration is geographic proximity: all else equal, neighbouring countries are expected to be culturally and economically more similar than geographically remote countries. We therefore predict that the magnitude of cross-border information transfers will be greater for firms from neighbouring countries relative to firms that are geographically remote.

The above predictions are tested using the following OLS regression model:

$$MR^{m}_{jpt} = \gamma_0 + \gamma_1 AR_{ip} + \gamma_2 COMANAL_{jt} + \gamma_3 CORR_{jt} + \gamma_4 CLIMATE_{t} + \gamma_5 HERF_{jt} + \gamma_6 NEIGHBOUR_{j} + \sum_{n=1}^{N} \lambda_n Controls_{jn} + \varepsilon_{jpt} \quad . \qquad (5)$$

Variable definitions for equation (5) are as follows: MR^m is the m^{th} market reaction metric for comparable foreign nonannouncer j in response to profit warning p released by firm i at time t (m equals three-day cumulative abnormal returns, absolute three-day cumulative abnormal returns, abnormal trading volume, or analysts' forecast revisions); *AR* is the announcement-day abnormal return for announcement firm i issuing profit warning p; *COMANAL* is an indicator variable that takes the value of one if nonannouncing firm j has at least one analyst in common with announcing firm i, and zero otherwise; *CORR* is the Pearson correlation coefficient between stock returns for announcing firm i and nonannouncing firm j (computed using daily returns over days t-250 to t-10); *CLIMATE* is an indicator variable taking the value of one if profit warning p was announced during a period of economic contraction (calendar years 2000 through 2003) and zero otherwise; *HERF* is the Herfindahl index of global industry concentration (computed using revenues for all firms in the corresponding

JCF international industry portfolio); *NEIGHBOUR* is an indicator variable that takes the value of one where firms *i* and *j* are listed in countries that share a national border and zero otherwise; *Controls* is a vector of *N* additional factors that may also influence the magnitude of the information transfer; and ε is the regression residual. Separate versions of equation (5) are estimated for the *m* dependent variables.

With little theory to guide the selection of appropriate control variables, our final choice is unavoidably arbitrary. We include firm size (natural logarithm of market capitalisation) because larger, higher profile firms may be associated with more pronounced information transfer effects. We also control for firms' global status (measured by inclusion in the Morgan Stanley MSCI global stock index) on the basis that cross-border information transfers may be larger for firms with greater international exposure. Analyst following is included to control for differences in firms' general information environment. We also control for GAAP regime (IFRS, US GAAP and UK GAAP versus the remainder) because cross-border information transfers could be influenced by financial reporting quality. Measures of all control variables are constructed separately for announcing and nonannouncing firms. Finally, in view of significant cross-country variation in the market reaction to profit warnings for announcers (table 2) and nonannouncers (table 4), we include two vectors of country indicator variables to capture unmodelled country-level effects for announcers and nonannouncers.[13]

As Firth (1996a: 318) discusses, coefficient predictions in regressions using signed market reaction metrics (i.e., cumulative abnormal returns and analysts' forecast errors) will differ according to whether a transfer leads to contagion or competitive effects. For example, where warnings lead to contagion, more (less) pronounced transfers should yield more (less) *negative* realisations of the dependent variable. In contrast, where warnings are associated with competitive effects, more (less) pronounced transfers should yield more (less) *positive*

[13] Sensitivity tests exploring the impact of variable definition and model specification yield no dramatic changes in results. Sensitivity tests included: measuring *CORR* using Spearman rather than Pearson correlations; defining *DECLINE* to include only warnings issued in calendar years 2000 through 2002;

realisations of the dependent variable. To avoid these opposing effects netting out in the cross-section, empirical tests should allow for coefficient sign switches. We permit coefficient signs to vary according to the type of information transfer by estimating separate versions of equation (5) conditional on contagion and competitive effects. Absent any reliable ex ante means of distinguishing between contagion and competitive transfers, we follow Firth (1996a) and use nonannouncing firms' announcement-day abnormal return realisations to partition observations. Since profit warnings represent negative earnings surprises, we interpret instances where nonannouncers experience negative (positive) announcement-day abnormal returns as cases of contagion (competitive effects). Conversely, where the dependent variable in regression (5) is an unsigned measure of market reaction (i.e., absolute abnormal returns and trading volume), coefficient signs for our test variables will remain constant irrespective of whether information transfers reflect contagion or competitive effects. Nevertheless, we follow the approach adopted for signed market response metrics and present separate results partitioned on the sign of nonannouncers' returns to allow for variation in the magnitude of predicted associations between contagion and competitive effect cases.

5.2. Results

Table 5 reports coefficient estimates and model summary statistics for regression (5). (Coefficient estimates are multiplied by 10^2 to assist tabulation.) Panel A (B, C, and D) presents results for three-day CARs (three-day absolute CARs, three-day abnormal trading volume, and forecast revisions) partitioned according to the sign of nonannouncing firms' announcement-period abnormal return. Results including and excluding control variables are reported in each case. To reduce the impact of extreme observations the first and ninety-ninth percentiles of the following variables are removed prior to estimation: three-day CARs, three-day abnormal trading volume, forecast revisions by model, and market value for

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using a more direct proxy for cultural similarities; and expanding the model to include controls for legal origin and IFRS adoption.

nonannouncing and announcing firms for all models.[14] Since our sample contains multiple nonannouncers for a single profit warning, regression residuals are likely to be correlated across firms. Further, since some firms issue multiple warnings during the sample period (see table 1), regression residuals may also be correlated across time. Table 5 therefore reports probability values based on clustered standard errors (Petersen 2008), with clustering performed by profit warning announcement and calendar year.

Results provide mixed evidence with respect to the predicted determinants of cross-border transfers. On the one hand, the majority of test variables display some evidence consistent with their predicted impact on cross-border information transfers. On the other hand, insofar as no variable is consistently significant with the predicted sign across all four market response metrics for both the contagion and competitive effect partitions, findings reported in table 5 provide only partial support for the predictions developed in section 5.1. Further, the poor explanatory power of all models presented in table 5 suggests that the primary determinants of cross-border information transfers remain elusive.

Findings for individual test variables are as follows. Evidence supporting the prediction that cross-border transfers are increasing in the size of the earnings surprise (proxied by *AR*) is evident in panels A (CARs) and B (absolute CARs) for both contagion and competitive effect samples. In contrast, estimated coefficients on *AR* in panel D (forecast revisions) are insignificant, although coefficient signs are as predicted, while coefficient signs in panel C (abnormal trading volume) are contrary to predictions. Results provide no support for the prediction that cross-border information transfers are more pronounced when announcers and nonannouncers share at least one common analyst. Indeed, coefficient estimates on *COMANAL* are significant and in the opposite direction to our predictions in panels A and B for Model 1, although these inconsistent findings are not apparent in Model 2 where control variables are included.

[14] Results are not sensitive to alternative trimming procedures. Estimating equation (5) prior to trimming yields broadly similar conclusions for *AR*, *COMANAL*, *CORR* and *DECLINE*. However, coefficient estimates on *HERF* are generally insignificant using untrimmed data. The explanatory power of all models is systematically lower pre-trimming.

The degree of covariance between nonannouncing firms' stock returns and those of the corresponding announcer is associated with cross-border transfers as predicted in panels A (CARs) and B (absolute CARs) for models where control variables are included. Conversely, coefficient estimates on *CORR* in panels C and D are statistically indistinguishable from zero at conventional significance levels. Evidence consistent with more pronounced cross-border transfer effects for profit warnings issued during periods of economic contraction is apparent in panels A (CARs) and B (absolute CARs) for both contagion and competitive groups, and in panel D (forecast revisions) for contagion cases only. Contrary to predictions, however, *DECLINE* is positively associated with abnormal trading volume (panel C) and forecast revisions (panel D) for the competitive transfer partition. Support for the predicted link between cross-border information transfers and industry concentration is also evident in panels A and B for both contagion and competitive groups, and panel D for the contagion group. Finally, although the magnitude of cross-border transfers varies with the strength of countries' cultural and economic links in the predicted direction in the majority of models presented in table 5, coefficient estimates on *NEIGHBOUR* are generally insignificant.

Overall, findings for our test variables tend to be more pronounced for the abnormal return metrics and weakest for abnormal trading volume. Results for several variables are not symmetric across contagion and competitive effect partitions, with stronger results typically documented for the contagion group. Comparison of Model 1 (excluding controls) and Model 2 (including controls) in each panel reveals that control variables display little incremental explanatory power beyond our main test variables. Although a number of controls display significant coefficient estimates in one or more models, consistent patterns are hard to detect. An exception is the country fixed effect vectors, the significance of which supports evidence presented in tables 2 and 4 that cross-border information are partly contingent on country-level factors associated with both announcing and nonannouncing firms, respectively.

6. Supplementary analysis

This section presents findings for a series of additional tests designed to further explore the form and magnitude of cross-border information transfers. In the following subsection we implement a more refined approach to distinguish between contagion and competitive transfers, while section 6.2 summarises a battery of additional robustness tests designed to assess the sensitivity of our findings to alternative specifications and variable definitions.

6.1. Contagion versus competitive effects

Tests reported in the preceding section discriminate between contagion and competitive effects using the approach employed by Firth (1996a). However, partitioning on solely on the basis of announcement-period abnormal returns ignores other market-response indicators; and insofar as abnormal returns are measured with error, reliance on this single metric is likely to misclassify observations. We address this problem by employing an alternative partitioning method designed to provide a more refined split between contagion and competitive effects. Specifically, we use a portfolio approach whereby observations satisfying the following three conditions were classified as contagion (competitive) transfers: negative (positive) three-day CAR; three-day abnormal trading volume greater than one; and a downward (upward) revision in analysts' consensus forecast. If Firth's unidimensional approach to distinguishing between contagion and competitive transfers leads to misclassification problems and hence lower power tests, we would expect evidence of cross-border information transfers to be more pronounced using this three-way split.

The three-way classification method yields 2,486 contagion transfers and 438 competitive transfers. All remaining observations are discarded. The low number of observations classified as competitive effects is consistent with evidence that contagion transfers dominate in the cross-section. Regression (5) is re-estimated for the two groups. Coefficient estimates for our test variables and model summary statistics are presented in

table 6.[15] (Results for control variables are not tabulated in the interests of parsimony.) Consistent with the view that a more refined approach to distinguishing between contagion and competitive transfers helps reduce measurement error in the market reaction metrics, the explanatory power of all models is substantially higher than the corresponding models in table 5. Coefficient signs and significance levels, however, are broadly similar to those previously reported with the following exceptions. In the contagion regressions, *COMANAL* is significant with the wrong sign in the trading volume model, *CORR* loses its significance in the absolute return model, and *DECLINE* and *HERF* display the wrong signs in the forecast revision model. In the competitive effect regressions, incongruous findings previously documented for *AR*, *COMANAL* and *DECLINE* in the trading volume model are no longer evident, *CORR* is significant with the predicted sign in the forecast revision model, while *CORR* and *DECLINE* are insignificant in the cumulative abnormal return model. Overall, therefore, regression (5) continues to provide only limited insights into the determinants of cross-border information transfers.

6.2. Additional sensitivity tests

The first set of robustness tests discussed in this section relates to the selection of comparable nonannouncing firms. Analyses reported in the preceding sections use industry membership to identify similar announcing and nonannouncing firms. To the extent that industry portfolios are constructed using broad classifications that yield relatively arbitrary firm groupings, our analyses are likely to generate noisy tests of the incidence and magnitude of cross-border information transfers. We therefore repeated key elements of our analysis using two alternative methods for selecting comparable nonannouncers. First, in the spirit of Ramnath (2002) we group firms on the basis of shared analysts. For each profit warning we identify all foreign nonannouncers that share at least *n* common analysts with the announcing firm. No constraints are placed on industry membership so that announcing and

[15] The three-way classification is applied to the pre-trimmed sample. Variables are then trimmed separately for each regression model in table 6 leading to minor variations in sample size across the

nonannouncing firms can be drawn from different *JFC* international industry portfolios. Absent any 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 approach leads to a dramatic reduction in sample size and a marked bias towards larger firms.[16] Tests reveal no evidence that matching firms on the basis of shared analysts leads to more pronounced transfer effects than those reported in tables 3 and 4. However, there is some evidence that contagion is increasing in the number of common analysts. For example, three-day CARs (absolute CARs) decline (increase) monotonically and as the number of shared analysts increases. In contrast, three-day abnormal trading volume and analyst forecast revisions are invariant to the level of common analyst coverage.

Our second method of grouping firms uses pairwise correlations in stock returns to identify common firms. For each announcing firm we compute its pairwise return correlation with every foreign nonannouncer and then define comparable foreign nonannouncers as those with a correlation coefficient greater than ρ.[17] Correlations are computed using daily returns for days -150 to -25 relative to the profit warning announcement. Results using values of ρ between 0.3 and 0.7 yield average cross-border transfers that are either similar to or smaller than those obtained using the industry matching method. Collectively, therefore, our common analyst and correlation tests provide no evidence that measurement error in the industry-based method used to select comparable firms understates the magnitude of cross-border transfers.

Analyses presented in sections 4 and 5 are comprehensive insofar as they include announcing and nonannouncing firms regardless of their size or global economic significance. A weakness of this approach is that it retains many small firms that are likely to be immune to cross-border effects due to the parochial nature of their business and market. Including such firms is likely to increase the degree of noise in our tests. We therefore performed two tests where sample firms were restricted to those likely to have a more global presence. In the first

four dependent variables.

[16] For example, restricting comparable foreign nonannouncers to those that share at least five (10 or 15) analysts with the announcing firm yields a final sample of 9,338 (1,910 or 569) observations.

set of tests, we constrained the sample to include the largest 10 firms (ranked by market capitalisation) in each country. In the second set of tests, we restricted our focus to European-listed constituents of Morgan Stanley's MSCI global stock index. Cross-border information transfers associated with these two alternative sampling approaches are similar in magnitude to those reported in tables 3 and 4, and as such provide no suggestion that our main findings understate the size and importance of the phenomenon.

Sample characteristics reported in table 1 reveal that UK firms are responsible for a disproportionately large fraction (56%) of the warnings issued during our sample period, raising the possibility that our findings may be unduly influenced by a single country. We therefore repeated our main analyses after omitting UK profit warnings. While some minor differences in results are apparent, the overall tenor of the conclusions is not affected. As an extension of this analysis, we also examined cross-border effects for a restricted set of major European economies (France, Germany, Netherlands, Spain, Italy and the UK). No material difference in results is evident using firms from these countries.

Although disparities may exist between the incidence and magnitude of domestic versus cross-border information transfers, the presence of widespread inconsistencies could cast doubt on the validity of cross-border results. To the extent that evidence of material domestic information transfers provides an indication that a profit warning contains relevant information for foreign peers, we would expect the magnitude of cross-border transfers to be larger (smaller) in the presence (absence) of a material domestic transfer effect. We test this conjecture by classifying profit warnings into two samples according to whether or not the corresponding average domestic transfer (based on three-day CARs) is statistically different from zero. We then compare the average (median) cross-border market response across the two profit warning subsamples. Results for the abnormal returns metrics are broadly consistent with our conjecture: both contagion and competitive cross-border effects are more pronounced for the subset of warnings associated with significant domestic transfers relative

[17] The approach is extremely computer intensive. Applying this method to our sample involved computing over six million pairwise correlations.

to those for which no significant domestic transfers exist. In contrast, no difference in the magnitude of cross-border effects conditional on the significance of domestic transfers is evident using the abnormal trading volume and forecast revision metrics.

Results presented in table 3 reveal similarities between cross-border and domestic effects with respect to the average sign and magnitude of information transfers. In supplementary tests we examined the degree to which these average results mask changes over time in the average level of cross-border transfers relative to domestic effects. In particular, we investigated whether the relative magnitude of cross-border information transfers increased during our sample period in line with advancing globalisation. Annual comparisons of median cross-border transfers against domestic transfers reveal no evidence of a time-series shift in relative magnitudes: the average market response for comparable foreign nonannouncers is similar to that observed for domestic nonannouncers throughout our sample period. Accordingly, we find no evidence that cross-border effects have increased (relative to domestic transfers) in recent years despite the growth in cross-border trade and steps to harmonise international financial reporting practices.

7. Summary and conclusions

This paper reports evidence on the existence and magnitude of cross-border accounting information transfers associated with profit warning announcements. While prior research indicates interdependencies among firms' share prices based on key accounting disclosures and major corporate events, results are almost exclusively confined to within-country effects. Firth (1996a) is the only study to our knowledge that examines cross-border information transfers associated with earnings disclosures. However, Firth's study is restricted to analysing transfers between firms from countries that share similar economic, institutional and financial reporting arrangements. An unresolved question is the extent to which analysts and investors extrapolate earnings information across national boundaries in the face of substantial legal, political, cultural and financial reporting differences.

We examine cross-border information transfers between European-listed firms in response to profit warnings issued between 1997 and 2007. Empirical tests are based on samples of 4,283 firms drawn from 29 European countries and 1,357 profit warnings issued by firms from 20 countries. Tests provide some evidence that negative earnings surprises affect investors' perceptions of comparable foreign nonannouncing firms. However, results are far from clear cut. Our main findings can be summarised as follows. First, there is evidence of abnormal market activity for foreign same-sector nonannouncers surrounding the release of a profit warning, consistent with the existence of cross-border information transfers among European-listed firms. Second, warnings are interpreted as bad news for the average comparable foreign nonannouncer, suggesting that contagion effects dominate in the cross-section. Nevertheless, markets respond positively for a surprisingly large fraction of nonannouncers, reflecting either a perceived reallocation of market share within the sector or measurement error in our market reaction metrics. Third, average cross-border information transfers are similar in character to domestic transfers. To the extent that domestic accounting-related information transfers are well established in the literature, these similarities provide some comfort regarding the reliability of our cross-border evidence. Fourth, cross-sectional tests reveal that cross-border transfers vary according to firm-, industry- and country-level characteristics. However, findings vary across alternative market response metrics; associations are not symmetric with respect to contagion and competitive effects; and the explanatory power of the models is typically low.

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. First, it seems likely that our large sample analysis pools together a small number of material transfer cases with a large number of negligible responses, resulting in relatively low power tests. Further research aimed at identifying the factors that distinguish material cross-border earnings transfers from the vast majority of immaterial cases is likely to yield interesting insights. Second, cross-border information transfers provide a potentially interesting framework in

which to explore the consequences of international accounting diversity. While investors are compelled to think globally, global investment decisions are complicated by internationally diverse accounting practices. Investors reading foreign financial statements are frequently confronted with unfamiliar reporting rules and country-specific nuances. Additionally, many countries' financial reporting rules are not necessarily designed to reflect underlying economic performance (Revsine, Collins and Johnson 2001, Ball, Kothari and Wu 2003). Precisely how the informativeness and comparability of published accounting information influences cross-border earnings transfers represents an interesting research question. Third, our analysis reveals considerable cross-country variation in the propensity to issue a profit warning. Research aimed at understanding how institutional factors and firm-level incentives influence the decision to warn is likely to prove informative.

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Table 1. Sample selection and composition.

Panel A: Sample selection process

	Firms	Profit warnings
JCF Factset European population with market capitalisation between 1997 and 2007	11,835	3,635
Datastream European population with market capitalisation between 1997 and 2007	11,352	
Sample remaining after matching Datastream and JCF	6,135	2,482
Less:		
Firms with missing price data at announcement date	(659)	(253)
Investment trusts and unclassified firms	(795)	(64)
No comparable foreign nonannouncers at announcement date	(179)	(230)
Multiple profit warnings within 4-day window	(27)	(203)
Profit warnings with non-negative announcement returns	(182)	(365)
Countries and industry-year combinations with < 3 firms	(10)	(10)
Final sample	4,283	1,357
Frequency of profit warnings:		
No profit warning	3,479	0
One profit warning	497	497
Two profit warnings	165	330
Three or more profit warnings	142	530
Total	4,283	1,357

Panel B: Final sample by country

Country	Firms	Profit warnings
Austria	91	15
Belgium	133	39
Croatia	17	0
Cyprus	8	0
Czech Republic	38	0
Denmark	113	16
Estonia	13	0
Finland	89	46
France	509	181
Germany	380	86
Greece	123	1
Hungary	3	0
Iceland	20	1
Ireland	69	25
Italy	223	6
Latvia	14	0
Luxembourg	25	5
Netherlands	180	81
Norway	131	25
Poland	71	4
Portugal	68	1
Russia	143	3
Slovakia	4	0
Slovenia	24	0
Spain	132	4
Sweden	172	15
Switzerland	190	47
Turkey	72	0
United Kingdom	1,228	756
Total	4,283	1,357

Table 1 *continued*

Panel C: Final sample of profits warnings by calendar year

Calendar year	Profit warnings
1997	30
1998	45
1999	18
2000	33
2001	249
2002	202
2003	164
2004	109
2005	156
2006	172
2007	179
Total	1,357

Note: The sample is based on all announcements classified as profit warnings by JCF Quant/Factset. Firms are considered European-listed when their JCF primary stock listing code refers to a recognised European exchange. JCF and Datastream data are matched using various combinations of the following company-specific identifiers: firm name and parts thereof, SEDOL, ISIN and CUSIP. Comparable foreign nonannouncers are defined as firms in the same JCF international industry portfolio as the announcer with a different primary stock listing code.

Table 2. Market reaction to profit warnings for announcing firms

	Abnormal returns (%)					Abnormal trading volume					Forecast revisions (%)		
		Day 0		Days -1,+1			Day 0		Day -1,+1		Days –1,+10		
	N	Mean	Median	Mean	Median	N	Mean	Median	Mean	Median	N	Mean	Median
Panel A: Pooled sample													
	1357	-10.89[a]	-6.39 [a]	-13.36[a]	-8.73[a]	975	7.74[a]	4.13[a]	4.99[a]	3.18[a]	1015	-0.34[a]	0.00[a]
Panel B: By country													
France	181	-6.25[a]	-3.44[a]	-8.21[a]	-6.23[a]	152	5.50[a]	3.22[a]	3.83[a]	2.69[a]	136	-0.41[a]	0.00[a]
Germany	86	-6.30[a]	-4.54[a]	-9.81[a]	-6.50[a]	72	5.99[a]	2.89[a]	4.44[a]	2.61[a]	71	-0.85[a]	0.00[a]
Italy	6	-2.06[b]	-1.59[b]	-2.23[b]	-1.43[b]	505	3.73	2.32	3.63[b]	3.72	4	-0.06	0.00
Netherlands	81	-7.17[a]	-5.57[a]	-11.55[a]	-9.77[a]	4	5.85[a]	3.22[a]	4.12[a]	2.84[a]	47	-0.08	0.00
Spain	4	-5.43	-3.51	-7.36[c]	-7.13[c]	63	11.81	3.56	5.95	1.97	2	0.00	0.00
Switzerland	47	-7.16[a]	-4.05[a]	-10.12[a]	-7.49[a]	3	6.31[a]	3.03[a]	4.12[a]	2.45[a]	32	-0.47[a]	-0.17[a]
UK	756	-14.12[a]	-10.11[a]	-16.28[a]	-11.92[a]	36	9.36[a]	5.62[a]	5.77[a]	3.83[a]	573	-0.27[a]	0.00[a]
Others	196	-7.52[a]	-4.58[a]	-10.38[a]	-6.86[a]	140	6.49[a]	4.10[a]	4.35[a]	3.03[a]	150	-0.36	0.00
p-value for difference		0.01	0.01	0.01	0.01		0.01	0.01	0.01	0.01		0.86	0.01

Note: Variable definitions are as follows: abnormal returns for firm *i* from country *k* on day *t* are equal to the daily return for firm *i* less the corresponding value-weighted market return for country *k*, multiplied by one hundred; abnormal trading volume for firm *i* on day *t* is equal to the daily trading volume scaled by firm *i*'s average daily trading volume over days *t* – 150 through *t* – 25; forecast revision is equal to the difference between the first IBES mean consensus annual one-period-ahead earnings per share (eps) forecast available between days *t* – 1 through *t* + 10 and the last consensus eps forecast recorded on IBES between days *t* – 180 through *t* – 2, scaled by the last available IBES stock price for the month preceding announcement date *t* and multiplied by one hundred. (Where no consensus forecast is recorded on IBES between days *t* – 2 and *t* – 180, the forecast revision value is set to missing.) Superscripts a, b and c denote statistical significance at the 0.01, 0.05 and 0.1 level, respectively, for one-sample t-tests (means) and Wilcoxon tests (medians). Probability values relating to means (medians) in panel B refer to F-tests (Kruskal-Wallis tests) for differences across multiple groups.

Table 3. Market reaction to profit warnings for nonannouncing firms

	Abnormal returns (%)			Absolute abnormal returns (%)			Abnormal trading volume			Forecast revision (%)	
	N	Day 0	Days -1,+1	N	Day 0	Days -1,+1	N	Day 0	Day -1,+1	N	Days -1,+10
Cross-border transfers	34592	-0.14[a]	-1.29[a]	34592	1.84[a]	4.41[a]	13680	1.94[a]	2.06[a]	18834	-0.16[c]
		(-0.12[a])	(-0.29[a])		(0.99[a])	(1.94[a])		(1.03[a])	(1.18[a])		(0.00[a])
Domestic transfers	10869	-0.27[a]	-0.30[a]	10869	1.76[a]	3.31[a]	4435	2.17[a]	1.92[a]	6567	-0.09 [b]
		(-0.18[a])	(-0.34[a])		(0.99[a])	(1.88[a])		(1.05[a])	(1.26[a])		(0.00[a])
p-value for difference in means		0.16	0.09		0.38	0.06		0.01	0.01		0.60
p-value for difference in medians		0.01	0.21		0.01	0.23		0.89	0.01		0.49

Note: Variable definitions are as follows: abnormal returns for firm *i* from country *k* on day *t* are equal to the daily return for firm *i* less the corresponding value-weighted market return for country *k*, multiplied by one hundred; absolute abnormal returns are equal to the modulus of the market-adjusted abnormal return; abnormal trading volume for firm *i* on day *t* is equal to the daily trading volume scaled by firm *i*'s average daily trading volume over days *t* – 150 through *t* – 25; forecast revision is equal to the difference between the first IBES mean consensus annual one-period-ahead earnings per share (eps) forecast available between days *t* – 1 through *t* + 10 and the last consensus eps forecast recorded on IBES between days *t* – 180 through *t* – 2 prior to the profit warning announcement, scaled by the last available IBES stock price for the month preceding announcement date *t* and multiplied by one hundred. (Where no consensus forecast is recorded on IBES between days *t* – 2 and *t* – 180, the forecast revision value is set to missing.) Cross-border transfers refer to cases where announcing and comparable nonannouncing firms are listed in different countries. Domestic transfers refer to cases where announcing and comparable nonannouncing firms are from the same country. Superscripts a, b and c denote statistical significance at the 0.01, 0.05 and 0.1 level, respectively, for one-sample t-tests (means) and Wilcoxon tests (medians). Probability values relating to differences in means (medians) refer to two-tailed t-tests (Wilcoxon tests).

Table 4. Market reaction to profit warnings for foreign nonannouncers

	% Ab. return (-1,+1)			% Absolute ab. return (-1,+1)			Ab. trading volume (1,+1)			Forecast revision (%)		
	N	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median
Panel A: By country of announcer												
France	4472	-0.38[a]	-0.49[a]	4472	3.37[a]	2.07[a]	1962	1.95[a]	1.18[a]	2536	0.07	0.00[a]
Germany	3046	0.01	-0.23[a]	3046	3.11[a]	1.85[a]	1480	1.83[a]	1.14[a]	1731	-0.02	0.00[a]
UK	16762	-2.33[a]	-0.25[a]	16762	5.48[a]	1.88[a]	6144	1.88[a]	1.18[a]	8768	-0.15[a]	0.00[a]
Italy	196	0.30	-0.20	196	2.30	1.44	107	2.14[a]	1.19[a]	109	0.11[b]	0.00
Netherlands	2925	-0.57	-0.07[c]	2925	3.92	1.99[a]	1116	2.07[a]	1.17[a]	1588	-0.02	0.00[b]
Spain	243	0.49	0.22	243	3.30[a]	2.27	110	1.69[a]	1.19[a]	114	0.00	0.00
Switzerland	1380	-0.36[b]	-0.57[a]	1380	3.55[a]	2.26	530	1.78[a]	1.11[a]	780	0.11	0.00[a]
Others	5568	-0.36[a]	-0.42[a]	5568	3.31[a]	1.92[a]	2231	2.01[a]	1.26[a]	3208	-0.61	0.00[a]
p-value for difference		0.22	0.01		0.17	0.01		0.15	0.01		0.42	0.03
Panel B: By country of nonannouncer												
France	4715	0.00	-0.31[a]	4715	3.74[a]	2.13[a]	1876	2.02[a]	1.24[a]	2,381	-0.14[a]	0.00[a]
Germany	4046	-0.27[a]	-0.37[a]	4046	3.61[a]	1.99[a]	1344	1.58[b]	1.07[a]	2,061	-0.17[a]	0.00[a]
UK	5214	-0.20[b]	-0.36[a]	5214	3.44[a]	1.98[a]	2284	2.20[a]	1.28[a]	3,340	0.08	0.00[a]
Italy	1978	-0.17[b]	-0.21[a]	1978	2.48[a]	1.69[a]	1209	1.79[a]	1.18[a]	1,328	-0.11[a]	0.00[a]
Netherlands	2112	-0.21	-0.17[b]	2112	3.52[a]	2.13[a]	931	1.88[a]	1.16[a]	1,152	0.00	0.00[a]
Spain	1521	-0.24[a]	-0.28[a]	1521	2.26[a]	1.61[a]	815	1.68[a]	1.18[a]	1,035	-0.03[b]	0.00
Switzerland	2017	-18.52[a]	-0.28[a]	2017	21.28[a]	1.79[a]	866	1.98[a]	1.24[a]	1,166	-0.35[a]	0.00[a]
Others	12989	-0.31[b]	-0.27[a]	12989	3.36[a]	1.93[a]	4355	1.91[a]	1.15[a]	6,371	-0.32	0.00[a]
p-value for difference		0.01	0.11		0.01	0.01		0.01	0.01		0.84	0.01

Note: Variable definitions are as follows: ab. return is the three-day cumulative market-adjusted abnormal return multiplied by one hundred; absolute ab. return is modulus of the three-day cumulative market-adjusted abnormal return; ab. trading volume is abnormal trading volume computed over the three-day window centred on the announcement date; forecast revision is the difference between the first IBES mean consensus annual one-period-ahead earnings per share (eps) forecast available between days $t - 1$ through $t + 10$ and the last consensus eps forecast recorded on IBES between days $t - 180$ through $t - 2$ prior to the profit warning announcement, scaled by the last available IBES stock price for the month preceding announcement date t and multiplied by one hundred. (Where no consensus forecast is recorded on IBES between days $t - 2$ and $t - 180$, the forecast revision value is set to missing.) Panel A presents evidence for foreign nonannouncers conditional on the nationality of the announcing firm (e.g., where the announcing firm is French results document the market reaction for all non-French nonannouncing firms from the corresponding JFC international industry portfolio). Panel B presents results for foreign nonannouncers grouped according to nonannouncing firms' nationality (e.g., we pool across all

French same-sector nonannouncers regardless of the nationality of announcing firms). Superscripts a, b and c denote statistical significance at the 0.01, 0.05 and 0.1 level, respectively, for one-sample t-tests (means) and Wilcoxon tests (medians). Probability values relating to means (medians) refer to F-tests (Kruskal-Wallis tests) for differences across multiple groups.

Table 5. OLS regression coefficient estimates and summary statistics for models explaining the market reaction for comparable foreign nonannouncers (probability values in parentheses)

		Contagion ($AR_j < 0$)			Competitive effect ($AR_j \geq 0$)	
	Sign	Model 1	Model 2	Sign	Model 1	Model 2
Panel A: 3-day CARs						
Intercept	?	-2.76 (0.01)	-3.29 (0.01)	?	2.89 (0.01)	3.34 (0.01)
AR	+	2.13 (0.01)	1.93 (0.01)	-	-1.38 (0.01)	-1.20 (0.01)
COMANAL	-	0.22 (0.01)	0.04 (0.70)	+	-0.33 (0.01)	-0.04 (0.57)
CORR	-	-0.60 (0.13)	-1.15 (0.01)	+	-0.07 (0.88)	0.54 (0.06)
DECLINE	-	-0.92 (0.01)	-0.86 (0.01)	+	0.56 (0.01)	0.53 (0.01)
HERF	-	-0.48 (0.06)	-0.49 (0.02)	+	0.39 (0.10)	0.31 (0.12)
NEIGHBOUR	-	-0.02 (0.43)	0.02 (0.44)	+	-0.05 (0.39)	-0.04 (0.55)
MV^{A}	?		-0.02 (0.54)	?		0.04 (0.05)
MV^{NA}	?		0.09 (0.02)	?		-0.15 (0.01)
$MSCI^{A}$	?		0.08 (0.42)	?		-0.22 (0.04)
$MSCI^{NA}$	?		0.12 (0.27)	?		-0.03 (0.81)
$ANAL^{A}$	?		-0.00 (0.67)	?		-0.00 (0.16)
$ANAL^{NA}$	?		0.00 (0.85)	?		0.01 (0.07)
$GAAP^{A}$	?		0.17 (0.25)	?		0.26 (0.15)
$GAAP^{NA}$	?		0.12 (0.16)	?		-0.14 (0.12)
Country dummies^{A}		No	Yes		No	Yes
Country dummies^{NA}		No	Yes		No	Yes
Adj-R^2		0.061	0.066		0.028	0.037
N		16833	15940		14052	13399
Panel B: 3-day ACARs						
Intercept	?	-390.03 (0.01)	-369.31 (0.01)	?	-402.52 (0.01)	-392.93 (0.01)
AR	-	-80.64 (0.01)	-73.04 (0.01)	-	-48.30 (0.01)	-38.90 (0.01)
COMANAL	+	-7.45 (0.01)	0.85 (0.40)	+	-8.94 (0.02)	0.02 (0.50)
CORR	+	24.90 (0.12)	47.57 (0.01)	+	8.24 (0.29)	24.94 (0.02)
DECLINE	+	35.68 (0.01)	33.92 (0.01)	+	23.64 (0.01)	25.18 (0.01)
HERF	+	26.36 (0.01)	26.12 (0.01)	+	10.15 (0.14)	7.42 (0.20)
NEIGHBOUR	+	3.71 (0.11)	2.72 (0.22)	+	0.79 (0.40)	1.09 (0.36)
MV^{A}	?		0.01 (0.99)	?		0.92 (0.36)
MV^{NA}	?		-2.74 (0.03)	?		-4.17 (0.02)
$MSCI^{A}$	?		-4.03 (0.33)	?		-8.70 (0.02)
$MSCI^{NA}$	?		-4.69 (0.14)	?		2.20 (0.58)
$ANAL^{A}$	?		-0.06 (0.71)	?		-0.19 (0.17)
$ANAL^{NA}$	?		0.02 (0.67)	?		0.24 (0.00)
$GAAP^{A}$	?		-4.99 (0.45)	?		13.83 (0.02)
$GAAP^{NA}$	?		-2.67 (0.53)	?		-1.36 (0.71)
Country dummies^{A}		No	Yes		No	Yes
Country dummies^{NA}		No	Yes		No	Yes
Adj-R^2		0.055	0.058		0.025	0.031
N		16999	16103		13887	13243

Table 5 *continued*

		Contagion ($AR_j < 0$)			Competitive effect ($AR_j \geq 0$)	
	Sign	Model 1	Model 2	Sign	Model 1	Model 2
Panel C: 3-day AVOL						
Intercept	?	-22.82 (0.04)	-21.72 (0.27)	?	12.48 (0.07)	36.44 (0.00)
AR	-	17.77 (0.43)	14.07 (0.51)	-	24.63 (0.04)	29.69 (0.02)
COMANAL	+	-2.48 (0.20)	0.11 (0.48)	+	-8.21 (0.00)	-5.88 (0.00)
CORR	+	1.36 (0.87)	-1.92 (0.81)	+	-25.47 (0.00)	-14.04 (0.03)
DECLINE	+	1.78 (0.33)	-0.66 (0.90)	+	-5.54 (0.06)	-7.74 (0.07)
HERF	+	4.27 (0.36)	6.20 (0.31)	+	11.12 (0.09)	7.67 (0.18)
NEIGHBOUR	+	0.05 (0.50)	-1.11 (0.70)	+	0.51 (0.42)	0.56 (0.42)
MV^{A}	?		0.30 (0.79)	?		-1.23 (0.40)
MV^{NA}	?		-0.59 (0.57)	?		-2.51 (0.01)
$MSCI^{A}$	?		3.03 (0.38)	?		4.51 (0.30)
$MSCI^{NA}$	?		0.64 (0.84)	?		-5.93 (0.07)
$ANAL^{A}$	?		-0.21 (0.28)	?		-0.02 (0.86)
$ANAL^{NA}$	?		-0.23 (0.01)	?		0.12 (0.12)
$GAAP^{A}$	?		-5.39 (0.19)	?		1.13 (0.81)
$GAAP^{NA}$	?		-0.12 (0.98)	?		-4.61 (0.18)
Country dummies^{A}		No	Yes		No	Yes
Country dummies^{NA}		No	Yes		No	Yes
Adj-R^2		0.021	0.026		0.024	0.030
N		6639	6286		5590	5346
Panel D: FR						
Intercept	?	-0.03 (0.59)	-0.07 (0.43)	?	-0.05 (0.26)	-0.13 (0.01)
AR	+	0.03 (0.12)	0.02 (0.24)	-	-0.01 (0.80)	-0.04 (0.42)
CONANAL	-	-0.01 (0.39)	-0.01 (0.34)	+	0.01 (0.43)	0.00 (0.50)
CORR	-	-0.01 (0.40)	-0.01 (0.33)	+	-0.01 (0.59)	-0.03 (0.37)
DECLINE	-	-0.06 (0.01)	-0.06 (0.01)	+	-0.05 (0.01)	-0.06 (0.01)
HERF	-	-0.07 (0.07)	-0.09 (0.03)	+	-0.04 (0.48)	-0.05 (0.49)
NEIGHBOUR	-	0.02 (0.05)	0.02 (0.60)	+	0.01 (0.25)	0.02 (0.20)
MV^{A}	?		-0.00 (0.50)	?		0.01 (0.20)
MV^{NA}	?		0.01 (0.31)	?		0.01 (0.36)
$MSCI^{A}$	?		0.02 (0.06)	?		-0.00 (0.71)
$MSCI^{NA}$	?		0.01 (0.77)	?		-0.00 (0.94)
$ANAL^{A}$	?		0.00 (0.14)	?		0.00 (0.30)
$ANAL^{NA}$	?		-0.00 (0.01)	?		-0.01 (0.01)
$GAAP^{A}$	?		0.01 (0.19)	?		0.02 (0.51)
$GAAP^{NA}$	?		0.01 (0.41)	?		-0.01 (0.73)
Country dummies^{A}		No	Yes		No	Yes
Country dummies^{NA}		No	Yes		No	Yes
Adj-R^2		0.014	0.016		0.010	0.014
N		9377	8842		7641	7268

Note: The dependent variable in panels A, B, C and D is three-day cumulative abnormal returns centred on the profit warnings announcement date (CAR), absolute three-day cumulative abnormal returns (ACAR), three-day abnormal trading volume (AVOL), and revisions in analysts' consensus eps forecast (FR), respectively. (See tables 2-4 for dependent variable definitions.) Variable definitions for explanatory variables are as follows: *AR* is the announcement-day market-adjusted stock return for the corresponding profit warning announcer; *COMANAL* is an indicator variable taking the value of one if the comparable foreigner nonannouncer shares at least one analyst with the announcing firm and zero otherwise; *CORR* is the Pearson correlation coefficient between stock returns of the nonannouncer and the corresponding announcing firm (computed using daily returns over the period $t - 250$ to $t - 10$); *DECLINE* is an indicator variable taking the value of one if the profit warning was announced in calendar years 2000 through 2003 and zero otherwise; *HERF* is the Herfindahl index of global industry concentration (computed using revenues for all firms in the corresponding JCF international industry portfolio); *NEIGHBOUR* is an indicator variable taking the value of one where announcing and nonannouncing firms are listed in countries that share a national border and zero otherwise; MV the is natural logarithm of market capitalisation; *MSCI* is an indicator variable taking the value of one if the firm is a member of the Morgan Stanley MSCI global stock index and zero otherwise; *ANAL* is the natural logarithm of analyst following; *GAAP* is an indicator variable taking the value of one for firms that report using International Financial Reporting Standards, US GAAP or UK GAAP, and zero otherwise; *Country dummies* is a vector of indicator variables for country of listing; and subscripts *A* and *NA* refer to announcers and nonannouncers, respectively. All variables using financial statement data are measured at the fiscal year-end immediately preceding the relevant profit warning. The full sample is partitioned according to the sign of nonannouncing firms' announcement day abnormal return (*AR*) and separate regressions are performed for $AR < 0$ and $AR \geq 0$. Coefficient estimates are multiplied by 10^2 to assist tabulation. Probability values are based on clustered standard errors and refer to one-tailed tests where coefficient signs are as predicted and two-tailed tests otherwise.

Table 6. OLS regression coefficient estimates and summary statistics for models explaining the market reaction for comparable foreign nonannouncers based on three-way conditioning for contagion and competitive effects (probability values in parentheses).

	3-day CARs				3-day ACARs				3-day AVOL				FR			
	Contagion		Competitive		Contagion		Competitive		Contagion		Competitive		Contagion		Competitive	
	Sign	Coeff.	Sign	Coeff.	Sign	Coeff.	Sign	Coeff.	Sign	Coeff.	Sign	Coeff.	Sign	Coeff.	Sign	Coeff.
Intercept	?	-2.56	?	6.15	?	-412.08	?	-269.37	?	100.71	?	193.45	?	-0.372	?	0.66
		(0.01)		(0.01)		(0.01)		(0.01)		(0.00)		(0.00)		(0.05)		(0.00)
AR	+	2.46	-	-2.07	-	-98.85	-	-82.89	-	3.64	-	-12.46	-	-0.06	-	0.13
		(0.01)		(0.05)		(0.01)		(0.11)		(0.76)		(0.28)		(0.10)		(0.32)
COMANAL	-	0.12	+	-0.02	+	6.11	+	0.53	+	-6.02	+	6.32	+	-0.03	+	0.01
		(0.57)		(0.96)		(0.18)		(0.59)		(0.01)		(0.09)		(0.19)		(0.23)
CORR	-	-1.20	+	0.96	+	36.28	+	50.47	+	-7.45	+	-4.42	+	-0.08	+	0.09
		(0.04)		(0.13)		(0.14)		(0.08)		(0.21)		(0.77)		(0.10)		(0.09)
DECLINE	-	-1.18	+	0.36	+	44.69	+	30.43	+	-0.75	+	-27.47	+	-0.07	+	0.04
		(0.01)		(0.18)		(0.01)		(0.08)		(0.74)		(0.01)		(0.01)		(0.25)
HERF	-	-2.43	+	-2.18	+	78.24	+	-70.01	+	6.25	+	-43.66	+	-0.07	+	0.18
		(0.01)		(0.10)		(0.01)		(0.38)		(0.34)		(0.04)		(0.45)		(0.20)
NEIGHBOUR	-	0.12	+	-0.03	+	-0.34	+	-0.03	+	1.73	+	-3.85	+	0.02	+	-0.04
		(0.35)		(0.95)		(0.94)		(1.00)		(0.31)		(0.67)		(0.19)		(0.10)
Control variables		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Adj-R^2		0.133		0.118		0.117		0.145		0.082		0.178		0.059		0.181
N		2213		393		2232		396		2215		392		2230		371

Note: Observations are partitioned into contagion and competitive groups using the following procedure: observations with a negative announcement-period three-day cumulative abnormal return, abnormal trading volume greater than one, and a downward revision in analysts' consensus forecast are classified as contagion transfers (Contagion); observations with a positive three-day cumulative abnormal return, 3-day abnormal trading volume greater than one, and an upward revision in analysts' consensus forecast are classified as competitive transfers (Competitive); all remaining observations are excluded from the analysis. The dependent variables are three-day cumulative abnormal returns centred on the profit warnings announcement date (3-day CAR), absolute three-day cumulative abnormal returns (3-day ACAR), three-day abnormal trading volume (3-day AVOL), and revisions in analysts' consensus eps forecast (FR), respectively. (See tables 2-4 for definitions of abnormal returns, absolute abnormal returns, abnormal trading volume, and forecast revisions..) Variable definitions for explanatory variables are as follows: *AR* is the announcement-day market-adjusted stock return for the corresponding profit warning announcer; *COMANAL* is an indicator variable taking the value of one if the comparable foreigner nonannouncer shares at least one analyst with the announcing firm and zero otherwise; *CORR* is the Pearson correlation coefficient between stock returns of the nonannouncer and the corresponding announcing firm (computed using daily returns over the period $t - 250$ to $t - 10$); *DECLINE* is an indicator variable taking the value of one if the profit warning was announced

during calendar years 2000 through 2003 and zero otherwise; *HERF* is the Herfindahl index of global industry concentration (computed using revenues for all firms in the corresponding JCF international industry portfolio); *NEIGHBOUR* is an indicator variable taking the value of one where announcing and nonannouncing firms are listed in countries that share a national border and zero otherwise; *Control variables* is a vector of additional variables comprising the natural logarithm of market capitalisation (*MV*); an indicator variable taking the value of one if the firm is a member of the Morgan Stanley MSCI global stock index and zero otherwise (*MSCI*); the natural logarithm of analyst following (*ANAL*); an indicator variable taking the value of one for firms that report using International Financial Reporting Standards, US GAAP or UK GAAP, and zero otherwise (*GAAP*); and a vector of indicator variables for country of listing (*Country dummies*). Separate measures of all control variables are included for announcers and nonannouncers. All variables using financial statement data are measured at the fiscal year-end immediately preceding the relevant profit warning. Coefficient estimates are multiplied by 10^2 to assist tabulation. Probability values are based on clustered standard errors and refer to one-tailed tests where coefficient signs are as predicted and two-tailed tests otherwise