Does financial reporting frequency affect how earnings news travels around the world? Evidence from transnational information transfers

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Abstract

We provide the first evidence on whether financial reporting frequency impacts investor responses to news about global industry earnings, by exploiting variation in firm-level reporting frequency across 32 countries. We use the high frequency quarterly earnings announcements of US industry bellwethers to proxy for news about global industry fundamentals and document that the returns of stocks around the world react to quarterly US bellwether earnings news. Strikingly, the reaction of stocks around the world to US bellwether earnings news is stronger for low reporting frequency ("LRF") firms in quarters when they do not report earnings. Moreover, the reactions of LRF firms to these announcements are followed by return reversals when LRF firms eventually report their own earnings, suggesting that their initial response was an overreaction. Further analyses reveals that reactions are much stronger to negative US bellwether news relative to positive news, especially among low reporting frequency stocks in quarters when they do not report earnings. Overall, our findings suggest that low reporting frequency exacerbates information spillovers and sheds new light on the consequences of infrequent financial reporting from a global perspective.

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1. Introduction

Surprisingly little is known about the implications for investors of the sharp differences in interim reporting frequency that prevail across the globe. In fact, these differences show little sign of abating; while the U.S. mandatory quarterly reporting regime remains firmly in place, the U.K., France, Australia, and New Zealand have consistently mandated financial reporting only at the semi-annual frequency. More broadly, in the last fifteen years the E.U. has twice rejected pushes towards mandatory quarterly reporting.[1] The costs and benefits of frequent financial reporting are the subject of current debate among both academics and standard setters. On the one hand, timely information is vital to investors for valuation and monitoring purposes. On the other hand, frequent financial reporting may impose a financial burden on the firm and encourage managerial myopia (Gigler et al 2014; Kraft et al 2014). While extant research has tended to focus on the real effects of reporting frequency, to our knowledge we are among the first to investigate the implications of reporting frequency on *investors* in a global context.

In this paper, we use the context of transnational information transfers to examine whether variation in financial reporting frequency impacts investor reactions to news about global industry fundamentals. Our central hypothesis is that in periods when low reporting frequency ("LRF") firms do not provide interim earnings information, investors will rely more heavily on news about global industry fundamentals for the task of valuation. Accordingly, we test whether information transfers from the quarterly earnings announcements of U.S. industry bellwethers to peer stocks around the world are stronger for LRF firms in quarters when they

[1] In 2004 the European Union Parliament rejected a proposal to mandate quarterly reporting. As a compromise, the "Transparency Directive" that eventually came into place in 2007 included a requirement to publish semi-annual financial reports with only narrative information required around first and third quarters. More recently however in June 2013 the EU abolished quarterly reporting obligations altogether, arguing that this would reduce short-term pressure on management and encourage investors to adopt a long-term perspective (Wagenhofer, 2014).

lack interim earnings reports. Our focus on U.S. bellwethers as barometers of global industry fundamentals is motivated by the fact that: (1) they account for an economically significant proportion of global industry revenue; (2) they provide timely, mandatory quarterly earnings disclosures produced in a homogenous financial reporting environment; and (3) the U.S. earnings season is widely followed across the globe.[2] For these reasons it is likely that US bellwether earnings announcements contain a "common information" component that provides a timely signal to investors about global industry fundamentals.

For our empirical tests, we obtain a sample of 2,731 U.S. bellwether quarterly earnings announcements across 61 GICS industries from January 2001 through December 2012. We then match our U.S. bellwether announcements to a comprehensive sample of global peer firms (i.e. firms within the same GICS) from 31 countries. To identify US industry bellwethers, for each GICS-quarter we select the three largest US earnings announcers by market capitalization, drop the firm with the smallest absolute return, and of the two firms that remain we keep the earlier announcer. Our sample of global peer firms are required to have non-zero foreign sales and report earnings outside of a 10-day window surrounding the US bellwether announcement.[3] On average our US bellwether firms announce earnings within 23 calendar days of their quarter-end, compared to 32 days for non-US firms.

Our analysis proceeds in the following steps. First, we document that information about earnings from the quarterly announcements of U.S. bellwether firms is transmitted to industry peers around the world. Specifically, we employ a traditional pairwise information transfer research design and document a positive and statistically significant relation between quarterly US earnings news (defined as the three day excess return of each industry's U.S. bellwether

[2] In our sample, US bellwethers account for an economically significant 19% of global industry revenue and derive approximately 30% of their total revenues from foreign operations.
[3] Where identifiable, we keep only observations where the global peer firm reports after the U.S. bellwether.

around its own earnings announcement) and the contemporaneous three-day excess return of non-US stocks in the same industry.[4] These results indicate that, on average, investors in stocks around the world extract value-relevant information from interim US bellwether earnings announcements and incorporate this in their valuations. While prior literature has documented that transnational information transfers exist (e.g. Wang, 2014; Yip and Young, 2012; Kim and Li 2010; Firth, 1996), these studies have focused on annual earnings disclosures and ignored interim reporting periods.

We next investigate the role of financial reporting frequency for the documented transnational information transfers. We partition the sample into LRF firms (i.e. firms lacking Q1 and Q3 earnings reports) and HRF firms (quarterly earnings announcers). Ex-ante, it is not clear whether investors in LRF firms should react differently to US earnings news. On the one hand, given that US news is released *before* foreign peer firms report their own earnings and is therefore a timely value- relevant signal of fundamentals, one could argue that investors should respond to this news irrespective of whether the firm will subsequently announce quarterly earnings. On the other hand, there are at least two reasons to expect investors to exhibit a differential reaction. First, prior research suggests investors increase information gathering activities in the lead-up to earnings announcements (e.g. McNichols and Trueman, 1994, Roulstone et al., 2012). To the extent that this information gathering allows investors to anticipate US earnings news, one may expect a muted (stronger) response to US announcements in the presence (absence) of an earnings announcement, i.e. in Q2/Q4 versus Q1/Q3. Second,

[4] Our empirical tests focus on the relation between the short-window return responses of non-announcers to the short-window returns of announcers around their earnings announcements. Short-window event studies provide a powerful setting to isolate the information content of news events since expected returns in short windows are approximately zero (Fama, 1970; Kothari, 2001). We are careful to ensure that our results are not contaminated by contemporaneous announcements by domestic peer firms, and remove country-industry-quarters where any local firm reports earnings within the 5-day window surrounding the U.S. bellwether's announcement.

given that investors in LRF firms do not receive own-firm interim earnings reports in Q1 and Q3, they may overweight US earnings news due to the representativeness heuristic (Kahneman and Tversky, 1974) and overreact to US earnings news in these quarters. In the latter case, these return reactions may reverse when these firms eventually report their earnings.

Our within-firm analysis reveals that LRF stocks are in fact three times more sensitive to US earnings news in Q1 and Q3 compared to US earnings news in Q2 and Q4.[5] These results are consistent with the view that when investors do not receive timely interim disclosures about firm fundamentals, they rely more heavily on other sources of news, about global industry fundamentals for the task of valuation.

Third, given our finding that information transfers are stronger in the absence of own-firm earnings reports for LRF firms, a natural question is whether this stronger reaction simply reflects the proper incorporation of bellwether earnings news by investors, or is potentially an overreaction? We adapt the research design of Thomas and Zhang (2008) and test whether the returns of non-US stocks around their own future earnings announcement is predicted by their response to past US earnings news.[6] We find that the return responses of LRF firms to Q1 (Q3) US earnings news negatively predict future returns around their own Q2 (Q4) earnings announcements. Specifically, a hedge portfolio that goes long (short) LRF stocks in the lowest (highest) quintile of their return response to US earnings news in Q1 and Q3 earns a statistically significant three-day return of 0.84% around their future earnings Q2 and Q4 announcement

[5] We also perform a difference-in-differences type analysis for a sub-sample of E.U. stocks who switched their reporting frequency from semi-annual to quarterly around the time of the effective introduction of the Transparency Directive in 2007 (untabulated). We find that for the sub-sample of firms who switched from semi-annual to quarterly reporting, information transfers around Q1 and Q3 are significantly smaller after the switch, however Q2 and Q4 are unchanged.

[6] In their study of US firms, Thomas and Zhang (2008) suggest that due to the representativeness heuristic bias documented in the behavioral finance literature (e.g. Tversky and Kahneman (1974), Barberis, Shleifer, and Vishny (1998), Chan, Frankel, and Kothari (2004)), the stock prices of late-announcing firms overreact to the earnings news of early announcers.

(respectively). Strikingly, the return responses of LRF firms to Q2 and Q4 US earnings news do not significantly predict future returns around their own subsequent Q2 and Q4 earnings announcements, nor is there significant evidence of return reversals relating to US earnings news in our sample of high reporting frequency firms. These results suggest that investors do not overreact to US earnings news in quarters when own-firm announcements are present, but they do overreact to US earnings news in the absence of information about own-firm fundamentals. Combined with our previous results, we find that not only do investors respond more strongly to US earnings news when they lack own-firm earnings disclosures, but this stronger reaction is an overreaction.

Interestingly, most of the return predictability in LRF firms arises from the portfolio that is long stocks with negative responses to US earnings news. This suggests that bad US earnings news may be associated with stronger information spillovers. Thus, we explore whether the degree of transnational information transfers varies depending on whether US earnings news is positive or negative. Prior literature documents significant increases in global return correlations in bad states of the world (e.g. Bekaert et al., 2014; Bae et al., 2013). Accordingly, we partition our LRF and HRF sample into positive versus negative US earnings news. Our empirical analyses reveal that the returns of stocks around the world are twice as sensitive to negative US earnings news compared to positive US earnings news. This asymmetric sensitivity is particularly pronounced for LRF firms in quarters when they lack their own earnings disclosures. In short, the evidence suggests that bad news is particularly contagious when there is an absence of own-firm earnings disclosures (i.e. when investors are more information 'starved').

This paper makes several contributions to the literature. First, while the idea that investors respond to the earnings announcements of foreign peer firms has been documented by

prior literature (e.g. Wang, 2014; Yip and Young, 2012; Kim and Li 2010; Firth, 1996), these studies have focused on annual earnings disclosures and ignored interim reporting periods. As a result, the role of interim reporting in transnational information transfers is virtually unexplored. We extend this literature and show that transnational information transfers occur during interim reporting periods as well. Interestingly, prior studies suggest that transnational information transfers are stronger when both the announcing firm and its foreign industry peers follow the same accounting standards because this enhances the comparability of the earnings signal. However, we find strong evidence of information transfers irrespective of differences in accounting standards between countries—the majority of our global peer firms use IFRS while bellwether news is prepared under US GAAP—indicating that investors in international stocks appear comfortable in responding to US GAAP earnings.[7]

Second the differential reaction of LRF stocks to US earnings news is consistent with the view that low reporting frequency hinders a firm-specific information channel that is vital for the task of valuation, i.e. investors in these firms rely more heavily on news about interim global industry fundamentals when own-firm earnings reports are absent. In addition, our results also provide support for theoretical arguments of increases in information acquisition in the lead-up to earnings announcements. Third, we contribute to the contemporary global debate on the pros and cons of frequent financial reporting by showing that LRF stocks tend to overreact to Q1 and Q3 US earnings news. In other words, the evidence suggests that mispricing can arise when investors are deprived of own-firm financial reports and are therefore unable to directly observe and assess firm performance; a cost of reduced reporting frequency that has been missing from

[7] Consistent with Barth, Landsman, Lang and Williams (2012) who show that US GAAP is more comparable to IFRS than many local national GAAPs prior to adoption. We find no significant difference in our empirical findings between the pre- and post-IFRS adoption period, indicating that accounting standard similarities do not drive our results.

the current debate. Lastly, we show that stocks around the world respond significantly more strongly to negative US earnings news than to positive US earnings news, suggesting that bad earnings news elicits a stronger investor reaction and is more contagious than good earnings news.

This paper is organized as follows. Section 2 discusses the prior literature and develops our predictions. Section 3 describes our research design while section 4 discusses our empirical design and sample selection criteria. Section 5 discusses our empirical results and robustness tests. Section 6 concludes.

2. Background and predictions

2.1 Prior literature

The nascent literature that studies the consequences of reporting frequency tends to adopt a "real effects" perspective, and examines the impact of financial reporting frequency on firms' investment decisions. Gigler, Kanodia, Sapra and Venugopalan (2014) develop a rational expectations equilibrium based on endogenous costs and benefits of reporting frequency on managers' investment decisions. In the model, the benefit of higher reporting frequency is that it deters managers from investing in negative NPV projects, since periodic performance reports enable market prices to impose discipline on the firm's choices. On the other hand, the cost of frequent financial reporting is that it induces a short-term perspective (myopia) on managers in the choice of the firm's investment projects. Thus, financial reporting frequency has real economic consequences for firms.

Providing empirical evidence in support of the above predictions, Ernstberger, Link, Stich and Vogler (2011) study firms across the European Union and find that firms that have

quarterly earnings announcements exhibit higher real earnings management compared to firms with semi-annual earnings announcements in periods when they just meet or beat earnings benchmarks. Other studies on the effects of reporting frequency examine the US in isolation. Kraft, Vashishtha and Venkatachalam (2014) use the transition of US firms from annual reporting to quarterly reporting over the period 1950-1970 to investigate the effects of increased reporting frequency on firms' investment decisions. They find that increased reporting frequency is associated with a decline in investment and find evidence consistent with managers behaving myopically after increases in reporting frequency. Using the same US setting, Fu, Kraft and Zhang (2012) find that higher reporting frequency reduces information asymmetry and the cost of equity capital, and Butler, Kraft and Weiss (2007) document that US firms who voluntarily increased reporting frequency from semiannual to quarterly improve the timeliness of earnings. Bhojraj and Libby (2005) use an experimental setting and find evidence consistent with higher reporting frequency causing greater managerial investment myopia when there is significant stock market pressure.

On balance, these studies primarily adopt the perspective of managers, focusing on the effects of reporting frequency on managerial myopia in investment and reporting decisions. Indeed, with the exception of Fu, Kraft and Zhang (2012) these studies do not primarily adopt an investor valuation perspective when considering the effects of financial reporting frequency. Our paper attempts to fill this gap in the literature by investigating whether, and how, reporting frequency affects the valuation of firms around the world by equity investors.

Our paper is also related to the literature on transnational information transfers. This recent stream of literature has tended to focus on whether IFRS adoption improves cross-border information transfers within the European Union. Wang (2014) finds that cross-country annual

earnings announcement information transfers within the EU are greater when both the announcing firm and the foreign non-announcing firm report under the same rather than different accounting standards, suggesting that common accounting standards improving financial statement comparability. Yip and Young (2012) and Kim and Li (2010) also find evidence consistent with IFRS adoption facilitating transnational earnings information transfers. Meanwhile, Firth (1996) finds evidence of transnational information transfers in a two-country context (between the US and the UK), and Alves, Pope and Young (2009) find evidence in the EU that profit warnings by firms affect stock prices of peer firms in other EU countries.

In the context of US intra-industry information transfers, Foster (1981) finds that firms respond to the earnings announcements of their peers. Han, Wild and Ramesh (1989) find that managerial forecast issuance impacts the stock prices of peer firms, and Han and Wild (1990) find that the stock prices of peer firms respond contemporaneously to the unexpected component of announcers' earnings. Freeman and Tse (1992) document that earnings movements within the same industry are positively correlated, and find that information provided by early announcers can be used to predict late announcers' news. They find a significant price reaction by non-announcing firms to early announcers' sales and earnings changes. Ramnath (2002) finds that the analyst forecast error of the first announcer in an industry can predict the analyst forecast errors of subsequent earnings announcers in the same industry.

Thomas and Zhang (2008) examine the stock returns of late earnings announcers relative to the returns of early earnings announcers in the same industry. They find that stock prices of late announcers seem to overreact to the intra-industry information transfer from early announcers' earnings announcements. This mispricing is subsequently corrected when late

announcers announce their earnings, leading to stock return predictability around the late announcers' announcement.

Lastly, our paper is related to the finance literature on information spillovers. Lee et al (2004) find evidence of lagged return and volatility spillovers from NASDAQ to Asian markets. Similarly, Rapach et al (2013) find that lagged aggregate stock market returns in the US exhibit predictive power for aggregate returns in many non-US industrialized countries.

2.2 Predictions

Motivated by these streams of literature, we investigate transnational information transfers in interim reporting periods and the role of financial reporting frequency in these information transfers. Specifically, we examine information transfers from the quarterly earnings announcements of U.S. industry bellwether stocks to the rest of the world. We focus on information transfers originating in the US because of the US's timely, homogeneous, high frequency reporting regime and because of the significant economic importance of US firms which causes the US earnings season to be followed across the globe.

Our first prediction relates to whether there is an information transfer from the interim earnings announcements of US firms to non-US firms. Prior literature including Wang (2014), Kim and Li (2010) and Firth (1996) has focused on transnational intra-industry information transfers using annual earnings announcements only. This literature does not provide insight into whether interim earnings news travels around the world. These studies also suggest that transnational information transfers are greater when both the announcing firm and its industry peers follow the same accounting standards because this enhances the comparability of the earnings signal. Adopting this perspective suggests that stocks around the world may not react to

US earnings news given that US firms follow a different accounting system relative to non-US firms (which mainly use IFRS starting 2005).[8]

On the other hand, given that the US earnings season (and in particular the performance of US industry bellwethers) is widely followed across the world and since US firms are likely to announce earnings in a more timely fashion relative to non-US firms, it is possible that non-US stocks respond to interim US earnings news. If investors in non-US firms seek information about interim earnings and draw on US earnings news to aid them in the task of valuation, then they will respond to interim US earnings news.

Second, we argue that reporting frequency may play a role in the transmission of US earnings news across the world. On the one hand, given that on average US news is released *before* foreign peer firms report their own earnings and is therefore a timely, value- relevant signal of fundamentals, one could argue that investors should respond to this news irrespective of whether the firm will announce quarterly earnings. However, there are at least two reasons to expect investors to exhibit a differential reaction. First, prior research suggests investors increase information gathering activities in the lead-up to earnings announcements (e.g. McNichols and Trueman, 1994, Roulstone et al., 2012). To the extent that this information gathering allows investors to anticipate US earnings news, one may expect a muted (stronger) response to US announcements in the presence (absence) of an EA, i.e. in Q2/Q4 versus Q1/Q3. Second, given that investors in LRF firms do not receive own-firm interim earnings reports in Q1 and Q3, they may overweight US earnings news due to the representativeness heuristic (Kahneman and Tversky, 1974) and overreact to US earnings news in these quarters. Thus, our

[8] In a related vein, Barber et al (2013) examine non-US stocks' interim and annual earnings announcements find that abnormal idiosyncratic volatility is much smaller around interim announcements than around annual announcements, indicating that investors in non-US stocks may not view interim announcements as informative relative to annual earnings announcements.

second prediction is that investors in LRF firms rely more heavily on interim US earnings news for Q1 and Q3.

Third, we study whether there is a relation between non-US firms' response to US earnings news and the returns of these firms around their own future earnings announcement (especially in the context of LRF firms). Studying US data, Thomas and Zhang (2008) find evidence consistent with investors overreacting to intra-industry information transfers. Specifically, they document that the returns of late earnings announcers around their own earnings announcements is negatively predicted by their response to earnings reported by early announcers. In other words, the overreaction of late announcers to early announcers' earnings news is corrected when late announcers subsequently disclose earnings. In our setting, it is possible that investors are more likely to overreact to US earnings news when own-firm reports are absent (i.e. investors in LRF firms may overreact to Q1 and Q3 US earnings news). To this end, we predict that non-US firms' response to past US earnings news predicts their returns around their own future earnings announcements (particularly for news about Q1 and Q3 in LRF firms).

Lastly, we consider the fact that the response of foreign stocks to interim US earnings news may be asymmetric depending on whether the US news is good or bad. The extant literature on financial market contagion suggests that correlations in global returns increase during periods of bad news (e.g. Bekaert et al., 2014; Bae et al., 2013), and the conservatism literature suggests that bad news tends to be reported more quickly than good news (Basu 1997). However, a stream of research (e.g. Hayn, 1995) suggests that losses are less informative than profits about firms' future prospects, are not expected to perpetuate, and thus may not be value-relevant sources of industry information. If bad interim news is more 'contagious' than good

interim news, then investors in non-US stocks will react more strongly to bad interim US news and this effect is may be exacerbated when own-firm financial reporting is absent. We test whether non-US stocks are more sensitive to negative interim US earnings news and whether this effect is exacerbated for negative news about interim periods (i.e.Q1 and Q3) in LRF firms.

3. Research Design

3.1 Empirical Specification

Following prior literature, we measure the information transfer of earnings information from announcers' earnings announcement abnormal stock returns (e.g. Han and Wild, 1990; Thomas and Zhang, 2008) to the contemporaneous abnormal returns of non-announcers.[9] This design provides more consistent measurement of information transfers since short-window event studies provide a powerful setting to isolate the information content of news events given that expected returns in short windows are approximately zero (Fama (1970); Kothari (2001)). Consistent with Thomas and Zhang (2008), we calculate abnormal firm-level returns as the raw return less the value-weighted market return for the three day period [-1,+1] centered around the earnings announcement date.[10] Daily abnormal returns (AR) for firm *i* from country *k* on day *t* are computed as:

$$AR_{ikt} = R_{ikt} - VRM_{kt} \quad (1)$$

[9] Several studies use alternative measures of information transfers, such as analyst' earnings forecast revisions (e.g. Ramnath, 2002), and abnormal trading volume during announcement periods (Weigand, 1996). While we focus on abnormal returns in the current study, we perform sensitivity tests using alternative measures.

[10] As argued in Fama [1998], the choice of the return expectation model is less important in short-window return studies, since daily expected returns are close to zero. Consistent with prior literature we skip non-trading days when measuring returns over earnings announcement windows. For example, the three-day return period is from Monday to Wednesday if a firm announces its earnings on Tuesday, but the return period is from last Friday to Tuesday if the firm announces its earnings on Monday (e.g. Thomas and Zhang, 2008).

where R_{ikt} is the return for firm *i* on day *t*. We obtain firm-level returns from CRSP for our US sample of firms, and from Datastream for our non-US sample of firms. VRM_{kt} is the corresponding value-weighted market return in country *k*, computed as:

$$VRM_{kt} = \sum_{j=1}^{J} \left(R_{jt} * \frac{MV_{jt}}{\sum_{j=1}^{J} MV_{jt}} \right) \quad (2)$$

where MV_{jt} is the market value of firm *j* on day *t* and *J* is the population of stock exchange-listed firms in country *k* with returns available from Datastream on day *t*. For our US sample we measure market returns using returns on the CRSP value-weighted market index.

Our main set of empirical tests employ the traditional information transfer research design in which we measure the sensitivity of the stock returns of non-announcing foreign firms (i.e. F_aret_{it}) to US earnings news by running the following regression specification at the firm-pair-level:

$$F\_aret_{it} = \alpha + \gamma_1 US\_News_{jt} + \sum \gamma_n Controls_n + \sum \delta_n FE + \varepsilon \quad (3)$$

where F_aret_{it} is the three-day excess buy-and-hold return of foreign firm *i* from GICS industry *j* surrounding the date of the U.S. bellwether's quarterly earnings announcement. We take into account international time-zone differences when computing *F_aret* surrounding a US announcement date (i.e. we shift the return window a day forward for Australian firms given Australian markets are closed before U.S. markets begin trading), where possible. In addition our three day window around earnings announcements helps mitigate concerns regarding non-synchronous trading.

We measure US bellwether earnings news, *US_News*, as the three day buy-and-hold return surrounding the bellwether's quarterly earnings announcement. Where appropriate we use the I/B/E/S time stamp to determine instances where an announcement occurred after the market

close and accordingly adjust the announcement day to the following trading day. The coefficient, γ_1, on *US_News* captures the information transfer from US bellwethers to our sample of foreign firms. We predict this coefficient to be positive and statistically significant in both annual *and* interim periods.

Importantly, we remove all firms in a given country-GICS-quarter if any firm in that country-GICS-quarter announces earnings within a 5-day window around the US bellwether's earnings announcement. This alleviates concerns about contamination in our return response window, i.e. that foreign firms are simply responding to within-country domestic intra-industry transfers and not US earnings news.[11]

In order to test the implications of financial reporting frequency on investors' response to US news, we undertake a "within-firm" type design where we partition our sample into LRF firm-years, and non-LRF (i.e. High Reporting Frequency, "HRF") firm-years and estimate the following variant of equation (3) within each sample, as follows:

$$F\_aret_{it} = \alpha + \gamma_1 US\_News_{jt} + \gamma_2 Interim + \gamma_3 Interim * US\_News_{jt} + \sum \gamma_n Controls_n + \sum \delta_n FE + \varepsilon$$

where *Interim* is an indicator set to 1 when the US bellwether news relates to the first and third fiscal quarter of the foreign firm, and 0 otherwise. The interaction term *Interim * US_News* captures the incremental information transfer during Q1 and Q3 fiscal quarters, relative to Q2 and Q4. Thus, for the sub-sample of LRF firms, the coefficient γ_3 measures the information transfer during periods where no own-firm earnings information is released. We predict that γ_3 is significantly positive for the LRF sample.

[11] Some non-US firms voluntarily report at a higher frequency than that mandated by listing requirements. For example, several Australian mining companies issue quarterly earnings updates even though they are only required to provide semi-annual reports to investors. Removing the entire GICS-country-quarter if any firm in the country reports earnings in the 5-day window centered on the US announcement helps alleviate concern that lower frequency firms within a given country are simply responding to earnings news of domestic peers that voluntarily report more frequently, which could potentially confound results.

Data on firm-level frequency of financial reporting is obtained from Datastream (#WC05200). We then compare these data to actual earnings announcement dates obtained from Bloomberg. In instances where Datastream reporting frequency is less than the number of earnings announcements we obtain for a given firm from Bloomberg we adjust the frequency to mirror the count of Bloomberg announcement dates. We also then augment this data with earnings announcement data from Capital IQ, in order to obtain the most comprehensive sample of earning announcement dates and yearly reporting frequencies.

In addition to our variables of interest we also include the following control variables, along with country, year, firm and GICS industry fixed effects. We control for $CtryGICS\_Corr$, defined as the correlation in daily returns between the value-weighted GICS US industry return and the value-weighted return for firms in firm *i*'s country of domicile in the same industry in the prior year. This captures variation in the underlying economic linkage between firms in the same industry in the US and the relevant foreign country to mitigate concerns that we are simply documenting cross-country return co-movement within the same industry. We control for the size of the foreign firm, where $Size$ is the natural log of beginning market capitalization of firm i, measured in USD for year *t*.[12] We account for differences in growth by controlling for the book-to-market ratio of the foreign firm, where B/P is the natural log of the book-to-price ratio of firm *i*, measured as beginning book value of equity in USD divided by beginning market value in USD for year *t*. We control for leverage, where Lev is beginning total debt scaled by beginning total assets, measured in USD for year *t* as differences in the level of debt financing across firms may affect their observed stock price response to significant events (Wang, 2014). Finally, we

[12] We make no prediction on size in the context of information transfers, given that while prior US studies have documented an inverse relation between the size of a non-announcer and their response to peer firms' earnings surprise, in a cross-border context it is plausible that larger firms will respond more to cross-border news given they have more diverse operations and investor bases.

control for US_rep_lag , the number of days between the fiscal quarter end and the earnings announcement date for the U.S. bellwether, given DeFond, Hung, and Trezevant's (2007) finding that international investors find timelier earnings announcements to have greater information content. All financial statement variables are converted to USD using Datastream exchange rates. We remove stocks with negative common equity. We also truncate the bottom 5% of firms within each country-year based on market capitalization at the beginning of the calendar year to account for mismeasurement and data errors among small, lightly traded foreign firms. All continuous variables (except *US_News*) are winsorized at the 1% and 99% level. Given that we have repeated independent variables since we match multiple firms from the same country to the same US quarterly announcement, we cluster our standard errors at the country and quarter level, consistent with prior literature using matched pairwise designs (e.g. Wang 2014).

3.2. Sample data

Given that we are interested in studying the response of foreign firms to US interim earnings news, we require data on both U.S. bellwether firms and a large sample of foreign firms. However, it is likely that information transfer effects exist in only a subset of firms, rather than the broad population of firms overall (e.g. Foster, 1981). Below we describe our sample selection procedures, which, in line with prior studies (e.g. Firth, 1996; Wang, 2014) are designed with the objective of maximizing the power of detecting transnational information transfer. We construct a matched US bellwether announcement-to-foreign firm sample as explained below.

3.2.1 US bellwether earnings announcements

We obtain the following data for U.S. firms : (1) quarterly earnings announcement dates and financial information from Compustat, (2) daily returns, prices, and market values from CRSP, (3) historical GICS industry classification monthly data from S&P (delivered through Datastream); and (4) quarterly earnings forecast data from I/B/E/S. We begin with all announcements—both annual and interim—made by December year-end US firms between 1 January, 2001 through 31 December 2012 with non-missing earnings announcement dates, with reporting lag no greater than 90 days (223,533 firm-quarters). Given that our empirical approach is to examine the foreign reaction to U.S. interim earnings announcements, isolating the day of announcement is important for identification. Following Dellavigna and Pollet (2009) and Johnson and So (2013) we compare Compustat and IBES earnings announcement dates and assign the earlier date as being correct. Where available, we use the I/B/E/S time stamp to determine instances where an announcement occurred after market close and adjust the announcement day to the following trading day. This is especially important in our context since most of the foreign firms in our sample are listed in countries whose markets close *before* U.S. markets close for the same day (given differences in time-zones).

From the above sample we then choose our U.S. bellwether firms using the following procedure. We first identify the three largest US announcers — according to market value measured at the end of the prior quarter (*t-1*) — for each GICS industry-quarter with non-zero foreign sales. We use these criteria because news disclosed by larger firms that have foreign sales are more likely to contain a common information component that is reflective of global industry-level news. Moreover, these firms also typically represent industry leaders that are highly visible, increasing the effectiveness of the information signal (e.g., Merton, 1987; Lehavy

and Sloan, 2008). Out of these three firms, every quarter we select as our bellwether the firm with the largest absolute 3-day excess earnings announcement return, consistent with the arguments in Foster (1981) and Thomas and Zhang (2008) that information transfer is increasing in the firm's own announcement return. We remove GICS industries with less than 5 announcers in a given quarter, along with thrifts & mortgages, insurance, and REIT firms, given the segmented (and small) nature of these US industries, i.e. we remove GICS industries: 401020; 402020; 403010; 404010; and 404020. This yields a final sample of 2,731 US bellwether GICS-quarter earnings announcements, spanning 61 GICS industries from 2001 to 2012.

3.2.2 Foreign firms and earnings announcements

We collect data from multiple sources for our sample of foreign firms. Our final sample includes 20,766 international stocks from 31 countries over the period 2001 through 2012. In arriving at our final sample we begin with the majority of OECD countries (i.e. Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, UK) in addition to China, Malaysia, and Singapore. We collect daily returns (RI), market capitalization (MV), volume (VO), and Price (P) from Datastream, along with GICS industry classifications (updated monthly). Financial statement data necessary for our control variables is obtained from Worldscope. We undertake extensive cleaning of our international data given the potential for data errors and omissions. First, we restrict our sample to firms listed on major exchanges, which we define as the exchanges on which the majority of stocks in a given country are listed (e.g. Karolyi et al., 2012). Consistent with prior international studies we

use data from more than one exchange for two countries: China (Shanghai and Shenzen), and Japan (Osaka and Tokyo). Following procedures in Karolyi et al. (2012) and Griffin et al. (2010), we also exclude the following non-common equity securities: depository receipt listing ("DRs"); real-estate investment trusts ("REITs"); preferred and non-voting stocks; investment funds; and other stocks with special features.[13] In addition, we remove the bottom 5 percent of stocks, by market capitalization, within each country to mitigate the impact of errors and highly illiquid stocks. The goal of these procedures is to obtain a sample of common ordinary equity stocks listed on their home exchanges that are actively traded.

Following Karolyi et al. (2012) we then employ the following screens to ensure integrity of our return, market value and volume data: (1) to exclude non-trading days, we remove days on which 90% or more of the stocks listed on a given exchange have a return equal to zero; (2) we exclude individual stocks if the number of zero-return days is more than 80% in a given month; (3) we set daily returns to missing if the value of the total return index (RI) for either the previous or the current day is below 0.01 (see Ince and Porter 2006 for discussion on dealing with Datastream errors); (4) we also remove daily observations if $(1+R_{it}) * (1+R_{it-1}) -1 < 0.20$, where R_{it} and R_{it-1} are the returns of firm *i* on day *t* and day *t-1*, respectively, and at least one is greater than or equal to 100% (e.g. Griffin et al., 2009).

[13] The exclusion of these stocks is done manually by examining the names of the individual stocks. We drop stocks with names including ''REIT,'' ''REAL EST,'' ''GDR,'' ''PF,'' ''PREF,'' or ''PRF'' as these terms may represent REITs, Global DRs, or preferred stocks. We drop stocks with names including ''ADS,'' ''RESPT,'' ''UNIT,'' ''TST,'' ''TRUST,'' ''INCOME FD,'' ''INCOME FUND,'' ''UTS,'' ''RST,'' ''CAP.SHS,'' ''INV,'' ''HDG,'' ''SBVTG,'' ''VTG.SAS,'' ''GW.FD,'' ''RTN.INC,'' ''VCT,'' ''ORTF,'' ''HI.YIELD,'' ''PARTNER,'' ''HIGH INCOME,'' ''INC.&GROWTH,'' and ''INC.&GW'' due to various special features. In Belgium, ''AFV'' and ''VVPR'' shares are dropped since they have preferential dividend or tax incentives. In Mexico, shares of the types ''ACP'' and ''BCP'' are removed since they have the special feature of being convertible into series A and B shares, respectively. In France, shares of the types ''ADP'' and ''CIP'' are dropped since they carry no voting rights but carry preferential dividend rights. In Germany, ''GSH'' shares are excluded since they offer fixed dividends and carry no voting rights. In Italy, ''RSP'' shares are dropped due to their non-voting provisions. See to Appendix B in Griffin et al. (2009) for a detailed list of specific country exclusions.

Given the cross-country nature of our analysis, care must be taken in the sample selection as information transfers are likely isolated to only a subset of firms (e.g. Foster, 1981). Consistent with prior literature we impose the following criteria when matching our foreign firms to US bellwether earnings announcements. First we require foreign firms to have a market capitalization greater than $50 million USD at the beginning of the calendar year. Second, we rely on industry GICS classifications to identify "peer" firms. Following Bhojraj, Lee, and Oler (2003) we use GICS to determine industry membership. Bhojraj et al (2003) note that while the correlation between the GICS classification and the more traditional SIC classification is only about 56%, GICS classifications explain significantly more return comovement among securities as well as cross-sectional variation in valuation multiples. Thus, GICS better captures the economic and financial linkages between stocks. Lastly, we require firms to have non-zero foreign revenue for the prior two fiscal years, which increases the likelihood that the firm has exposure to global industry factors (e.g. Wang, 2014).[14] These procedures yield a final sample of 20,766 foreign (non-US) firms from 31 countries with appropriate data between 2001 and 2012.

[Insert Table 1 and 2 about here]

Table 1 summarizes the above sample selection procedure. We match our sample of 2,731 U.S. bellwether announcements to our foreign firm sample of 20,766 firms for each GICS-quarter, resulting in a matched sample of 284,951 foreign firm-GICS-quarters. On average, each bellwether earnings announcement is matched to 102 foreign firms. Of our 284,951 observations, 63,906 are matched to annual US bellwether earnings announcements, while

[14] For example, two firms operating in the same GICS industry but in different countries may not necessarily be exposed to global industry trends if their business operations are localized. The requirement that firms have non-zero foreign sales in our sample mitigates this possibility.

221,045 relate to interim US earnings news, i.e. Q1, Q2, and Q3. With respect to the fiscal period of the matched foreign firm, 216,389 of our observations relate to foreign firm interim periods, i.e. US bellwether news released during Q1, Q2 and Q3 of the foreign firm.[15] While Australia provides the largest amount of matched observations (13% of observations), no one country clearly dominates our sample, and while the average number of GICS industries covered within each country is 32, Iceland is a notable exception with only 6 (Panel A, Table 2). Our yearly distribution of country and GICS coverage is also consistent.

[Insert Table 3 and Table 4 about here]

Tables 3 and 4 present descriptive statistics for our foreign firm-quarters and for US bellwether earnings announcements. Table 3 reports that US bellwether firms cover all GICS industries, with an average positive average 3-day announcement period excess return of 0.88%. Moreover, US bellwethers account for an economically significant 19% of global industry revenue and approximately 30% of their revenue is generated from foreign operations, indicating these firms are visible on a global scale. The average reporting lag of US bellwether firms is 23 days. Overall, our US bellwether firms provide comprehensive industry coverage across nearly all quarters in our sample, have timely earnings announcements, and are of global economic significance. Table 4 reports the descriptive statistics for our matched foreign-firm quarters, with Panel B and C reporting distributional properties of our variables for LRF and HRF firms.

[15] Given that US firms and foreign firms need to have the same fiscal period end, we note that US bellwether news released during interim periods of foreign firms may not necessarily be interim US news. For example, Australian firms with 30 June year-ends will be responding to *annual*, i.e. Q4, US bellwether news in their Q2, as the December quarter-end represents a semi-annual period in Australia. Given this, we document information transfer results across all reporting period windows to ensure our results of interim information transfers are not simply an artifact of this mismatch. Moreover, we note that close to 85% of our interim US bellwether periods match to interim foreign firm periods, while less than 2% of our sample of Q1 and Q3 foreign firm fiscal-quarters is matched to annual (Q4) US bellwether earnings news.

Notably, close to 42% of our foreign sample is classified as LRF.[16] In addition, 49% of US bellwether earnings news is classified as "bad news". Important for our within-firm analysis, we note fairly similar distributional properties of firms classified as LRF (Panel B) relative to quarterly reporting firm-years (Panel C). Specifically, *US_News* is similar across the sub-samples as is *bad_news*, while LRF firms tend to be smaller in size.

4. Empirical Results

[Insert Table 5 and 6 about here]

4.1 Main results

We begin by documenting simple univariate portfolio results of global industry peer return reactions to US bellwether earnings news in Table 5. Each quarter we sort firms into five quintiles based on the magnitude of US earnings news (*US_News*) and then compute the mean values of global peer firms' contemporaneous 3-day return response (*F_aret*). We then average these over the 47 quarters of our sample between 2001:Q1 to 2012:Q3. Results indicate a positive association, with the bottom (top) quintile of *US_News* eliciting a significant negative (positive) return response. For example, the bottom quintile of *US_News* is associated with -1.06% return response of foreign firms, while the top quintile of *US_News* is associated with 0.81% return response. These univariate results indicate an economically and statistically significant positive return response of non-US firms to US news. Panels B and C indicate that similar patterns hold within the subsamples of LRF and HRF stocks, respectively.

Table 6 examines whether the stock prices of firms around the world react to the quarterly earnings news of US industry bellwethers in a multivariate regression setting. We

[16] We note that < 1% of our international sample consists of firms who report tri-annually. Given these firms do not report quarterly these are folded in with our "LRF" announcers.

begin by estimating equation (3) across different sub-samples of US bellwether earnings announcements, and different foreign firm fiscal periods. Across all specifications, we find evidence that stocks around the world respond to US earnings news: higher (lower) US bellwether earnings announcement returns are associated with higher (lower) contemporaneous returns for non-US peers. Specifically, for annual US announcements, the coefficient on US_News of 0.019 is positive and significant (t-stat = 3.01). This is not statistically different from the positive and significant coefficient on US_news for the sub-sample of US interim announcement of 0.016 (t-stat = 3.46), indicating that *interim* US earnings news is perceived as value-relevant by investors. We then estimate our information transfer model for sub-samples based on foreign firm fiscal periods, i.e., whether the foreign firm is responding to US bellwether news released around its own annual announcement (column 3), or bellwether news released around interim fiscal periods (Q1, Q2 and Q3 – in columns 4 and 5). Again, we find the information transfer coefficient is positive and highly significant (0.011 and 0.018 and 0.020 respectively).

[Insert Table 7 about here]

Table 7 introduces financial reporting frequency into our analyses and reports the results from our within-firm type analysis and estimation of equation (4) for the sub-sample of LRF and HRF firms. Specifically, we find a positive and coefficient on the interaction term, $Interim * US\_News$, of 0.023 (t-stat = 2.79) within LRF firms, relative to a negative and weakly significant coefficient of -0.003 (t-stat = -1.82) within HRF firms.[17] These findings indicate that investors in LRF firms are twice as sensitive to US earnings news in the absence of own-firm earnings

[17] The negative coefficient in HRF is due to greater price reaction to Q4 (annual) announcements. In untabulated results we find information transfers that are statistically larger for US Q4 news relative to Q2 news. It may be that Q4 reactions solicit bigger reactions as Q4 earnings announcement may be audited, released concurrently with 10-K, informs about full-year results, and more likely to be bundled with managerial forecasts.

announcements. We highlight that this incremental return response is not observed in the HRF sample for which firms have high frequency quarterly reporting. Put simply, when investors in non-US stocks do not receive disclosures about own-firm interim fundamentals, they rely more heavily on US earnings news for the task for valuation.

[Insert Table 8 about here]

4.2 Evidence on over-reaction

We next examine whether the returns of foreign firms around their own earnings announcements is predicted by their response to US earnings news. A positive relation between foreign firm responses and subsequent returns around their own earnings announcements indicates an initial underreaction to US earnings news, whereas a negative relation indicates an overreaction. Consistent with Thomas and Zhang (2008), we sort our LRF sample into five quintiles based on *F_aret.* Results in Table 8 indicate a significant negative correlation (i.e. price reversal) between LRF firms' response to Q1 and Q3 interim US earnings announcements and future returns around their own earnings announcements in Q2 and Q4 (respectively). More specifically, as *F_aret* increases from quintile 1 to quintile 5, foreign firms' returns around their own subsequent earnings announcements exhibit a decrease from 0.53% to -0.31%. A hedge portfolio with a long position in quintile 1 and a short position in quintile 5 yields a three-day excess return of 0.84%. Moreover, this documented return differential is not due to difference in size, measured as market value of equity, or the book-to-market ratio across quintiles. Thus, our results indicate that investors in LRF firms overreact to US earnings news when own-firm earnings information is absent. Strikingly, when we repeat the exercise for Q2 and Q4 periods, i.e. those periods in which LRF firms do report their earnings, we do not find a statistically

significant return differential, indicating that the significant over-reaction to US earnings news is limited to quarters in which own-firm earnings information is absent. Moreover, repeating this exercise for HRF firms does not yield any significant return predictability, consistent with our Q2 and Q4 results for LRF firms; thus, significant over-reaction to US earnings news is limited to interim periods for LRF firms when own-firm information is absent.

[Insert Table 9 about here]

4.3 Differential reactions to Good/Bad news

Finally, we examine whether the responsiveness of foreign firms to US earnings news varies depending on whether US news is good or bad. We define bad news as occurring when *US_News* is negative, and good news as occurring when *US_News* is positive. In Table 9 we re-estimate equation (4) of our within-firm analysis within the LRF and HRF subsamples. For LRF firms, we find that global foreign peers are more than twice as sensitive to negative US earnings news relative to positive US bellwether news. Notably, the response to bad news is strongest in the absence of own-firm earnings news, i.e. in Q1 and Q3, with an incremental coefficient of 0.025 (t-stat = 2.65). Interestingly, we find that information transfers for HRF firms are also exacerbated by bad news (the coefficient on *US_News* is significantly different between good and bad news, 0.024 versus 0.007). Moreover, consistent with our earlier results in table 6, we do not find a significant difference in the incremental information transfer associated with Q1 and Q3 periods, relative to Q2 and Q4 periods for HRF firms. Overall, our results indicate that negative US earning news is more contagious, especially for LRF firms in periods when own-firm earnings information is absent.

4.4 Robustness tests

In this section, we discuss a variety of robustness tests (untabulated):

(1) Our focus is on the correlation in returns between US bellwethers and their non-US peers around US bellwethers' earnings announcement dates. However, we further investigate whether the returns of US bellwethers and their non-US peers are correlated around randomly chosen pseudo-event dates. Specifically, we create random pseudo-US bellwether earnings announcement dates, and calculate the correlation around these pseudo-event dates between the short-window returns of US bellwethers and their foreign peers. Accordingly, we generate random event dates and re-estimate our principal regressions in Table 6 and Table 7 1,000 times to assess the distribution of coefficients of our main effect (US_News) and interaction effect (Interim*US_News). In our simulations of the analysis from Table 6, we find that the average US_News coefficient is not significantly difference from zero (in fact, only 44 instances out of 1000 are positive and significant). With respect to our within-firm tests on the effect of reporting frequency in Table 7, we find that the average interaction effect between US_News and the interim Q1/Q3 reporting dummy for LRF firms is not significantly different from zero using the distribution of coefficients (only 11/1000 coefficients are positive and significant). Moreover, the main effect on US_News is also not significant (only 48/1000 coefficients are significant). Overall, the randomization tests confirm that our results are driven by news about earnings for US bellwethers and are not simply the product of a generic correlation in returns between US bellwethers and non-US peer firms.

(2) The sensitivity of foreign stocks to US earnings news increases when the foreign stocks are constituents of MSCI indices and when foreign institutional ownership of the foreign firms

is higher. More specifically, we find a strong positive and significant coefficient on the interaction term (*MSCI*US_News*) of 0.021 (t-stat = 3.11). We also examine foreign ownership, including an indicator *For_Oship,* which is set to 1 for the top tercile of foreign institutional ownership, using comprehensive institutional ownership data provided by Factset. The interaction term *For_Oship*US_News* captures the differential information transfer response for firms with the highest level of foreign institutional ownership of their investor base. We find a positive and significant coefficient of 0.019 (t-stat = 2.92). These results indicate that overlapping foreign (institutional) investor bases as well as the visibility of the stock may play a role in the incorporation of US bellwether news in foreign stock prices.[18]

(3) The stock prices of US firms do not significantly respond to earnings announcements by "bellwether" LRF firms, i.e. classified as the largest (by market cap) LRF announcer for a given GICS-quarter. This indicates that the information transfer we document appears to be one-way, a result that could be explained by a lack of reporting timeliness for LRF firms relative to US firms.

(4) Our results are robust to removing foreign firms that are cross-listed in the US (i.e. firms that participate in ADR programs of any type), and to removing annual US earnings announcement news from tests of foreign interim reporting periods.

(5) Finally, our main inferences (empirical results reported in Tables 5, 6 and 7) remain unchanged if analyst-derived earnings surprises are used as the proxy for US earnings news instead of three-day earnings announcement returns.

[18] Note that a large number of funds invest in stock portfolios designed to mimic MSCI indices in order to minimize tracking error vis-à-vis their benchmark. Thus, firms that are in MSCI indices are especially likely to have overlapping investor bases.

5. Conclusion

In this study, we investigate the broad research question of whether financial reporting frequency impacts investor responses to news about global industry earnings. Specifically, we provide the first evidence on whether, and when, interim earnings news travels around the world by examining information transfers from quarterly earnings announcements of U.S. industry bellwether stocks to the rest of the world. We focus on information transfers originating in the US because of the US's timely, high frequency, homogeneous financial reporting regime (under which quarterly financial reporting is mandatory), and because of the US's significant economic importance which causes the US earnings season to be widely followed across the globe.

Our results are summarized as follows. First, we find a positive and significant reaction by stocks around the world to US earnings news. Second, these reactions are much larger for low reporting frequency firms in periods where investors lack own-firm interim earnings announcements, i.e. in Q1 and Q3. In contrast, we fail to document any such difference in information transfer across different quarters for high frequency quarterly reporters. This indicates that in the absence of own-firm interim earnings information, investors rely more heavily on news about global industry fundamentals for the task of valuation. Third, we document that the stock prices of LRF firms overreact to US earnings news in interim periods when investors lack information about own-firm fundamentals. Finally, our empirical tests reveal that foreign stocks are twice as sensitive to negative US interim earnings news than to positive US interim earnings news, and this effect is exacerbated when there is a lack of own-firm information in LRF firms. Our results are robust to several sensitivity tests.

Collectively, our findings shed light on the unintended consequences of low reporting frequency. Specifically, the evidence suggests that when investors are deprived of timely interim financial reports they may be forced to rely on relatively timelier news about global industry

fundamentals. In fact, the evidence also suggests that investors overreact to this news, and this mispricing is corrected when LRF firms eventually report their earnings, leading to return predictability around their own subsequent earnings announcements. In sum, we contribute to the recent debate on the pros and cons of reporting frequency by showing that low reporting frequency not only affects asset prices by exacerbating information spillovers, but can also have unintended consequences in the form of increased mispricing and decreased market efficiency.

References

Alves, P., Pope, P.F., & Young, S., 2009. Cross-border information transfers: Evidence from profit warnings issued by European firms. *Accounting and Business Research*, 39(5), 449-472.

Barber, B., De George, E., Lehavy, R. & Trueman, B., 2013. The earnings announcement premium around the globe. *Journal of Financial Economics* 108, 118-138

Basu, Sudipta, 1997. The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics* 24.1 (1997): 3-37.

Bhojraj, S., Lee, C. & Oler, D., 2003. What's my line? A comparison of industry classification schemes for capital market research. *Journal of Accounting Research* 41, 745-774

Butler, M., Kraft, A., & Weiss, I. S., 2007. The effect of reporting frequency on the timeliness of earnings: The cases of voluntary and mandatory interim reports. *Journal of Accounting and Economics*, *43*(2), 181-217.

DeFond, M., Hung, M. and R. Trezevant, 2007. Investor protection and the information content of annual earnings announcements: International evidence. *Journal of Accounting and Economics* 43, 37-67.

Dellavigna, S., & Pollet, J.M., 2009. Investor inattention and Friday earnings announcements. *Journal of Finance*, 64(2), 709-749.

Ernstberger, J., Link, B., & Vogler, O., 2011. The real business effects of quarterly reporting, Working Paper

Fama, E., 1970. Efficient capital markets: A review of theory and empirical work, *Journal of Finance* 25, 383–417

Foster, G., 1981. Intra-industry information transfers associated with earnings releases. *Journal of Accounting and Economics* 3, 201-232

Freeman, R. & Tse, S., 1992. An earnings prediction approach to examining inter-company information transfer. *Journal of Accounting and Economics* 15, 509-523

Fu, R., Kraft, A. & Zhang, H., 2012. Financial reporting frequency, information asymmetry, and the cost of equity capital. *Journal of Accounting and Economics* 54, 132-149

Gigler, F., Kanodia, C., Sapra, H. and R. Venugopalan, 2014. How frequent financial reporting can cause managerial short-termism: An analysis of the costs and benefits of increasing reporting frequency. *Journal of Accounting Research* 52, 357-387

Griffin, J., Hirshey, N. and P. Kelly, 2011. How important is the financial media in global markets? *Review of Financial Studies* 24, 3941-3992

Griffin, J., Kelly, P.J., & Nardari, F., 2009. Are emerging markets more profitable? Implications for comparing weak and semi-strong form efficiency. *Working Paper (June, 2009).*

Han, J. C., Wild, J. J., & Ramesh, K., 1989. Managers' earnings forecasts and intra-industry information transfers. *Journal of Accounting and Economics,11*(1), 3-33.

Han, J. C., & Wild, J. J., 1990. Unexpected earnings and intraindustry information transfers: Further evidence. *Journal of Accounting Research*, 211-219.

Hayn, C., 1995. The information content of losses. *Journal of accounting and economics*, *20*(2), 125-153.

Karolyi, G.A., Lee, K-H., & van Dijk, M.A., 2012. Understanding commonality in liquidity around the world. *Journal of Financial Economics,* 105(1), 82-112.

Kim, Y., & Li, S., 2010. Mandatory IFRS adoption and intra-industry information transfers. *Unpublished working paper*

Kothari, S. P., 2001. Capital markets research in accounting. *Journal of Accounting and Economics* 31 (1): 105-231

Kraft, A., Vashishtha, R. and M. Venkatachalam, 2014. Real Effects of Frequent Financial Reporting, Working Paper

Lehavy, R., & Sloan, R., 2008. Investor recognition and stock returns. *Review of Accounting Studies,* 13(2-3), 327-361

Lee, B., Rui, O. & Wang, S., 2004. Information transmission between the NASDAQ and Asian second board markets. *Journal of Banking & Finance* 28, 1637-1670

Landsman, W., Maydew, E., & Thornock, J., 2012. The information content of annual earnings announcements and mandatory adoption of IFRS. *Journal of Accounting and Economics* 53, 34-54

Merton, R., 1987. A simple model of capital market equilibrium with incomplete information. *Journal of Finance,* 42(3), 483-510.

Ramnath, S., 2002. Investor and analyst reactions to earnings announcements of related firms: An empirical analysis. *Journal of Accounting Research* 40, 1351–76

Rapach, D., Strauss, J., & Zhou, G., 2013. International Stock Return Predictability: What Is the Role of the United States? *Journal of Finance* 68, 1633-1662

Thomas, J., & Zhang, F., 2008. Overreaction to intra-industry information transfers? *Journal of Accounting Research* 46, 909-940

Wang, C., 2014. Accounting standards harmonization and financial statement comparability: Evidence from transnational information transfer. *Journal of Accounting Research*, *52*(4), 955-992.

Wagenhofer, A., 2014. Trading off costs and benefits of frequent financial reporting. *Journal of Accounting Research* 52, 389-401

Yip, R. W., & Young, D., 2012. Does mandatory IFRS adoption improve information comparability? *The Accounting Review*, *87*(5), 1767-1789.

TABLE 1: Sample Selection

This table shows the sample selection process. Panel A describes the process by which we obtain our international sample, i.e. Datastream screens. Panel B describes the selection of our U.S. Bellwether firms. We also show the total number of matched observations, number of GICS and average number of matched foreign firms.

Panel A: International firm sample		**# Securities**
	All security listings with valid DSCODES (2001-2012) and RI data (all constituency lists)	89,660
Less:	Security listings without valid identifiers	-6,622
Less:	Non-primary quotes, non-primary listings, and DRs (Note: we keep the underlying home listing)	-32,829
Less:	Securities not listed on country's major exchange	-4,052
Less:	Non-common equity (e.g. REITS, Unit Trusts, Warrants, Pref. shares, Income Funds, and duplicates)	-3221
Less:	Country-specific filters for non-common equity	-1168
Less:	Non-sample countries and securities without valid GICS data	-21,002
	Final sample of International firms with sufficient data to be matched to U.S. announcements	**20,766**

Panel B: U.S. "bellwether" firm sample		**Firm-announcements**
	All quarterly announcements on Compustat, 2001 - 2012 (with return data)	278,398
Less:	firm-announcementswithout GICS history	-24,085
Less:	firms without calendar quarter fiscal period-ends	-26,685
Less:	GICS-quarters without at least 10 announcers	-1,400
Less:	firm-announcements outside Bellwether criteria	-223,497
	Final sample of U.S. Bellwether announcements, one per GICS-quarter	**2,731**

Panel C: Matched sample (US bellwether - foreign firm - GICS - Quarter observations)	**Final Sample**
Final matched sample (US Bellwether-foreign firm GICS-Quarter)	284,951
- Average number of matched foreign firms to each U.S. Bellwether, per GICS-quarter	102
- No. of GICS	61

Table 2: Distribution of matched foreign firm-quarters

This table presents the distribution of our final sample of matched foreign firm-quarters, by country (Panel A), and by year (Panel B).

Panel A: Country distribution

Country	Exchange	N	Unique firms	No. GICS industries
Australia	ASX	34,306	1818	60
Greece	Athens	8,984	288	50
Turkey	Borsa Istanbul	7,598	291	43
Romania	Budapest Stock Exchange	1,448	43	22
Denmark	Copenhagen Stock Exchange	5,145	177	44
Ireland	Dublin	1,524	46	27
Netherlands	Euronext Amsterdam	4,568	129	40
Belgium	Euronext Brussels	4,802	139	47
Portugal	Euronext Lisbon.	1,630	57	26
France	Euronext Paris	17,648	814	58
Germany	Frankfurt	16,391	768	59
Finland	Helsinki	2,983	131	44
Iceland	Iceland	108	10	6
Malaysia	Kuala Lumpur	14,829	874	58
UK	London	26,536	1862	60
Spain	Madrid SIBE	4,537	157	43
Mexico	Mexico	2,925	102	34
Italy	Milan	8,232	295	50
New Zealand	New Zealand	3,896	119	44
Norway	Oslo Stock Exchange	5,903	248	42
Czech Republic	Prague	623	29	21
Chile	Santiago	4,073	229	47
China	Shanghai	12,844	867	39
China	Shenzen	11,987	827	53
Singapore	Singapore	12,714	1330	57
Switzerland	SIX Swiss	6,424	546	52
Sweden	Stockholm	6,296	478	55
Israel	Tel Aviv	8,155	372	53
Japan	Tokyo Stock Exchange	25,686	2552	59
Canada	Toronto	10,731	675	57
Austria	Vienna Stock Exchange	3,115	83	33
Poland	Warsaw (and Warsaw continuous)	8,310	408	47

Panel B: Yearly distribution

Year	No. of countries	N	Unique firms	No. GICS industries
2001	30	22,196	7583	53
2002	30	22,494	7763	54
2003	30	18,427	7539	54
2004	31	21,856	7373	54
2005	31	21,920	7870	58
2006	31	23,280	9455	60
2007	31	23,287	9290	60
2008	31	23,831	9582	61
2009	31	22,075	8943	61
2010	31	27,796	11039	61
2011	31	31,676	12577	61
2012	31	26,113	10244	60

Table 3: U.S. "Bellwether" announcements within GICS industry, 2001 - 2012

This table shows descriptive statistics for our U.S. "bellwether" within in each GICS industry. We report: (1) the number of unique bellwether firms identified in each GICS. We identify bellwether firms via the following process: We first identify the three largest US announcers — according to market value measured at the end of the prior quarter (t-1) — for each GICS industry-quarter with non-zero foreign sales. We use these criteria because news disclosed by larger firms that have foreign sales are more likely to contain a common information component that is reflective of global industry-level news. Out of these three firms, we then select as our bellwether the firm with the largest absolute 3-day excess earnings announcement return. This leaves us with one bellwether firm per GICS calendar quarter. We remove GICS industries with less than 5 announcers in a given quarter, along with thrifts & mortgages, insurance, and REIT firms, given the segmented (and small) nature of these US industries, i.e. we remove GICS industries: 401020; 402020; 403010; 404010; and 404020; (2) the number of US bellwether quarterly reports for our sample period, 2001 - 2012; (3) the average reporting lag of our bellwether stocks, defined as the number of days after the fiscal quarter-end that earnings are announced; (4) the average reporting lag (from first), defined as the number of days between the earliest announcer's announcement and our bellwether firm EA for a given GICS-quarter, i.e., provides us with an idea of timeliness of US bellwether news; (5) average 3-day announcement period excess return centred around the actual earnings announcement date for the US bellwether's quarterly announcements (i.e. our *US_News* variable); (6) E. surprise is defined as the average consensus analyst forecast error, where forecast error is measured as actual reporting earnings less most recent consensus analyst forecast, scaled by opening price; (7) the average beginning of quarter market cap of bellwether firms, in USD; (8) industry weight, defined as the ratio of bellwether market cap to the total market cap of the U.S. GICS industry, for a given calendar quarter.

GICS Industry	GICS Name	Unique firms	# Qtrly Announcements	Rep. lag (from fpe)	Rep. lag (from first)	3-day EA excess return	Earn surprise	Market cap (in millions)	U.S. Industry weight
101010	Energy Equipment & Services	3	47	21.6	3.5	4.00%	0.07	$ 44,489	17.92%
101020	Oil, Gas & Consumable Fuels	4	47	26.4	7.0	-0.96%	-0.01	$ 197,950	11.31%
151010	Chemicals	5	47	24.5	7.5	0.35%	0.07	$ 30,999	11.73%
151020	Construction Materials	3	47	26.4	0.9	-0.90%	-0.02	$ 6,267	29.66%
151030	Containers & Packaging	9	47	23.9	5.6	0.38%	0.06	$ 4,448	10.83%
151040	Metals & Mining	4	47	22.5	6.8	-0.99%	0.02	$ 31,188	14.23%
151050	Paper & Forest Products	5	47	25.2	4.7	0.40%	0.24	$ 9,902	18.13%
201010	Aerospace & Defence	4	47	20.3	2.8	0.79%	0.05	$ 44,119	16.21%
201020	Building Products	8	47	25.3	7.9	-1.28%	0.01	$ 4,186	16.76%
201030	Construction & Engineering	5	47	31.4	3.7	0.70%	0.08	$ 4,576	13.52%
201040	Electrical Equipment	4	47	25.9	6.2	1.32%	0.08	$ 12,425	7.38%
201050	Industrial Conglomerates	4	42	19.4	0.3	-0.32%	0.02	$ 136,005	60.46%
201060	Machinery	3	47	20.8	5.4	0.59%	0.16	$ 29,270	9.70%
201070	Trading Companies & Distributors	1	47	15.6	0.4	1.46%	0.04	$ 5,866	21.35%
202010	Commercial Services & Supplies	8	47	26.9	7.4	0.02%	0.01	$ 17,015	8.18%
202020	Professional Services	4	26	25.8	2.6	0.21%	0.10	$ 4,885	11.35%
203010	Air Freight & Logistics	3	47	26.1	2.4	0.17%	0.02	$ 12,631	35.26%
203020	Airlines	5	47	20.6	1.3	-0.05%	0.18	$ 6,423	23.74%
203030	Marine	5	36	29.1	4.2	1.94%	0.04	$ 1,829	18.94%
203040	Road & Rail	4	47	21.9	5.9	0.78%	0.04	$ 21,331	19.54%
251010	Auto Components	4	47	23.9	3.1	0.87%	0.07	$ 8,985	21.95%
251020	Automobiles	4	38	20.5	1.8	0.51%	0.35	$ 25,986	17.67%
252010	Household Durables	10	47	25.9	10.0	0.80%	0.02	$ 7,687	6.92%
252020	Leisure Equipment & Products	5	47	20.5	3.3	0.83%	0.26	$ 6,458	25.56%
252030	Textiles, Apparel & Luxury Goods	4	47	25.6	8.5	0.88%	0.07	$ 8,563	10.53%
253010	Hotels Restaurants & Leisure	5	47	23.8	6.6	0.53%	0.03	$ 27,283	13.72%
253020	Diversified Consumer Services	7	40	29.6	5.7	0.25%	0.05	$ 3,732	6.99%
254010	Media	5	47	30.2	6.5	-0.45%	0.12	$ 62,926	13.10%
255010	Distributors	8	38	27.7	3.4	3.57%	0.02	$ 2,574	49.35%
255020	Internet & Catalogue Retail	3	47	26.8	4.7	3.23%	0.29	$ 22,763	43.39%
255040	Specialty Retail	6	47	25.8	6.8	5.19%	0.06	$ 5,638	1.82%
301010	Food & Staples Retailing	5	47	26.1	7.0	0.77%	0.01	$ 17,542	6.12%
302010	Beverages	4	47	22.6	5.6	-0.52%	0.02	$ 96,499	34.01%
302020	Food Products	8	47	27.9	6.9	-1.09%	0.03	$ 22,361	9.73%
302030	Tobacco	4	34	21.8	0.1	0.00%	0.03	$ 32,079	52.59%
303010	Household Products	2	44	25.3	0.6	-0.48%	0.01	$ 36,039	12.51%
303020	Personal Products	7	47	28.4	5.6	1.53%	0.06	$ 12,590	19.72%
351010	Health Care Equipment & Supplies	7	47	21.0	5.1	-0.23%	0.00	$ 25,854	7.93%
351020	Health Care Providers & Services	4	47	21.8	4.5	1.41%	0.06	$ 36,244	13.56%
351030	Health Care Technology	5	38	27.2	4.2	-3.06%	0.01	$ 5,283	26.62%
352010	Biotechnology	5	47	19.7	6.8	-0.41%	0.04	$ 49,730	18.57%
352020	Pharmaceuticals	4	47	19.8	3.0	-0.24%	0.02	$ 154,346	19.49%
352030	Life Sciences Tools & Services	4	26	25.3	6.8	1.79%	0.06	$ 9,653	9.99%
401010	Commercial Banks	5	47	17.3	4.5	1.27%	0.02	$ 85,782	14.37%

Table 3: U.S. "Bellwether" announcements within GICS industry, 2001 - 2012 *(Continued)*

GICS Industry	GICS Name	Unique firms	# Qtrly Announcements	Rep. lag (from fpe)	Rep. lag (from first)	3-day EA excess return	Earn surprise	Market cap (in millions)	U.S. Industry weight
402010	Diversified Financial Services	4	47	17.1	1.3	-1.79%	0.02	$ 167,963,554	34.07%
402030	Capital Markets	3	44	19.1	2.3	-0.65%	0.06	$ 60,747,492	11.83%
404030	Real Estate Management & Development	2	40	31.4	7.9	1.57%	-1.13	$ 6,090,328	13.23%
451010	Internet Software & Services	5	47	18.7	2.9	-0.15%	0.12	$ 50,921,292	26.92%
451020	IT Services	10	47	25.2	8.3	1.28%	0.03	$ 57,739,931	17.72%
451030	Software	8	47	25.4	10.5	-1.70%	0.12	$ 149,185,604	26.93%
452010	Communications Equipment	6	47	21.8	6.3	-2.42%	0.17	$ 35,078,400	9.12%
452020	Computers & Peripherals	7	47	18.7	2.5	0.50%	0.13	$ 82,210,825	17.68%
452030	Electronic Equipment, Instruments & Cor	9	47	21.5	6.0	1.26%	0.12	$ 6,102,945	5.13%
453010	Semiconductors & Semiconductor Equipr	2	40	19.5	2.8	0.02%	0.07	$ 121,132,262	28.37%
501010	Diversified Telecommunication Services	4	47	23.4	3.1	-0.85%	0.01	$ 119,545,828	31.64%
501020	Wireless Telecommunication Services	9	47	29.1	4.8	1.47%	0.03	$ 27,209,498	20.11%
551010	Electric Utilities	5	47	24.9	3.1	-0.01%	0.02	$ 29,784,973	11.41%
551020	Gas Utilities	9	47	26.7	3.2	-0.38%	0.02	$ 5,575,978	11.00%
551030	Multi-Utilities	9	47	29.6	6.2	2.25%	0.06	$ 19,567,255	15.33%
551040	Water Utilities	6	47	36.0	8.0	-0.37%	-0.04	$ 1,669,733	18.42%
551050	Independent Power Producers & Energy T	4	36	35.9	6.4	1.05%	0.04	$ 10,116,895	20.11%

Table 4: Descriptive statistics for international sample firms

This table presents the descriptive statistics for our sample of foreign firms. Panel A shows the distributional properties for the entire pooled sample, while Panel B provides the descriptive statistics for the sub-sample of Low Reporting Frequency (LRF) versus High Reporting Frequency (HRF) stocks, and Panel D reports distributional properties of our variables by country. Variable definitions are as follows: *F_aret* is the 3-day excess return of the foreign firm i surrounding the U.S. Bellwether firm's earnings announcement in quarter t, i.e. we are capturing the return response of foreign firms to quarterly US earnings announcements, within each industry; *US_News* is the 3-day excess return of the U.S. Bellwether stock surrounding its quarterly earnings announcement; *LRF* is an indicator set 1 if foreign firm i reports on a semi-annual or less frequency in the year t, i.e. low frequency reporter. LRF is set to 0 for quarterly announcers; *Ctry_Corr* is the industry return correlation between foreign firm i's domicile country and the U.S. for a given GICS in year t-1, computing using daily returns for all available foreign firms from DS, and US firms on CRSP; *MSCI* is the 3-day return on the MSCI Global (excluding the U.S) portfolio for the 3-day period surrounding the earnings announcement of the U.S. Bellwether stock; *Size* is the natural log of opening market capitalization of firm i, measured in USD for year t; *B/P* is the book-to-price ratio of firm i, measured as opening book-value of equity in USD divided by opening market value in USD for year t. *Lev* is opening total debt scaled by opening total assets, measured in USD for year t; *US_Rep_lag* is the number of days between the earnings announcement date and fiscal quarter end for the U.S. Bellwether firm; *For_Freq* is the frequency of earnings reporting for foreign firm i, in year t, i.e. the number of earnings reports issued, mandated or voluntary. We collect data on frequency of reporting from DataStream, Bloomberg and Capital IQ, and hand-check a sub-sample of these firms to ensure accuracy. *Bad_news* is an indicator variable set to 1 if the US bellwether earnings announcement 3-day return (US_News) is negative.

Variable	N	Mean	Std Dev.	P25	Median	P75
Panel A: Pooled Sample						
F_aret	284,951	0.10%	5.08%	-2.31%	-0.21%	1.97%
US_News	284,951	0.27%	7.02%	-4.15%	0.60%	5.04%
Size	284,951	4.70	2.15	3.13	4.56	6.12
Size, in millions (USD)	284,951	1459	7810	72	254	656
B/P	284,951	0.91	0.92	0.35	0.66	1.17
Lev	284,951	0.22	0.20	0.04	0.18	0.34
MSCI	284,951	0.33%	2.63%	-1.10%	0.39%	17.40%
US_Rep_Lag (days)	284,951	23	7.3	19.00	23.00	27.00
For_Frequency	284,951	3.05	0.52	2.00	4.00	4.00
LRF (frequency)	284,951	40.9%				
bad_news (frequency)	284,951	49.2%				
Panel B: "Low Reporting Frequency" sample						
F_aret	118,711	0.11%	5.34%	-2.27%	-0.20%	2.07%
US_News	118,711	0.22%	7.22%	-4.20%	0.39%	5.17%
Size	118,711	4.20	2.20	3.01	4.21	5.82
Size, in millions (USD)	118,711	1184	7296	65	154	479
B/P	118,711	0.87	0.92	0.33	0.64	1.12
Lev	118,711	0.20	0.20	0.01	0.15	0.31
MSCI	118,711	0.31%	2.68%	-1.09%	0.28%	1.63%
US_Rep_Lag (days)	118,711	24	7.2	18.00	23.00	27.00
bad news (frequency)	118,711	49.5%				
Panel C: "High Reporting Frequency" sample						
F_aret	166,240	0.05%	3.07%	-2.32%	-0.25%	1.78%
US_News	166,240	0.32%	7.83%	-4.61%	0.63%	5.12%
Size	166,240	5.04	2.05	3.54	4.96	6.36
Size, in millions (USD)	166,240	1644	8134	74	243	682
B/P	166,240	0.94	0.92	0.37	0.68	1.21
Lev	166,240	0.24	0.20	0.06	0.22	0.37
MSCI	166,240	0.35%	2.65%	-1.11%	0.42%	1.88%
US_Rep_Lag (days)	166,240	23	7.4	19.00	23.00	27.00
bad news (frequency)	166,240	48.9%				

Table 4: Descriptive statistics for foreign sample firms (continued)

Panel D: Distribution by country

Country	N	F_aret	US_News	Size	Size (Mill)	B/P	Lev	MSCI	Reporting lag (days)	Reporting frequency	LRF	bad news
Australia	34306	0.04%	-0.18%	3.21	583	0.84	0.15	0.40%	22.9	2.10	97%	52%
Greece	8984	0.14%	0.42%	4.22	475	1.29	0.30	0.34%	25.3	3.20	3%	49%
Turkey	7598	-0.18%	0.14%	4.59	657	0.87	0.25	0.24%	23.9	3.18	4%	50%
Romania	1448	-0.05%	0.41%	4.28	848	1.29	0.19	0.38%	22.9	3.29	25%	49%
Denmark	5145	-0.06%	0.52%	4.48	883	1.00	0.26	0.23%	23.2	3.36	29%	47%
Ireland	1524	-0.03%	-0.15%	5.59	1,866	0.83	0.25	0.35%	24.3	2.09	94%	51%
Netherlands	4568	0.07%	0.52%	5.62	3,764	0.72	0.23	0.30%	24.0	2.57	65%	47%
Belgium	4802	-0.02%	-0.01%	5.47	2,186	0.91	0.24	0.26%	23.6	2.34	71%	50%
Portugal	1630	0.03%	0.42%	5.35	1,678	1.05	0.38	0.16%	25.8	3.72	6%	49%
France	17648	0.12%	0.42%	4.96	2,875	0.90	0.22	0.29%	23.5	2.06	84%	49%
Germany	16391	0.08%	0.23%	4.77	1,884	0.89	0.21	0.17%	23.0	3.16	23%	50%
Finland	2983	-0.09%	-0.21%	5.17	1,243	0.81	0.26	0.24%	23.2	3.91	2%	51%
Iceland	108	-0.60%	-1.19%	4.47	316	1.60	0.43	1.00%	25.6	3.46	27%	56%
Malaysia	14829	0.07%	0.54%	3.85	322	1.34	0.23	0.33%	22.4	4.00	0%	46%
UK	26536	-0.04%	0.40%	4.46	2,081	0.74	0.18	0.28%	23.8	2.05	95%	49%
Spain	4537	-0.11%	0.30%	6.28	4,080	0.78	0.30	0.37%	24.5	3.83	9%	51%
Mexico	2925	-0.21%	0.30%	5.69	2,026	1.54	0.24	0.47%	24.7	3.99	0%	49%
Italy	8232	-0.08%	0.29%	5.68	2,271	0.88	0.29	0.21%	24.0	3.82	11%	49%
New Zealand	3896	-0.05%	0.39%	3.83	266	0.78	0.25	0.42%	25.0	2.02	92%	48%
Norway	5910	-0.02%	0.66%	4.78	1,095	0.92	0.28	0.35%	23.0	3.98	2%	47%
Czech Republic	623	-0.09%	0.21%	5.09	2,142	1.77	0.13	0.24%	24.3	2.51	22%	51%
Switzerland	6424	0.05%	0.49%	5.76	2,928	0.92	0.22	0.29%	23.3	2.26	76%	47%
Chile	4073	0.00%	0.04%	4.91	897	1.22	0.20	0.08%	23.5	3.80	2%	49%
China (Shanghai)	12844	-0.15%	0.34%	6.22	2,295	0.39	0.27	0.26%	24.0	3.77	9%	49%
China (Shenzen)	11987	-0.65%	0.10%	5.97	700	0.35	0.23	0.40%	24.4	3.83	7%	49%
Singapore	12714	-0.03%	0.60%	4.23	562	1.14	0.19	0.30%	22.5	3.10	44%	49%
Sweden	6296	-0.17%	0.16%	4.05	1,070	0.73	0.17	0.42%	22.8	3.89	3%	51%
Israel	8155	0.16%	0.24%	3.97	414	0.93	0.31	0.59%	25.3	3.85	0%	50%
Japan	25686	0.01%	0.62%	5.65	1,918	1.26	0.22	0.41%	21.8	3.52	24%	48%
Canada	10731	0.14%	0.18%	5.06	1,755	0.77	0.20	0.52%	22.7	3.96	0%	51%
Austria	3115	-0.19%	0.29%	5.40	1,203	1.02	0.28	0.36%	24.8	3.47	9%	50%
Poland	8303	0.31%	0.44%	3.54	523	0.97	0.18	0.33%	24.6	3.87	6%	49%

Table 5: Reactions to US earnings news *(Portfolios)*

This table details the average reaction of foreign peers to US bellwether earnings news. *US_News* is the 3-day excess return of the U.S. Bellwether stock surrounding its quarterly earnings announcement. *F_aret* is the 3-day excess return of the foreign firm i surrounding the matched U.S. Bellwether firm's earnings announcement in quarter t. Each quarter we sort firms into 5 quintiles based on US_news, and calculate the mean values of F_aret for firms in each quintile and report the time-series average across the 47 quarters from 2001:1 to 2012:3. We present results for the full sample of firms, and LRF and HRF firm-years, respectively. Note that t-statistics in parentheses are computed with Fama-Macbeth methodology, and returns are value-weighted within each quintile-quarter.

Panel A: All firms

Rank of US_news	*Average US_News*	*Average F_aret*
Q1 (Low)	**-6.39%**	**-1.06%**
Q2	**-2.71%**	**-0.64%**
Q3	0.03%	-0.03%
Q4	**3.37%**	0.09%
Q5 (High)	**6.24%**	**0.81%**

Panel B: LRF firms

Rank of US_news	*Average US_News*	*Average F_aret*
Q1 (Low)	**-6.71%**	**-1.21%**
Q2	**-2.19%**	**-0.69%**
Q3	0.02%	-0.02%
Q4	**3.47%**	0.12%
Q5 (High)	**6.14%**	**0.71%**

Panel C: HRF firms

Rank of US_news	*Average US_News*	*Average F_aret*
Q1 (Low)	**-6.17%**	**-0.91%**
Q2	**-2.64%**	**-0.61%**
Q3	0.30%	-0.01%
Q4	**3.31%**	0.07%
Q5 (High)	**6.07%**	**0.82%**

Table 6: Foreign return reaction to US Bellwether news

This table reports the parameter estimates (and associated t-statistics) for the following specification:

$$F\_aret_{it} = \alpha + \gamma_1 US\_News_{jt} + \sum \gamma_n Controls_n + \sum \delta_n FE + \varepsilon$$

where *F_aret $_{it}$* is the 3-day excess return of the foreign firm i surrounding the matched U.S. Bellwether firm's earnings announcement in quarter t, i.e. we are capturing the return response of foreign firms to quarterly US earnings announcements, within each GICS industry; *US_News* is the 3-day excess return of the U.S. Bellwether stock surrounding its quarterly earnings announcement. All control variables are defined at the bottom of this table. We include country, year and GICS industry fixed effects in all specifications. In columns (1) and (2) we provide results for the sub-sample of annual US announcements (i.e. Q4) and interim announcements (i.e. Q1, Q2 and Q3). In column 3 we report results for the sub-sample of annual periods for our foreign firms, i.e. we are interested in how foreign firms respond to US Bellwether news around the foreign firms year-end. Columns (4) includes only interim periods of foreign firms, i.e. Q1, Q2, Q3. And column (5) report results for the sub-sample of only Q1 and Q3 periods, from the foreign firm perspective. Note that in these periods, LRF firms do not report own-firm earnings. We truncate the bottom 5% of firms within each country-year, based on market capitalization at the beginning of the calendar year to account for mismeasurement and data errors amongst smaller lightly traded foreign firms. All continuous variables, except US_News has been winsorized at the 1 and 99% level. We report associated t-statistics below parameter estimates based on clustered standard errors at the local country and quarter level. ***=significant at the 1% level; **=significant at the 5% level; *=significant at the 10% level.

Dep Var: F_aret	**Annual US Ancmts**	**Interim US Ancmts**	**Foreign Annual periods**	**Foreign Interim periods**	**Foreign Interim Q1 & Q3 only**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
US_News	**0.019 *****	**0.016 *****	**0.011 *****	**0.018 *****	**0.020 *****
	3.01	*3.46*	*3.09*	*4.39*	*2.96*
Size	-0.001	0.001 *	0.001	0.001 **	0.001 *
	-0.82	*1.93*	*0.66*	*2.11*	*1.79*
B/P	0.001 *	0.001 **	0.001	0.001 **	0.001 *
	1.94	*1.97*	*1.11*	*2.44*	*1.85*
Leverage	0.000	0.001	-0.001	-0.0001	0.000
	0.55	*1.13*	*-0.91*	*-0.71*	*-0.44*
US_Rep_lag	-0.001	0.000	-0.001	0.0001 *	0.001 *
	-1.09	*-0.66*	*-1.22*	*1.74*	*1.85*
CtryGICS_Corr	0.011 **	0.010 *	0.011 *	0.010 *	0.009 *
	1.97	*1.91*	*1.93*	*1.94*	*1.89*
Country FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Clustered S.E.	Ctry, Qtr	Ctry, Qtr	Ctry, Qtr	Ctry, Qtr	Ctry, Qtr
Adjusted R-Sqr	3.11%	3.00%	2.25%	3.25%	3.01%
N	63906	221,045	68,562	216,389	142,264

Variable definitions are as follows: F_aret is the 3-day excess return of the foreign firm i surrounding the U.S. Bellwether firm's earnings announcement in quarter t, i.e. we are capturing the return response of foreign firms to quarterly US earnings announcements, within each industry; US_News is the 3-day excess return of the U.S. Bellwether stock surrounding its quarterly earnings announcement; LRF is an indicator set 1 if foreign firm i reports on a semi-annual or less frequency in the year t, i.e. low frequency reporter. LRF is set to 0 for quarterly announcers. We collect data on frequency of reporting from Datastream (Item #WC05200), and hand-check a sub-sample of these firms to ensure accuracy; CtryGICS_Corr is the industry return correlation between foreign firm i's domicile country and the U.S. for a given GICS in year t-1, computing using daily returns for all available foreign firms from DS, and US firms on CRSP; Size is the natural log of opening market capitalization of firm i, measured in USD for year t; B/P is the book-to-price ratio of firm i, measured as opening book-value of equity in USD divided by opening market value in USD for year t. Lev is opening total debt scaled by opening total assets, measured in USD for year t; US_Rep_lag is the number of days between the earnings announcement date and fiscal quarter end for the U.S. Bellwether firm. All control variables are converted to USD using exchange rates are sourced from DS daily FX files.

Table 7: Within-Firm analysis

This table reports the parameter estimates (and associated t-statistics) for the following modification of our main interaction:

$$F\_aret_{it} = \alpha + \gamma_1 US\_News_{jt} + \gamma_2 Interim + \gamma_3 Interim * US\_News_{ijt} + \sum \gamma_n Controls_n + \sum \delta_n FE + \varepsilon$$

where Interim is an indicator variable set 1 for the first fiscal quarter and third fiscal quarter, and 0 otherwise. The interaction term *Interim * US_News* captures the differential effect of information transfers for Q1 and Q3 periods, incremental to return responses to US Bellwether news relating to Q2 and Q4 periods, i.e. capturing the difference between information transfer magnitudes for periods when foreign firms do not report their own earnings announcements, relative to periods when foreign firms do report their earnings. All other variables are defined in Table 6. We truncate the bottom 5% of firms within each country-year, based on market capitalization at the beginning of the calendar year to account for mismeasurement and data errors amongst smaller lightly traded foreign firms. All continuous variables, except US_News has been winsorized at the 1 and 99% level. We report associated t-statistics below parameter estimates based on clustered standard errors at the local country and quarter level. ***=significant at the 1% level; **=significant at the 5% level; *=significant at the 10% level.

Dep Var: F_aret	**LRF firms**		**HRF firms**		*diff:*
	(1)	**(2)**	**(3)**	**(4)**	
US_News	**0.029 *****	**0.012 ****	**0.020 *****	**0.020 *****	-0.008
	3.81	*2.04*	*2.78*	*3.34*	
Interim (Q1 and Q3 indicator)		-0.003		0.010	
		-0.83		*1.01*	
Interim * US_News		**0.023 ****		**-0.003 ***	**0.026****
		2.79		*-1.82*	
Size	0.001	0.001	0.001 *	0.001 *	
	0.84	*0.84*	*1.81*	*1.80*	
B/P	0.001 **	0.001 **	0.001 *	0.001 *	
	2.01	*2.01*	*1.83*	*1.83*	
Leverage	0.0010	0.0010	-0.002	-0.002	
	1.21	*1.26*	*-0.90*	*-0.98*	
US_rep_lag	-0.0001	-0.0001	0.0001 *	0.0001 *	
	-0.72	*-0.73*	*1.80*	*1.80*	
CtryGICS_Corr	0.007	0.007	0.008 *	0.008 *	
	1.62	*1.66*	*1.84*	*1.83*	
Country FE	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	
Industry FE	Yes	Yes	Yes	Yes	
Clustered S.E.	Country, Quarter	Country, Quarter	Country, Quarter	Country, Quarter	
Adjusted R-Sqr	3.33%	3.24%	2.91%	2.98%	
N	118711	118711	166247	166247	

Table 8: Overreaction of LRF firms to US bellwether announcements

This table details the apparent overreaction to US bellwether announcements. *F_aret* is the 3-day excess return of the foreign firm i surrounding the matched U.S. Bellwether firm's earnings announcement in quarter t; own_ret is the 3-day excess return of foreign firm i around it's own subsequent earnings announcements; size_rank and BP_rank is the quintile ranking of a firm's market value of equity, and book-to-market ratio, respectively, with the bottom (top) quintile assigned a value of 1 (5). Following Thomas and Zhang (2008), each quarter we sort firms into 5 quintiles based on F_aret, and calculate the mean values for firms in each quintile and report the time-series average across the 47 quarters from 2001:1 to 2012:3. For example we sort firms based on their responses to US bellwether news in Q1 and Q3, respectively, and then compute the average 3-day excess return to foreign firms' subsequent own earnings announcements, for say Q2 and Q4, respectively. In Panel B, we perform the analogous exercise for Q2 and Q4 responses to US bellwether news, and Panel C shows the results for HRF firm responses across all quarters. Note that t-statistics in parentheses are computed with Fama-Macbeth methodology, and returns are value-weighted within each quintile-quarter.

Panel A: Q1 & Q3

Quintile rank of F_aret	*own_ret*	size_rank	BP_rank
Q1 (Low)	0.53%	1.88	1.95
Q2	0.59%	2.10	1.98
Q3	0.01%	2.02	2.03
Q4	-0.21%	2.18	2.02
Q5 (High)	-0.31%	1.92	1.99
Q1 - Q5	**0.84%***** *(3.01)*		

Panel B: Q2 & Q4

Quintile rank of F_aret	*own_ret*	size_rank	BP_rank
Q1 (Low)	0.24%	1.89	1.91
Q2	0.29%	2.06	2.01
Q3	0.02%	2.06	2.01
Q4	-0.13%	2.11	2.04
Q5 (High)	-0.15%	1.95	1.96
Q1 - Q5	0.39% *(1.51)*		

Panel C: HRF firms (all quarters)

Quintile rank of F_aret	*own_ret*	size_rank	BP_rank
Q1 (Low)	0.21%	1.82	1.94
Q2	0.32%	2.11	2.10
Q3	0.11%	2.01	2.11
Q4	0.09%	2.13	2.03
Q5 (High)	-0.17%	1.96	1.99
Q1 - Q5	0.38% *(1.42)*		

Table 9: Information Transfer for Good/Bad U.S. Bellwether news

This table reports results from our within-firm specification (see Table 6), after we partition the sample based on good and bad news US news. We define bad news as US_News < 0 , and good news as US News > 0. All other variables are defined as in Table 6. All control variables are converted to USD using exchange rates are sourced from Compustat Global daily FX rate files. Note that we truncate the bottom 5% of firms within each country year, based on market capitalization at the beginning of the calendar year to account for mis-measurement and data errors amongst smaller lightly traded firms. All continuous variables, except US_News has been winsorized at the 1 and 99% level. We report associated t-statistics below parameter estimates based on clustered standard errors at the local country level. Note that our sample of local firms only contains firms with positive foreign sales, identified using Datastream and Factset global financial reporting data. ***=significant at the 1% level; **=significant at the 5% level; *=significant at the 10% level.

Dep Var: F_aret	**LRF firms**			**HRF firms**		
	Bad News (US_News < 0)	**Good News (US_News > 0)**	*diff:*	**Bad News (US_News < 0)**	**Good News (US_News > 0)**	*diff:*
US_News	**0.017 ** **	**0.009 * **	0.008	**0.024 *** **	**0.007 * **	**0.017****
	2.31	*1.83*		*3.51*	*1.75*	
Interim (Q1 and Q3 indicator)	0.000	-0.001		0.001	-0.001	
	-0.10	*-0.39*		*0.89*	*-0.89*	
Interim * US_News	**0.025 ** **	**0.010 * **	**0.015****	-0.003	0.006	-0.009 (ns)
	2.65	*1.85*		*-0.61*	*0.84*	
Size	-0.001	0.001 *		-0.001 **	0.001 **	
	-0.34	*1.83*		*-2.14*	*2.58*	
B/P	0.001 *	0.001 *		0.001 *	0.001 **	
	1.71	*1.79*		*1.71*	*2.26*	
Leverage	-0.0010	0.0010		-0.001	-0.001	
	0.16	*1.36*		*-1.22*	*-0.59*	
US_Rep_lag	-0.0001	-0.0001		0.0002 **	0.0001 *	
	-0.27	*-0.36*		*2.65*	*0.68*	
Country Corr (GICS)	0.007	0.006 *		0.008 *	0.008 *	
	1.61	*1.78*		*1.81*	*1.91*	
Country FE	Yes	Yes		Yes	Yes	
Year FE	Yes	Yes		Yes	Yes	
Industry FE	Yes	Yes		Yes	Yes	
Clustered S.E.	Country, Quarter	Country, Quarter		Country, Quarter	Country, Quarter	
Adjusted R-Sqr	3.17%	3.49%		2.65%	3.31%	
N	62,810	63,984		88,880	91,368	