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Are Investors Aware of Ownership Connections?

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Abstract

We examine the market reactions to earnings announcements within a parent-subsidiary ownership structure. We find that the parents' investors react to all announcements within the group either immediately or with delay, whereas subsidiaries' investors only react to their own firm's announcements, ignoring predictive information released by the parent. Multiple announcements within a group lead to enhanced transparency for parents' investors, who benefit from detailed information on the origin of their firm's earnings. In contrast, subsidiaries' investors appear unaware of ownership links, and behave as inattentive investors. Inattention is worsened by geographical diversification of affiliated firms and by indirect ownership, but cannot be explained by strategic timing of the disclosure of earnings surprises, day-of-the-week effect or seasonality, internal capital markets, or synergy-related explanations across industries. Institutional investors do not seem to be smarter at understanding group structures, with the exception of active investors owning shares in both parent and subsidiary companies.

Keywords: Ownership structures, corporate complexity, inattention, unawareness, myopia, earnings announcements, business groups, conglomerates, inattention, post-earnings announcement drift, market frictions

JEL Classifications: G14, G32

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Are Investors Aware of Ownership Connections?

1. Introduction

Recent evidence in the literature suggests that public information is not automatically impounded into stock prices. Investors may be inattentive to news released by the firm itself or by companies that are connected to it through economically significant contractual links.[1] When the firm is organized as a network of a parent and several subsidiaries[2], relevant inside information about the group may have multiple issuers. Disclosure by one company within the network can be directly relevant for affiliated entities as equity stakes represent channels through which earnings float. In this paper, we examine how shareholders respond to earnings announcements by the various entities of business groups. We investigate whether these structures lead to enhanced transparency as investors receive more detailed information coming from different entities or to more opacity when investors are unable to comprehend the connections between the announcing entities.

To examine information flows within groups, we identify parent-subsidiary ownership structures where both parent and subsidiary are publicly listed and their sets of shareholders only partially overlap. Throughout the paper, we will use the term subsidiaries for firms in which a parent owns at least a 20% stake and are following IFRS standards on consolidation. Thus, a parent company's stock can be regarded as a weighted portfolio of listed and privately-owned subsidiaries, where the weights are determined by ownership stakes in subsidiaries and the subsidiaries' relative sizes. At least once a year, the listed parent and subsidiary companies are required to make public and separate announcements of their earnings. By studying the market reactions to the release of unanticipated information, we can identify whether investors are able to see through the complexity of the group structure, or whether corporate connections induce investor unawareness or inattention. Indeed, the fact that a related listed parent and subsidiary have to a large extent a distinct set of investors, and that both entities release separate earnings information enables us to examine how investors react to information disclosure of the affiliated entity.

We first document that there is relevant information for the subsidiary's (parent's) shareholders in the earnings announcement of the parent (subsidiary) by highlighting a positive relationship between announcements' informational contents from both firms. We then distinguish among three cases based on the timing of earnings information release: (i) the parent and subsidiary announce on the same day, (ii) the parent announces first, and (iii) the subsidiary announces first. Market efficiency predicts that investors of both

[1] On investor inattention to earnings news disclosed by their own firm, see for example Bernard and Thomas (1990), Da, Engelberg and Gao (2011), DellaVigna and Pollet (2009). On investors' inattention to news from connected firms, see Cohen and Frazzini (2008) for customer-supplier relationships, Cao, Chordia and Lin (2016) for strategic alliances and Massa and Zaldokas (2017) for co-ownership.

[2] We define corporate networks as a group of legally independent firms connected by ownership links. These networks are largely prevalent in Asia (Claessens, Djankov, and Lang, 2000), continental Europe (Faccio and Lang, 2002), but also exist in the U.S. (see for example Holderness, 2009, who discredits the myth of diffuse ownership in the U.S.).

parents and subsidiaries fully and immediately incorporate earnings information unanticipated by the market, the anticipated part of the information being already priced. When the earnings announcements do not coincide, the first company to announce is expected to also convey predictive information about the affiliated entity that announces second. Consequently, unanticipated information released by the first announcer should not only trigger an immediate share price reaction for the first announcer but also for the second one. Hence, investors are expected to perceive the ownership links, entailing that the surprise earnings of all announcing companies belonging to the group increase the amount of information available to investors (*enhanced information hypothesis*).

The alternative hypothesis is that investors are unaware of the ownership links and do not react, neither immediately nor with delay to the earnings announcements of the affiliated entity (*inattention hypothesis*). A variation of this hypothesis is that investors are *heterogeneously* inattentive: some are aware of the ownership links, others are not, inducing delays in processing information released by affiliated entities. We consider the delayed stock price reaction to earnings surprises, measured by the post-earnings announcement drift (PEAD) as an indication of investor inattention (Bernard and Thomas 1989, 1990; DellaVigna and Pollet 2009; Hirshleifer, Lim, and Teoh 2009).

Our analysis is based on a sample of 15,117 ownership link-year observations, corresponding to 2,181 unique (direct or indirect) parent-subsidiary links in 75 countries over the period 2000-2015 and yields the following results. First, we find that when the parent and the subsidiary release earnings surprises on the same day, investors of both firms strongly and immediately react to the announcements. However, these pooled announcements do not enable us to identify the information source to which each set of investors reacts. Second, when the parent company releases its earnings information prior to subsidiary, we find that parent's investors react both to their own surprise earnings announcement and to the subsidiary's announcement that takes place at a subsequent point in time. This implies that the parent's investors infer that the subsidiary's announcement contains additional information that was not priced yet at the parent's initial announcement of the aggregated information of the whole group. In contrast to a parent's investors, the subsidiary's investors only react to the subsidiary's announcement, ignoring the ex-ante and hence predictive information released at the parent level. This suggests that the subsidiary's investors are generally unaware of the ownership relation between subsidiary and the parent firm, and fail to understand that the entity is part of a group. Third, when the subsidiary announces its earnings surprise first, we observe that both the subsidiary's and parent's investors immediately incorporate this information in the share prices. However, they only do so partially as the share prices keep adjusting in the period after the subsidiary's announcement to fully incorporate the news (reflected in the PEAD). The immediate reaction to a firm's own announcements accounts for 50-66% of the total reaction, whereas the immediate reaction to the other firm's announcements merely represents 0 to 15% of the total reaction. When the subsidiary announces first, not all parent's investors seem to be aware of the ownership connections.

We explore three potential explanations for our findings. First, investors may have a blind spot in the sense that they do not perceive that companies are part of a group. Hence, investors do not react to the announcements of an affiliated company as they fail to observe the internal structure of the corporate group. When the group consist of entities located in different countries, operating in different industries, or whose corporate names do not reveal any connection, it may be harder for investors to comprehend that these entities are all part of the same group and to process information released by its various members. This would be especially the case when information is disclosed by group members in which the investors do not hold a direct ownership stake. The theoretical argument is based on Merton's (1987) model in which the investors are not aware of the entire universe of securities and obtain information on a small number of stocks, leading to neglected stocks. In our setting, this would mean that investors collectively do not perceive the group as a whole and only consider the entity in which they have directly invested. We find that investors are less inattentive when a subsidiary is located in the same country, is directly owned, and when the parent and subsidiary share part of a corporate name, all characteristics that may increase investor awareness of the group structure.

Second, there are several reasons why subsidiary's investors, as opposed to parent's investors, may be more subject to inattention. Investors are more likely to obtain a broad picture of a complex group when they invest in the head of the group rather than in an entity within the corporate network. Furthermore, from the point of view of a listed subsidiary's outside investors, the parent company's news, even if it is disclosed first, may be less informative because other subsidiaries' performance may blur that of the listed subsidiary. Hence, understanding how the consolidated news relates to the individual entities of the group may require more sophisticated analysis. Finally, absence of or delayed investor reaction, which we interpret as investor unawareness, may be driven by limits of arbitrage due to illiquid stocks (i.e. many subsidiaries may have a lower free float given the presence of a major shareholder, the parent, see for example Bolton and Von Thadden, 1998, and Maug, 1998). In all our models, we control for the Amihud (2002) stock illiquidity measure, which makes it unlikely that illiquidity effects are the main drivers of our findings.

Third, we investigate whether shareholder characteristics may explain our results. Smart investors may be more aware of ownership links and better able to use information released by different entities of the group. We focus our analysis on institutional investors, who are more likely to be sophisticated and to initiate large trades.[3] To capture institutional investor heterogeneity, we include in our models the percentage of capital owned by mutual funds and active investors (private equity and hedge funds). Following the literature about common ownership (Azar, Schmalz, and Tecu, 2016; Gilje, Gormley, and Levit, 2017), we find that having

[3] A large body of research suggests that institutional investors are better informed or have an advantage in processing publicly available information around earnings announcements, see for example Walther (1997), Bartov, Radhakrishnan and Krinsky (2000) and Bhattacharya (2001). Among institutional investors, some may be more sophisticated than others. Examining the net buying activity of investors in response to earnings announcement, Battalio and Mendenhall (2005) find that large traders use a complete information set that incorporates analysts' forecasts, whereas small traders ignore earnings signals based on analysts' forecasts and respond to signals of a less accurate time-series model.

common active investors, who hold equity in both parent and subsidiary, leads to a stronger initial reaction to the subsidiary's earnings announcements but does not change the post-earnings announcement drift. As Ke and Ramalingegowda (2005) emphasize, exploiting PEAD requires institutional investors to actively trade stocks. They find no evidence that dedicated and quasi-indexing institutions exploit PEAD. In contrast, transient institutions, characterized by high portfolio turnover, trade to exploit PEAD especially in firms with low transaction costs. One potential explanation for our results of persistent PEAD could be that business groups, due to their complexity and relative opacity, do not attract enough transient institutional investors to trade away PEAD. To sum up our results, institutional investors do not seem to be smarter at understanding complex firm structures, with the exception of active investors owning shares in both the parent and subsidiary companies.

We conduct several tests to address endogeneity issues and alternative explanations. First, it could be that the decision to announce first or jointly may be endogenous to the quality of the news. Managers of the parent and/or subsidiary may try to steer different share price reactions by taking advantage of the announcement timing (Stein, 1989). In the specific case of listed parent-subsidiary structures, financial communication calendars can be (de)synchronized depending on the quality of the news announcement (e.g. Begley and Fischer, 1998; Bagnoli, Kross, and Watts, 2002; Doyle and Magilke, 2009; Boulland and Dessaint, 2017). We do find that the announcement timing is related to the quality of the earning surprise and to characteristics of the subsidiary and the parent, but we do not find that investors' reactions are driven by the timing of who releases earnings surprise information first and on whether the earnings surprise is positive or negative. Therefore, we confirm that moral hazard is not the main friction at play to explain investor behavior.

Second, when the subsidiary announces first, we interpret the delayed market reaction as resulting from investor unawareness. This finding may not just result from complexity induced by ownership links but from releasing information on days when inattention is usually high. The traditional inattention literature examines investor distraction with regard to information timing of stand-alone firms, such as the effect of information announcements on Friday (DellaVigna and Pollet, 2009), busy days (Hirshleifer, Lim and Teoh, 2009), and busy hours (Michaely, Rubin and Vedrashko, 2014). In all our models, we control for year, month, and day of the week fixed-effects.

Third, while we interpret the absence of a subsidiary's investor reaction to the surprise earnings announcement by the parent who announces first as the result of unawareness of the ownership link, an alternative explanation could be that the subsidiary's investors fear tunneling by the parent entity (Johnson, La Porta, Lopez-de-Silanes, and Shleifer 2000; Dyck and Zingales, 2004). Additional tests do not support that our findings could be affected by expropriation of subsidiary earnings by the parent.

Fourth, a related idea is that an internal capital market within the group may exist and enables capital transfers to financially constrained firms (Stein, 1997; Rajan, Servaes, and Zingales, 2000). We find that, when a parent announcing first has negative earnings, investors react more favorably to the subsequently announced

positive earnings surprise from the subsidiary, and this effect is amplified when the parent's growth opportunities are larger than the subsidiary's. This test suggests that investors may value the existence of internal capital markets.

Fifth, we test the robustness of all our findings to any consideration related to the endogenous formation of the groups (e.g. vertical integration, diversification). We include pair (parent-subsidiary) industry (country) fixed effects to account for unobserved complementarities and synergies between parent companies and subsidiaries operating in different industries (countries), and we confirm that these effects do not affect the way investors react to information released by their company or by the affiliated entity.

Our paper is related to several strands of literature. First, we contribute to the literature on inattention to information within complicated firms (*dark side* of complex firms).[4] Cohen and Lou (2012) compare standalone and conglomerate firms subject to the same information shock. They argue that investors' limited processing capacity leads to a significant delay in impounding information into share prices of conglomerate firms, generating return predictability. Barinov, Park, and Yildizhan (2016) find that an increase in firm complexity leads to larger post-earnings announcement drifts. Huang (2015) reaches the same conclusion looking at multinational corporations relatively to US focused firms. As conglomerates and multinational corporations are non-exclusive forms of complex firms, we consider in this paper both dimensions of complexity: sectorial and geographic diversification. In addition, by examining internal ownership connections within firms, we open the black box of complex firms, and we show that investors' processing capacity depends on the characteristics of the links between the entities of the group.

Second, we add new evidence that such complex firms' structure can also turn out to be beneficial for investors (*bright side* of complex firms). The literature has identified settings where within-conglomerate information sharing can generate value: for instance, Massa and Rehman (2008) find that mutual funds operated by financial conglomerates have superior performance, arguably because information is shared by their banking division. Anjos and Fracassi (2015) argue that conglomerate firms have an informational advantage relative to focused firms because they have better access to business-relevant information, especially if they operate in more "central" industries relative to the global industry network. Our analysis suggests that connected firms yield higher transparency that could be beneficial for all the investors in the various entities of the group, but is actually only picked up by some types of investors.

Third, we contribute to the literature on inattention to information from connected firms. Ramnath (2002) finds that investors underreact to the earnings reports of rivals within an industry. Cohen and Frazzini (2008) show that stock prices do not fully incorporate news related to a firm's principal customers. Cao, Chordia, and Lin (2016) examine the impact of information released by one partner in a strategic alliance on the share price of the other partner. They document a share price underreaction to information release by the

[4] In addition, several papers examine valuation issues of complex firms, see for example Slovin and Sushka (1997) and Laeven and Levine (2008).

other partners regardless of whether the information is positive or negative. As these papers examine firms related through different types of external links but do no analyze corporate relations within ownership networks, our paper tries to fill this gap by providing evidence of inattention to news released inside a business group.

Fourth, we add to the literature examining the importance of ownership structures to explain the magnitude of the post-earnings announcement drift. PEAD is one of the most persistent documented anomalies. There are plenty of results on the impact of shareholder types on the PEAD. For instance, Kaniel, Liu, Saar and Titman (2012) find that informed trading by individuals is responsible, at least in part, for PEAD, especially for smaller firms. Ke and Ramalingegowda (2005) report that only institutions with high portfolio turnover rates exploit PEAD. Porras, Prado, Saffi and Sturgess (2016) find that higher ownership concentration stocks tend to have a lower speed of adjustment to earnings announcements and a bigger PEAD. Our findings suggest that the presence of institutional investors as a whole does not reduce the PEAD. In contrast, we find that common active investors (hedge funds and private equity) owning shares in both parent and subsidiary companies contribute to speed up the adjustment of prices to earnings announcements.

The remainder of the paper is organized as follows. In Section 2, we describe the sample selection and give descriptive statistics of the main variables. We report our results in Section 3 and the results from a set of robustness tests in Section 4. Section 5 concludes.

2. Sample Selection

2.1. Ownership Links

We start our data collection by retrieving shareholder information for all (currently and formerly) listed companies around the world from Bureau van Dijk's Orbis database. We find 360,000 ownership links between a public company and a public (downstream) company.[5] Still, most of these ownership links are participation stakes held by financial institutions including insurance companies (45% of all of the above links) or mutual funds (25%) and these equity stakes are small with an average (median) of 4.52% (0.56%) of the equity. Some of the equity stakes in Orbis are not given in a numerical format, which is why we decode them following Kalemli-Ozcan et al. (2015): we replace a percentage with a leading "<", or ">" by the percentage after the symbol plus or minus 0.1%; we eliminate possible signs that precede percentages: "_", "?", or "Â"; the "WO" codes (wholly owned) are replaced by 98.01%; "MO" (majority owned) by 50.01% (because according to the international accounting standards practice, majority ownership is at least 50% plus one share and the smallest stake reported by BvD is at two decimals, 0.01%); "CQP1" (50% plus 1 share) by 50.01%; "BR" (branch) by 50.01%; "JO" (jointly owned) by 50%; "NG" (negligible) by 0.01%; and "n.a" (not available) and "-" (not significant) by zero.

[5] Bureau van Dijk's Orbis database provides owner and subsidiary links for more than 40 million public and private companies. The data are collected from different data sources including the SEC Edgar files for US listed companies, firms' annual reports, firms' websites, and direct solicitations. Orbis relies on a network of 77 local data providers to collect international ownership data.

Our aim is to identify investor reactions to a credible signal emitted by a related company, *i.e.* a subsidiary that directly or indirectly significantly contributes to the parent's earnings. La Porta et al. (2000) define a large owner as a legal entity that directly or indirectly controls at least 10% of the voting rights. Claessens et al. (2000) use a 20% cutoff to study concentrated ownership structures. We follow the literature and retain the ownership links with a percentage equal to or above 20%. Since 2005, there has been a strong push for harmonization of accounting standards and principles with the mandatory adoption of International Financial Reporting Standards (IFRS) for publicly traded firms, which largely coincides with U.S. GAAP. Both U.S. GAAP and IFRS require parent companies to consolidate controlled subsidiaries. IFRS standards require the parent to consolidate the entity if there is *de facto* control, which is interpreted as the parent owning a stake of 20% or more (see Appendix B).

Our 2015 cross-sectional sample of ownership links comprises 14,353 subsidiary-parent relations involving 20,616 listed companies. We drop 4,537 links where ISIN codes are missing. We expand the sample going back 16 years (2000-2015) and obtain a panel of 54,917 link-year observations based on ownership links of publicly listed parent companies that effectively directly or indirectly control at least 20% percentage of the equity of publicly listed subsidiaries.[6]

2.2. Earnings Surprises

We collect earnings announcement dates, realized earnings per share, and analysts' earnings forecasts, as provided by the I/B/E/S U.S. and International files.[7] We follow the accounting and finance literature by defining earnings surprises as the difference between the announced earnings and the analysts' forecasts from the period prior to the announcement. Following DellaVigna and Pollet (2009), we take each analyst's most recent forecast prior to the announcement provided that the forecast is between 180 and 3 days before the announcement (to avoid recent forecasts being affected by leakage of information on realized earnings). Our earnings forecast is the median of all analysts' forecasts.[8] We scale the difference between the realized earnings and the median analyst forecast by the share price taken five trading days prior to the announcement.[9] Thus, our estimate of the earnings surprise for firm i on day τ can be written as:

$$Surprise_{i,\tau} = \frac{(actual\ earnings_{i,\tau} - median\ forcast_{i,[-180+\tau;-3+\tau]})}{\text{price}_{i,\tau-5}}$$

The variable $Top\ Two\ Quantiles_{\tau_i}$, which is the independent variable of interest, is defined following DellaVigna and Pollet (2009):

[6] We correct the data for potential mistakes; e.g. we delete the link-year observations prior to the IPO year, and after the delisting and full takeover year. IPO and delisting dates are collected from BvD Amadeus and Datastream. Takeovers dates are collected from BvD Zephyr as it has common identifiers with the Orbis database. We also retrieve all historical ownership links available in the Orbis Historical files related to companies involved in the sample of cross sectional links.
[7] We link the Bureau van Dijk Orbis information to Datastream and I/B/E/S databases using the ISIN identifier.
[8] Considering the median analyst forecast gives no weight to analysts that perform poorly at issuing earnings forecasts.
[9] An alternative methodology scales forecast error by the standard deviation of earnings forecasts, but this necessitates at least two analysts following a company, which is not always the case, especially for subsidiaries.

$$Top\ Two\ Quantiles_{\tau_i} = \begin{cases} 1, & Surprise_{i,\tau} \in \{Q10; Q11\} \\ 0, & Surprise_{i,\tau} \in \{Q1; Q2\} \end{cases}$$

The variable $Surprise_{i,\tau}$ distribution is split into 11 quantiles Q, with $Q6$ being the quantile with a $Surprise_{i,\tau}$ closed to zero, $[Q7; Q11]$ the quantiles with positive $Surprise_{i,\tau}$, and $[Q1; Q5]$ the quantiles with negative $Surprise_{i,\tau}$.

As we work with a global sample, we convert all quantities to USD by means of daily exchange rates from Datastream. We delete the observations with extreme earnings surprises (absolute value greater than one). We focus on the annual earnings announcement because the practice of quarterly earnings announcements is not universally mandatory, and companies subject to IFRS around the world are required to announce their earnings on an annual basis (Hung, Li and Wang, 2014).[10] In an international context, most studies find that annual earnings announcements are informative, especially for firms in countries with higher quality earnings and with stronger investor protection institutions (DeFond, Hung and Trezevant, 2007), and after firms cross-listed in the U.S. (Bailey, Karolyi and Salva, 2006).

2.3. Investor Reactions

The stock return at an earnings announcement represents the change in a firm's valuation induced by investors' buying and selling transactions triggered by the difference in earnings relative to expectations. We compute cumulative abnormal returns for different windows at the date τ_i of parent's and subsidiary's earnings announcement for each set of investors - where $i = \{p, s\}$, p stands for the parent and s for the subsidiary. We download daily returns from Datastream and denote $r_{i,t}$ as the returns of the share of a company i on day t. We calculate cumulative abnormal returns, $BHAR_{i,\tau_i}[\tau_i; \tau_i + T]$, over a $[\tau_i; \tau_i + T]$ window as buy-and-hold returns:

$$BHAR_{i,\tau_i}[\tau_i; \tau_i + T] = \prod_{t=\tau_i}^{\tau_i+T}(1 + r_{i,t}) - 1 - \widehat{\beta_{i,t}}\left[\prod_{t=\tau_i}^{\tau_i+T}(1 + r_{m,t}) - 1\right],$$

where $r_{m,t}$ is the daily market portfolio return. $\widehat{\beta_{i,t}}$ are obtained by regressing individual returns on the MSCI World 600 index returns for an estimation window $[-300; -46]$. We drop the announcements for which we have less than 40 days of stock price data for the estimation period.

For each pair of parent p and subsidiary s in each year t of the sample period, we study two sets of investor reactions at two earnings announcement dates, τ_p and τ_s, yielding a total of four reaction-announcement observations in each year.

Our main test is captured by the following equation:

[10] As of today, 114 countries have converged to IFRS (see Appendix B for more details). In many countries, the usefulness of mandatory reporting of quarterly earnings has been questioned, as they are believed to strengthen a short-term focus at the expense of the long run. E.g. the Interim Management Statements, introduced in 2007 in the UK, were abandoned in 2014. In 2013, the European Commission amended its Transparency Directive stating that quarterly financial information is not necessary for investor protection.

$$BHAR_{i,\tau_i}[\tau_i; \tau_i + T] = \alpha + \beta\ Surprise\ Top\ Two\ Quantiles_{i,\tau_i} + \Phi\ Firm\ Controls_{i,\tau_i} + \Theta\ Link\ Controls_{p,s,\tau_i} + a_{p,s} + b_{\tau_i} + \varepsilon_{i,\tau_i}$$

where the vector $Firm\ Controls_{i,\tau_i}$ comprises the firm characteristics including the log of market capitalization, the log of analyst coverage, the market-to-book ratio, and the Amihud (2002) illiquidity measure. $Link\ Controls_{p,s,\tau_i}$ is a vector of a pair (p, s) characteristics including the companies' relative market size, percentage of common analysts, percentage of control held by the parent, a dummy variable indicating a direct ownership relation, and dummy variables equaling one if the parent and subsidiary are located in the same country, and have part of their name in common, respectively. We also include industry and time (year, month, day-of-the-week) fixed effects (b_{τ_i}), and in some specifications pair (parent-subsidiary) industry fixed effects or link fixed effects ($a_{p,s}$). The dependent variable $BHAR_{i,\tau_i}$ is calculated by type of investor (*i.e*. *p* or *s*), each of which is expected to respond to the surprise earnings announcements of *p* or *s* (at τ_p or τ_s). We therefore examine four cases: (1) parents' investor reactions to the parent companies' announcements ($BHAR_{p,\tau_p}$), (2) subsidiaries' investor reactions to subsidiaries' announcements ($BHAR_{s,\tau_s}$), (3) parents' investor reactions to subsidiaries' announcements ($BHAR_{p,\tau_s}$), and (4) subsidiaries' investor reactions to parents' announcements ($BHAR_{s,\tau_p}$).

2.4. Description of the Sample

Geographic breakdown

The geographical distribution of parents and subsidiaries spans 75 countries. We partition these countries into six categories, in addition to the U.S. and Great Britain. The category 'Asia' includes China, Hong Kong, Korea, Indonesia, Japan, Myanmar, Singapore, Philippine, India, Singapore, and Thailand. The category 'Europe' includes Albania, Austria, Belgium, Croatia, Cyprus, Czech Republic, Germany, Denmark, Spain, Finland, France, Ireland, Greece, Hungary, Italy, Lithuania, Luxembourg, The Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Sweden, Switzerland, and Ukraine. The 'Americas' comprises Canada, Latin America, and Caribbean islands. The group Middle East includes Israel, Turkey, Lebanon, Oman, and Saudi Arabia. AU/NZ stands for Australia and New Zealand.

55% of the business groups around the world are from Asia. Within the Asian groups, 58% are Japanese, about 10% are Chinese (including Hong Kong), 13% are Korean, and the remainder is from India (6%), Singapore (4%), Thailand (4%), Myanmar (4%) and Indonesia (2%). Western continental Europe stands for 16% of all the corporate groups (globally), the U.S. for 11%, the Great Britain for 4% and the rest of the world for 14%.

[*Insert Table 1 about here*]

Descriptive statistics

Table 2 reports descriptive statistics of the main explanatory and control variables. Means (medians) of various firm characteristics are reported for the subsamples of parents, subsidiaries, and parent-subsidiary pairs. We provide a complete list of variable definitions in Appendix A. Parents (subsidiaries) are on average followed by 14 (8) analysts. The average (median) size of the subsidiary represents 41% (12%) of the average (median) parent.

Parent company's stocks are more liquid than the subsidiaries', which have on average a lower free float. The average parent (subsidiary) has 25 (13) institutional investors, which control 16% (11%) of the average parent (subsidiary). Institutional investors are identified using Bureau van Dijk Orbis and include mutual funds, pension funds, hedge funds, venture capital and private equity funds, banks and insurance companies that own between 0.1% and 20% of the equity. 38% of the parents and subsidiaries have at least one common institutional investor. On average, they have four common owners.

The average parent-subsidiary structures are geographically focused (72% of the links are in the same country), diversified (58% operate in different industries), and 27% share part of the corporate name. The average ownership stake by the parent in the subsidiary amounts to 49% and the relative market value of the subsidiary is 41%, such as the average subsidiary represents 20% (0.49*0.41) of the parent's value, which is economically important enough to expect investors to react to the earnings release of the affiliated entity.

[*Insert Table 2 about here*]

3. Empirical Results

In this section, we focus first on parents' and subsidiaries' investor reactions to the earnings announcements of their own firms as well as to those of the affiliated companies. We then examine the effect of relative announcement timing on share prices in order to understand when (if at all) information is incorporated into stock prices.

3.1. Investor Reactions to Earnings Announcements

A parent's earnings announcement contains information on its various operations, including those of its subsidiaries, such that the parent's announcement conveys information on the business group, relevant to both the parent's and subsidiaries' investors. Similarly, when a subsidiary announces its earnings first, the market receives predictive information about part of a parent's consolidated future earnings.

In Table 3, we regress investor reactions on announcements of earnings surprises belonging to the top and bottom quantiles of their distribution. The parameter estimate of *Surprise Top Two Quantiles* measures the returns to good news (top two quantiles) relative to bad news (bottom two quantiles) and we expect the coefficient to be positively correlated with the investor reaction.

Our empirical setting with two sets of investors and two earnings events per year enables us to study the investor reaction to the earnings announcement for four combinations of investor reaction-firm

announcement. We examine the cases when firms announce their earnings on the same day and when either the parent or the subsidiary announces first. For each combination, we examine, controlling for company's characteristics and industry (SIC-2) fixed effects, at the immediate and the delayed response to the event day which we label day 0: windows [0;1] and [2;60], respectively. For models that test investor reactions to the earnings surprise of the affiliated company, we include (i) characteristics of that affiliated company (firm size, analyst coverage, market-to-book (Q), and stock illiquidity), (ii) link (parent-subsidiary) control variables (including the parent's ownership percentage in the subsidiary, the percentage of common analysts, the presence of common institutional investors, and the size of subsidiary relative to the parent's), (iii) pair (parent-subsidiary) industry fixed effects that account for unobserved heterogeneity not only related to these firms' own industries but also to combination of industries wherein the parent and its subsidiary operate and (iv) time-independent characteristics of the links (dummies for a parent and subsidiary being located in the same country, operating in the same industry, or bearing a common name). This specification accounts for the endogenous formation of business groups, driven by unobserved complementarities, synergies, or inadequacies between industries. We include year, month, and day-of-the week fixed effects, in order to rule out the effects of business cycles, within-year seasonality, day-of-the-week inattention, and report robust standard errors.

Table 3 presents the results of the share price reactions: Buy-and-hold abnormal returns at the announcement period [0;1] and the subsequent period [2;60] measuring the post-earnings announcement drift (PEAD). We examine whether parent's and subsidiaries' investors react differently to the announcement of their own firm and the affiliated firm. Columns (1) and (2) report the parent's investor reaction to the parent's own announcement. We find a strong, immediate positive reaction of 1.51%, and a PEAD not significantly different from zero. The parent's investor reaction to its subsidiary's surprise earnings announcements are shown in columns (3) and (4): These investors incorporate the information released by the subsidiary into the parent company's share price, although some of the information is incorporated with delay (at the 10% level, we find a PEAD of 0.8%). Columns (5) and (6) reveal that the subsidiary's investors react to the subsidiary's earnings announcement. Half of the price reaction takes place immediately and the other half up to 60 trading days after the announcement. The PEAD is economically and statistically significant and robust to the subsidiary's controls.

In sum, our results support the fact that parent's and subsidiary's investors do not react in the same way to information released by the affiliated entity. In contrast to the parent's investors, subsidiary's investors do not incorporate information on the affiliated firm into their share prices. This violation of the efficient market hypothesis may follow from a lack of investor sophistication (inattention) or alternative explanations that we explore further in the next section.

[*Insert Table 3 about here*]

3.2. Relative Announcement Timing and Information Incorporation

We dissect our sample into three subsamples based on different announcement timing situations, respectively the case where the parent and its subsidiary release their earnings on the same day, where the parent announces before the subsidiary, and where the subsidiary announces first. For most parents and subsidiaries (about 84%) within a pair, the financial year ends coincide (Table 4). Of these pairs, only 16% announce their annual earnings on the same day. For 47%, the subsidiary's earnings announcement is scheduled before that of the parent; and for 37%, the subsidiary releases its earnings subsequent to the parent. When the subsidiary is the first announcer, the parent announces on average (median) 13 (7) calendar days afterwards. When the parent is the first announcer, the subsidiary's announcement is scheduled 23 days later (median 14 days).

[*Insert Table 4 about here*]

For the cases where parent and subsidiary do not announce on the same day, we perform four different tests: we measure the parents' and subsidiaries' investor reactions to the announcements of their own firms, and their reactions to the announcements of the affiliated firms. In each setting, we study investor reaction or inattention, and estimate immediate and delayed reactions to the earnings surprises.

3.2.1. Are the earnings reported by affiliated entities correlated?

Before embarking on how the earnings announcements are received by the various types of investors, we verify whether the size of the earnings reported by parent and bidder are correlated. We find strong correlations in regressions of the parents' (subsidiaries') earnings surprises (belonging to the top two quantiles of their distribution) on the subsidiaries' (parents') earnings surprises (also in the top two quantiles) when the subsidiary (parent) is announcing first: 0.62 (0.58). Repeating these regressions with the actual earnings of the parents and subsidiaries confirms these strong relations. We then turn to Table 5 where we study whether these relations are upheld when controlling for link (parent-subsidiary) controls, pair SIC-2 industry fixed effects, and year, month, day-of-the-week fixed effects. In models (1) and (2), we examine the case of the subsidiary releasing its earnings first and we regress the earnings reported by the parent on those released by the subsidiary. We confirm that parent's actual earnings are positively and significantly related to the subsidiary's actual earnings. The parent's earnings surprises (belonging to the Top Two Quantiles) increase by about 20% when the subsidiary earnings surprise also belong to the Top Two Quantiles. In models (3) and (4), we perform the same tests for the parent announcing prior to the subsidiary and find a similar and strong relation.

These results suggest that actual earnings released by the two companies matter for the affiliate company and that the magnitude of the two earnings surprises are positively related. Hence, good news released by the first announcer predicts good news for the second announcing company, suggesting that investors in the second announcing company should infer information about news to be released by the second announcer.

[*Insert Table 5 about here*]

3.2.2. Parent and subsidiary announce on the same day

Table 6 reports the average immediate and delayed reactions of parent's and subsidiary's investors to same-day earnings announcements. Both the parent's and subsidiary's investors instantaneously react to the announcement of their respective companies in models (1) and (5). Consistent with market efficiency, the reaction is immediate and there is no post-earnings announcement drift (Models (3) and (7)). The results remain unchanged when we control for firm characteristics such as stock illiquidity, firm size, analyst coverage, and industry and time (year, month, day-of-the-week) fixed effects (see Models (2), (4), (6) and (8)). As the stock price reactions may also reflect the incorporation of information about the affiliated company given that the announcements coincide, we cannot identify whether the stock price reactions are driven by information released by the parent, the subsidiary, or both. Therefore, we turn to the cases where the parent and the subsidiary disclose their earnings at distinct moments in time.

[*Insert Table 6 about here*]

3.2.3. The parent announces first

Parent's investor reactions

When the parent releases its earnings before the subsidiary, the parent's investors could react twice in case the second announcement also contains new or previously unpriced information. We find that parent's investors strongly react to their own earnings surprises, with a statistically significant BHAR of almost 1% on the announcement day (Table 7, Panel A, Model 1) and that there is no delayed stock price reaction (Model 3). These results are robust to including variables capturing illiquidity, firm size, Tobin's Q, and the number of analysts, link controls (subsidiary-parent relative market value, percentage of control held by the parent, percentage of common analysts, a dummy capturing the type of ownership link (direct or indirect), and dummy variables equal to one if parent and subsidiary are located in the same country, if they share part of a corporate name, and if common institutional investors own a stake in both entities) and fixed effects (firm-industry, pair industry, and year, month, and day-of-the week).

As a parent's earnings reflect the consolidated earnings from its listed and non-listed subsidiaries, the stock price reaction at the announcement is expected to fully incorporate all relevant information. Still, we show that parent's investors do also react to the subsequent release of surprise information by the subsidiary (Model (5)). This result implies that the uncertainty about the drivers of the earnings surprise at the parent level is partly resolved when the subsidiary discloses earnings surprises and that this additional information about parent's earnings disaggregation is still valuable to the parent's investors. Extending the controls in Model (6) with parent firm characteristics, and pair industry fixed effects yields similar results. The parent's investors hence react instantaneously to the disclosure of earnings surprises of both the parent and the subsidiary and there is no evidence of any delayed reaction when the parent is the first announcer (Models (7) and (8)).

News related to complex ownership links may require more effort to process as opposed to news from stand-alone firms. Similarly, news from geographically and operationally diversified firms may also be more difficult to collect and analyze. A subsidiary's earnings surprise announcement sheds light on the breakdown of the parent's performance. The total parent's investor reaction is about 1.51% (=1.17%+0.34%; models (1) and (5), and similar numbers are obtained in models (2) and (6) which combine to 1.55%). Hence, 77% (=1.17%/1.51%) of the total information is processed at the parent's announcement and 23% at the subsidiary's. These combined returns are close to those triggered by the parent's investor reactions when the earnings surprise announcements are made by the parent and subsidiary on the same day (1.63%, Model (1) in Table 6). The results remain qualitatively the same when we control for the parent's and link characteristics, and pair industry fixed effects (columns (2) and (6)).

To sum up, when the parent releases its earnings first, its investors react both to their own firm's earnings announcements and to those of the subsidiary, which implies that the latter announcement still contains some additional information not yet incorporated in the parent's share price. This finding supports the *enhanced transparency* hypothesis for the parent's investors.

[*Insert Table 7 about here*]

Subsidiary's investor reactions

In panel B of Table 7, we test whether the subsidiary's investors react to the information released by the parent when it discloses prior to its subsidiary. As subsidiary's earnings are consolidated in the parent's earnings, it would be rational for subsidiary's investors to immediately incorporate earnings surprise information released by the parent into the subsidiary's stock price. However, we do not find any economically or statistically significant subsidiary's price reaction to the parent's announcement – neither immediately (Models (1) and (2)) nor with a delay (Models (3) and (4)). The subsidiary's investors only react to their own firm's earnings announcements. Then, the response is both immediate (2.5% in Models (5) and (6)), and with delay (Models (7) and (8)). In contrast to parent's investors, the subsidiary's investors only react to the subsidiary's announcement, ignoring the predictive information released at the parent level. This lack of stock price reaction implies that the subsidiary's investors fail to see how their entity is embedded in the business group, suggesting that subsidiary's investors are mostly unaware of ownership links.

To sum up, in the case where the parent announces first, the parent's investors incorporate information beyond that of the parent into the share prices, which implies that the subsidiary's earnings announcement adds value and enhances the transparency about the parent company. The subsidiary's investors only react to the information of the subsidiary itself and seem to be inattentive towards predictive surprise news from the parent (which supports the inattention hypothesis).

3.2.4. The subsidiary announces first

We now turn to the case where a subsidiary's earnings announcement is scheduled prior to that of the parent. We expect that the subsidiary also conveys predictive information for the parent's investors. The signal would be particularly informative when the subsidiary's earnings constitute a large part of the parent's consolidated earnings. Thus, we expect the parent's investors to react twice: first, at the subsidiary's earnings surprise announcement, and then at the parent's disclosure. We expect the subsidiary's investors to respond to the disclosure of their own firm but not to that of the parent because, in principle, all relevant information for the subsidiary's investors is already released at this first announcement date.

Parent's investor reactions

Panel A of Table 8 reports the parent's investor reaction to the subsidiary's and parent's earnings surprises when the subsidiary announces first. At the subsidiary's announcement, the parent's stock prices immediately react by on average 0.4% (Model (1)), but most of the information is processed with delay over the period [2;60] days as the stock prices then still increase by 2.8% (Models (3) and (4)). At its own (subsequent) announcement, the parent's stock prices immediately react (by 1.2% in Models (5) and (6)), but again keep adjusting over the subsequent period (Models (7) and (8) exhibit a significantly positive PEAD of almost 2%).

Our findings highlight that when the subsidiary announces first, the parent's investors exhibit heterogeneous behaviors: they react with delay to both their own earnings announcements and those of the affiliated company. This suggests that at least some investors are not aware of the ownership connection with the subsidiary, or are unable to swiftly interpret information related to corporate complexity. We investigate these two potential mechanisms in Tables 9 and 10.

[*Insert Table 8 about here*]

Subsidiary's investor reactions

Panel B of Table 8 reveals that at a subsidiary's announcement, its stock price on average immediately reacts (by 2.5%) to the unexpected positive news (Models (1) and (2)), and keeps adjusting upwards by another 5.7% over the subsequent period (Models (3) and (4)). Most of the information is hence seeping in the stock prices with a delay. It should be noted that the PEAD is not induced by the second announcement (see robustness tests in Section 4.4). Models (5) to (6) show that the subsidiary's stock price does not immediately respond to the parent's surprise earnings announcement (which occurs at a stage subsequent to those of the subsidiaries) but only do so with a delay.[11]

[11] We also performed the same tests with a different measure of illiquidity (i.e. a dummy variable that takes the value one if the stock price time series includes more than 50% zero-returns within a year), instead of the Amihud measure (that cannot be computed for severely illiquid stocks, because Amihud (2002) measure requires volume series to be available as well as returns). Under this specification, we did not find a statistically significantly drift, suggesting than this result is driven by illiquid stocks.

There are several reasons why unawareness of ownership links may be more severe for a subsidiary's investor. Whereas a parent investor has indirectly invested in the subsidiary whose earnings contribute to the parent's results, a subsidiary's investor has usually not invested in the parent. Moreover, it is probably easier to have a broad picture of a complex group when investing in the head rather than in a part of the group. Parents release earnings that consolidate the earnings of the publicly listed subsidiary and of the privately-owned subsidiaries and divisions for which no public separate earnings announcement is required. Hence, while it may be relatively straightforward to incorporate a subsidiary's information into the share price of the parent, it generally requires more sophisticated analysis to do the inverse and interpret the impact of earnings information of the parent (which comprises information of the network connections) on a subsidiary's share price. From the point of view of a subsidiary's outside investors, although the parent's news is disclosed first and contains predictive information about the subsidiary's earnings, this information may not be easy to disentangle from other entities' performance. Another reason for the absence of a subsidiary's share price response to the parent's earnings announcement may be related to lower liquidity of the subsidiary's stock because of more concentrated ownership and a smaller free float, which may coincide with fewer institutional investors. If a majority of the shareholders in the subsidiary are non-sophisticated investors, the reaction to announcements, especially for complicated firms, may not happen or may be understandably delayed – a point we will revisit in the next section.

Overall, our results highlight that when a subsidiary announces first, the information value seems blurred and more difficult to understand, and hence triggers share price reactions with a delay.

3.3. Channels of Investor Unawareness

In this subsection, we focus on parent's investor reaction to the subsidiary's announcement when the subsidiary releases its earnings first, and we investigate whether firm complexity or heterogeneity in investors' sophistication may explain why information is incorporated with delay.[12]

3.3.1. Corporate complexity

Panel A of Table 9 reports a delay in the parent's stock price reaction to the subsidiary's announcement when the parent and the subsidiary are not located in the same country. Similarly, in Panel B, we find that parent's investors immediately and significantly react to directly owned subsidiaries (while part of the information is also priced later), but when the subsidiary is controlled through several layers of intermediate firms, the parent's investors only react to subsidiary's earnings surprise with delay. The results in Panel A and B suggest that the complexity induced by geographical diversification and by indirect ownership makes part of investors more inattentive to information within the network.

[12] We also test the subsidiary's investor reaction to the parent's announcement when the parent releases its earnings first. We find that the absence of subsidiary's investor reaction is not influenced by the characteristics of the corporate network and the level of subsidiary's investor sophistication.

When the parent and subsidiary share part of their corporate names, the link between these firms should be easier to identify. Still, Panel C shows that the reactions to the earnings announcements are similar whatever subsidiaries' name. In Panel D, we distinguish between the cases where the parent controls more or less than 50% of the subsidiary' equity and the results are also similar.

[*Insert Table 9 about here*]

3.3.2. Investor sophistication

Abnormal returns around earnings announcements result from investors modifying their holding positions in reaction to firms' prospects. Investors are more likely to incorporate information when they are sophisticated and professional investors closely following the company. However, even institutions can be passive investors that do not closely manage their portfolio (Appel, Gormley, and Keim, 2016). We test this hypothesis by relating the parent's delayed reaction to the subsidiary's release of predictive information in the context of the presence of institutional and common owners. 57% of parents and 50% of subsidiaries have at least one institutional investor. Collectively, institutional investors have a 16% stake in the parent, and own 11% of the subsidiary. Parent's investors who also invest in the subsidiary hold on average 4.5% in the subsidiary.

In Table 10, panel A, besides controlling for strategic ownership (held by families and governments), we also control for institutional investors which we partition into three categories: mutual funds, active investors (private equity funds, venture capital funds, and hedge funds), and banks and insurance companies (including other financial firms)[13]. We find that our previous results remain qualitatively unchanged. In Table 10, panel B, we examine the effect of common institutional owners (who own shares in both parent and subsidiary) on the immediate and delayed reactions to subsidiaries' announcement. Common institutional owners are likely to be more aware of ownership ties. As in Panel A, we divide common institutional owners into three categories, and find that active investors' common ownership (private equity funds, venture capital funds, and hedge funds) is positively related to abnormal returns at the announcement, but does not reduce the post earnings announcement drift. One potential explanation for our results of persistent PEAD could be that business groups, due to their complexity and relative opacity, do not attract enough transient institutional investors to trade away PEAD.

Overall, our analysis suggests that investors have heterogeneous abilities to detect ownership connections. Institutional investors do not seem to be smarter investors, the exception being common active owners, who contribute to accelerate incorporation of information at the subsidiary's earnings announcement.

[*Insert Table 10 about here*]

4. Robustness Checks

[13] The types of institutional investors are identified by Bureau van Dijk Orbis.

4.1 Endogenous Strategic Announcement Timing

The strategic timing literature posits that managers can exploit investor inattention by scheduling their earnings announcements. If the managers of parents and subsidiaries know that the immediate and delayed stock price responses will differ based on which of the affiliated companies first announces positive or negative surprises, they may set up relative announcement timing strategies and coordinate their announcements. Managers could schedule the announcement of good-news-subsidiaries first, and bad-news-subsidiaries after the parent's announcement. By means of Heckman sample selection models, we test possible strategic timing by examining whether stock price reactions to earnings surprises (stage 2 in the models of Table 11) are affected by announcement timing (stage 1). The results shown in Table 11 are robustness tests on the parent's (columns 1-2) and subsidiary's (columns 3-4) investor reactions conditional on the relative announcement timing (scheduled on the same versus on different days). Columns (5)-(7) show the parent's investor reactions to the announcement of the subsidiary conditional on the subsidiary announcing prior to the parent (relative to the inverse case).

Our findings reveal that the choice to schedule a parent's and subsidiary's earnings surprise announcements on the same day does not affect the way the parent's and subsidiary's investors react to the announcements (in columns (2) and (4), respectively): both instantaneous reactions are significantly positive and the long-term reactions (not shown) are insignificant as we had shown in Table 6. From columns (1) and (3), we learn that earnings announcements are more likely to be scheduled on the same day when both firms share few analysts, the subsidiary is relatively large, the parent owns a larger stake in its subsidiary, they do not have a common owner, the parent and subsidiary operate in the same country, and they share part of a corporate name. Still, the non-significance of Heckman's lambda reveals that failure to condition on strategic announcement timing does not affect the results in the second stage (in the different set-up of the columns (5)-(7), conditioning may have a small effect).

While we test in columns (1) to (4) the simultaneous versus staggered announcement, we also study the robustness of a parent's immediate and delayed reaction to the subsidiary's earnings announcement subject to the possibly endogenous choice of scheduling the subsidiary's announcement first relative to the choice of having the parent announce first. We find that the parent's investor reaction remains unchanged (relative to the findings in Table 7) when controlling for the announcement timing. In column (5), we report the first stage and find that the choice to schedule the subsidiary's announcement first mainly depends on the link characteristics (discussed above).

Overall, we fail to find evidence that strategic timing affects the investor reactions to the parent's and subsidiary's surprise earnings.

[*Insert Table 11 about here*]

4.2. Tunneling and Parents' Expropriation Behavior

We interpret the absence of a subsidiary's investor reaction to the surprise earnings announcement by a parent who announces first, as resulting from investor unawareness of the ownership link. However, an alternative explanation could be fear of tunneling. The rationale is the following: the parent announces a positive earnings surprise, but even if the subsidiary's investors are aware of the ownership link and expect that the positive earnings at the level of the parent result from the subsidiary, they may be skeptical about whether this news is positive for the subsidiary. A positive earnings surprise could for instance reflect that the parent is able to extract earnings from the subsidiary by conducting self-dealing transactions at the expense of the subsidiary's investors. Therefore, positive earnings surprises at the parent level may result from expropriation decisions by the parent, leading to reduced earnings at the level of the subsidiary. Likewise, an announcement of negative earnings by the parent may indicate that the parent may be enticed to correct these negative earnings by subsequently extracting rents from a well-performing subsidiary. Although we have documented in the section 3.2.1 that the correlation between the reported earnings of the parent and subsidiary is very strong, it is still important to check whether our results could be due to 'tunneling', which is why we include legal variables as instruments for the potential for expropriation behavior. We use the Djankov et al. (2008) anti-self-dealing index that measures the legal protection of minority investors against self-dealing and expropriation by corporate insiders, and interact the index with the Top Two Quantiles variable. We find that a subsidiary's investor reaction to the parent's surprise earnings announcements (that are disclosed prior to those of the subsidiary) are statistically and economically insignificant.[14] We also use an enforcement index by Djankov et al. (2008) that measures the extent to which contracts are enforced in a court of law. We re-estimate our models by including the interaction of the surprise earnings measure with the public enforcement index and do not find any significant relation, which reduces the possibility that our findings are due to potential tunneling.

4.3. Internal Capital Markets

The investor response to surprise earnings announcements may depend on the existence of internal capital markets whereby surpluses in one division are used to fund capital needs in other divisions. For instance, when a subsidiary announces a positive earnings surprise, this may benefit the entire corporate group as the parent could redistribute excess funds to growth-oriented subsidiaries. The parent's response to the positive earnings surprise of the subsidiary could be stronger if the parent's performance is poor. Conversely, a negative earnings surprise by the subsidiary may reduce the effectiveness of the internal capital market as redistribution by the parent is then more difficult. To address this issue, we examine whether investors, observing that their own firm has incurred a negative result (and is a first announcer), react differently to the

[14] Table is not shown for reasons of parsimony, but is available on request.

second announcement (of the affiliated firm). We include in our regressions the variable *Parent Neg. Earnings*, which equals one when the parent released negative actual earnings and zero otherwise, and then study the response by parent's investors to a positive earnings surprise disclosed by the subsidiary in a context of growth/value firms (as proxied by Tobin's Q).

Model (1) of Table 12 confirms the positive price reaction by the parent when the subsidiary's earnings surprise is in the top two quantiles of its distribution, which we have shown in Panel A of Table 7. Model (2) reveals that the parent investors' reaction to the subsidiary's announcement is much stronger when the parent had announced negative earnings earlier on, as captured by the interaction term.

We further verify whether a parent's stock price reaction depends on the investment opportunities of parent and subsidiary, as proxied by their market-to-book ratios (*Q*). In model (3), we interact a parent's negative earnings with the subsidiary's *Top Two Quantiles* dummy and the subsidiary's Q. We find that this triple interaction is negative such that the effect of the interaction term Sub. Top Two Quantiles x Parent neg. earnings declines. The positive response of the parent with negative earnings to a positive surprise at the subsidiary level is smaller when that subsidiary has high growth opportunities. The reason could be that the subsidiary is now required to invest more such that fewer funds can be transferred to the parent and this may come at the detriment of the parent's and the other subsidiaries' investment policies.

In Model (4), we run a similar regression but now substitute the subsidiary's Q by the difference between the subsidiary's and parent's Q (called dQ) and examine whether the interaction of the parent's negative earnings with the subsidiary's positive surprise is affected by the triple interaction term that includes dQ. We find similar results in that the positive parent investor response to the subsidiary's positive surprise when the parent has negative earnings is smaller when the subsidiary has high and the parent low growth opportunities (high versus low Q).

These findings suggest that the magnitude of the stock price reaction to a subsidiary's earnings surprise depends on the parent's earnings and the growth opportunities of the subsidiary relative to those of the parent, which in turn suggests that the existence of internal capital markets could affect price responses.

[*Insert Table 12 about here*]

4.4. Confounding Events

When the subsidiary's announcement is scheduled first, parents on average release their earnings 13 calendar days later. The delayed parent's investor reaction to the subsidiary's announcement (Table 8, Panel A) may not be a post-earnings announcement drift but could be caused by the earnings announcement of the parent itself, which would misdirect our conclusions about the parent's investor ability (not) to perceive ownership connections. In order to address this issue, we first rerun our tests and include a dummy variable equal to one if the parent announces earnings within the 60 trading days after the subsidiary's announcement,

which is the period over which we calculated the PEAD. We find that our results about the parent's investor reaction are robust to the inclusion of this contamination dummy (Table 13, Model (1)).

Second, we rerun the same test on different post-announcement windows with subsamples unaffected by the subsequent parent's announcement. For example, Table 13, Model (2) tests the parent's investor reaction to the subsidiary's announcement over a 10-day window; the delayed investor reaction is therefore calculated for a period of [2;10] days and the test is performed only on parent-subsidiary annual announcement observations where the parent announces at least 10 trading days subsequent to the subsidiary. Models (3), (4) and (5) report similar tests for the delayed investor reaction calculated over [2;20], [2;30], and [2;40] windows, respectively whereby the parent does not release its earnings within the aforesaid windows. As the sample size significantly declines, we do not restrict the sample to the cases where parent and subsidiary have a common financial year, but add the dummy variable *Same Financial Year*. In addition to the usual control variables (parent's and link characteristics), we estimate the models by including link fixed effects and time (year, month, and day-of-the-week) fixed effects. We find that parent's investor reactions to the subsidiary's announcements essentially remain statistically and economically significant when controlling for announcement contamination. Furthermore, we confirm that a subsidiary's earnings surprise is only gradually priced over time by parent's investors.

[*Insert Table 13 about here*]

4.5. Analysts' updating their forecasts after the first announcement

Analysts are important agents in capital markets in providing in depth analyses of financial and non-financial information released by firms. Their expertise may be especially valuable in the case of complex firms to help investors understand the links between the different entities in the group. When the subsidiary announces its earnings first, analysts following the parent company should process the subsidiary's earnings announcement, and update their forecast to include the newly released information. Similarly, analysts who follow subsidiaries announcing second should update their forecast subsequent to the parent's announcement. Our definition of earnings surprise is based on the median of the most recent forecasts issued by analysts following the company, which may not reflect the entire set of available information, and the heterogeneity of analyst's forecasts. Analysts who update their forecast in the 7 days (30 days) following the first announcement (and before the second announcement, made by the affiliated firm) represent only 2.4% (5.5%) of all analysts making predictions for the second announcer. These results suggest that in the vast majority of firms there is no update of the analysts' forecasts for the second announcer subsequent to the first announcement, such that financial analysts provide limited assistance to investors to better understand multiple announcements in corporate groups.

5. Conclusion

We have examined the impact of ownership complexity in business groups on investor reactions when unanticipated information on earnings by affiliated firms is released. We label the apex company as the parent that is linked to what we call a listed 'subsidiary' and the link is based on direct or indirect equity stakes of at least 20% (which is a minimal threshold for consolidation under IFRS rules).

When the parent releases its earnings prior to those of the subsidiary, the parent's investors react both to the surprise earnings announcement of their own company and to the subsequent announcement by the subsidiary, which implies that the latter announcement still contains additional information not yet priced at the parent's initial announcement. These findings suggest that the network induces *enhanced transparency* for investors who comprehend the ownership links. In contrast, the subsidiary's investors only react to the subsidiary's announcement, ignoring the predictive information released at the parent's level at an earlier stage. This suggests that the subsidiary's investors may be *inattentive* towards the ownership relation of the subsidiary with its parent company. When the subsidiary is the first to announce its unanticipated earnings, both the subsidiary's and parent's investors immediately incorporate this information in the share prices, but do so only partially as there is a post-earnings announcement drift, which also suggests inattention by part of the shareholders.

The explanation for these findings is that investors do not or at least not clearly observe the internal structure of the corporate group. The inattention is worsened by geographical diversification of affiliated firms and by the use of intermediate investment vehicles between parent and subsidiary (indirect ownership), but cannot be explained by strategic timing of the disclosure of earnings surprises (as the timing of the announcement may be induced by good or bad news), investor inattention induced by a day-of-the-week effect or seasonality, expropriation of a subsidiary's performance by a parent (tunneling), internal capital markets, or synergy-related explanations across industries. Institutional investors do not seem to be smarter at understanding group structures, with the exception of active investors owning shares in both parent and subsidiary companies.

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Table 1. Geographic Breakdown of Connected Firms around the World

The table reports the geographic dissection of the parent and subsidiary links. Pairs of publicly listed companies and subsidiaries are identified by means of ownership links in Bureau van Dijk's Orbis database for the period 2000 until 2015. The category *Europe* includes Albania, Austria, Belgium, Croatia, Cyprus, Czech Republic, Germany, Denmark, Spain, Finland, France, Ireland, Greece, Hungary, Italy, Lithuania, Luxembourg, The Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Sweden, Switzerland, and Ukraine. *Asia* comprises China, Hong-Kong, Korea, India, Indonesia, Japan, Malaysia, Singapore, Thailand, Philippine, Pakistan, and Taiwan. The Americas include Canada, Latin America, and the Caribbean islands. The group *Middle East* includes Israel, Turkey, Lebanon, Oman, and Saudi. *AU/NZ* stands for Australia and New Zeeland.

Subsidiary's Region	Parent's Region								
	US	GB	Europe	Asia	Africa	Americas	Middle East	AU/NZ	Total
US	171	2	9	4	0	10	0	0	196
GB	17	16	5	4	4	7	0	1	54
Europe	15	9	235	9	0	9	2	0	279
Asia	14	19	39	1106	1	22	2	3	1206
Africa	5	21	20	1	38	0	1	0	86
Americas	24	10	29	51	3	122	0	3	242
Middle East	2	1	11	3	0	0	61	0	78
AU/NZ	1	1	4	7	3	1	1	22	40
Total	249	79	352	1185	49	171	67	29	2181

Table 2. Descriptive Statistics

The table reports the distributional characteristics of parents and subsidiaries, and parent-subsidiary links. The sample of link-year observations includes links for which we could match earnings announcements of the parent and the subsidiary in a given year. Earnings announcement dates come from I/B/E/S and cover the period from January 2000 until December 2015. All numbers are in USD. Detailed variable descriptions and the data sources are provided in Appendix A.

	N. Year-obs.	Mean	Sd	P25	Median	P75
Parent Companies' Characteristics						
BHAR[0;1]	7413	0.001	0.050	-0.023	0.000	0.025
BHAR[2;60]	7413	0.000	0.167	-0.091	-0.010	0.077
Surprise	7413	-0.004	0.072	-0.005	0.000	0.005
Market Value (USD million)	7385	11.045	16.825	1.024	3.616	12.296
Q	7378	0.737	0.866	0.266	0.480	0.874
Amihud Illiquidity	6888	0.000	0.002	0.000	0.000	0.000
N. Analysts	7413	13.598	10.540	5.000	12.000	20.000
Has Institutional Owners (%)	7413	56.873	49.529	0.000	100.000	100.000
N. Institutional Owners	7413	24.722	35.887	0.000	7.000	37.000
% Institutional Ownership	7413	15.578	21.615	0.000	0.310	26.800
% Mutual Funds	7413	6.925	11.345	0.000	0.850	10.140
% Active Investors	7413	1.453	3.782	0.000	0.000	0.500
% Banks and Insurance	7413	9.380	13.221	0.000	2.120	15.100
% Family Ownership	7413	2.665	8.199	0.000	0.000	2.000
% State Ownership	7413	4.074	11.824	0.000	0.000	0.440
Subsidiaries' Characteristics						
BHAR[0;1]	14353	0.001	0.060	-0.023	0.000	0.024
BHAR[2;60]	14353	-0.000	0.195	-0.103	-0.010	0.083
Surprise	14353	-0.006	0.083	-0.007	0.000	0.005
Market Value (USD million)	14144	3.093	7.657	0.179	0.650	2.303
Q	14115	0.946	1.186	0.302	0.570	1.087
Amihud Illiquidity	7798	0.001	0.008	0.000	0.000	0.000
N. Analysts	14353	7.831	8.289	2.000	5.000	11.000
Has Institutional Owner (%)	14353	50.017	50.002	0.000	100.000	100.000
N. Institutional Owners	14353	12.648	22.217	0.000	1.000	17.000
% Institutional Ownership	14353	10.703	17.297	0.000	0.000	16.120
% Mutual Funds	14353	4.794	9.687	0.000	0.000	5.100
% Active Investors	14353	0.970	3.291	0.000	0.000	0.000
% Banks and Insurance	14353	5.793	10.142	0.000	0.000	7.850
% Family Ownership	14353	1.389	4.592	0.000	0.000	0.570
% State Ownership	14353	2.065	7.845	0.000	0.000	0.000
Links Characteristics						
Relative Size (%)	14866	41.258	70.454	3.297	12.385	44.942
dQ = (sub's Q < parent's Q)	14832	0.327	1.160	-0.114	0.117	0.517
Directly Owned (%)	15117	71.926	44.938	0.000	100.000	100.000
% Ownership Parent in Sub.	15117	48.602	22.657	30.000	46.000	60.950
Has a Common Analyst (%)	15112	9.271	29.003	0.000	0.000	0.000
Common Name (%)	15117	26.983	44.389	0.000	0.000	100.000
Same Industry (%)	15117	42.012	49.359	0.000	0.000	100.000

Same Country (%)	15117	71.853	44.973	0.000	100.000	100.000
Has a Common Owner (%)	15117	38.228	48.596	0.000	0.000	100.000
N. Common Owners	15117	4.477	10.172	0.000	0.000	4.000
% Common Ownership	15117	4.395	10.104	0.000	0.000	3.260
% Common Mutual Funds	15117	0.369	2.265	0.000	0.000	0.000
% Common Active Investors	15117	0.052	0.619	0.000	0.000	0.000
% Common Financial Inst.	15117	1.004	3.695	0.000	0.000	0.120

Table 3. Immediate and Delayed Reactions by Parent's and Subsidiary's Investors

The table presents results on investor reactions to earnings surprises (belonging to the top two quantiles of the distribution). Buy-and-hold-abnormal returns (BHARs) are calculated using the market model over the trading day period (−300,−46 days) and are measured over the (0,+1) and (+2,+60) event windows. Columns (1-4) report results of parent investor reactions to the parent's announcement (1-2) and to subsidiary's announcement (3-4). Columns (5-8) report results of subsidiary investor reactions to the subsidiary's announcement (5-6), and to its parent's announcement (7-8). Parent (Subsidiary) controls include the parent's (Subsidiary's) market value, the log of analyst coverage, the Tobin's Q, and the Amihud illiquidity measure. Link controls are the companies' relative market value, percentage of common analysts, percentage of control held by the parent, a direct ownership dummy, dummy variables equal to one if parent and subsidiary are located in the same country, if they share part of the corporate name, and if the parent and its subsidiary have a common institutional investor. All specifications include pair (parent-subsidiary) SIC2 industry fixed effects, and time fixed effects (year, month, and day-of-the-week). Robust t -statistics are reported between brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

[*Table continued on next page*]

Table 3. Immediate and Delayed Reactions by Parent's and Subsidiary's Investors (Cont'd)

	Parent investor's reaction				Subsidiary investor's reaction			
	P' announcement		S' announcement		S' announcement		P' announcement	
	[0;1]	[2;60]	[0;1]	[2;60]	[0;1]	[2;60]	[0;1]	[2;60]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Announcer Top Two Quantiles	0.0151***	0.0079	0.0024**	0.0080*	0.0218***	0.0256***	0.0013	0.0109
	(7.191)	(1.102)	(2.301)	(1.675)	(8.074)	(3.171)	(0.717)	(1.433)
Same Day	0.0027	-0.0133	0.0003	0.0084	-0.0001	0.0036	-0.0020	-0.0024
	(0.825)	(-1.234)	(0.118)	(0.951)	(-0.034)	(0.281)	(-0.589)	(-0.188)
Subsidiary First	-0.0021	-0.0047	-0.0000	0.0125*	0.0050	0.0148	0.0013	-0.0201**
	(-0.824)	(-0.569)	(-0.019)	(1.957)	(1.588)	(1.579)	(0.585)	(-2.156)
Same Fiscal Year	0.0045	-0.0145	-0.0004	0.0098	-0.0008	-0.0025	0.0066**	0.0186
	(1.179)	(-1.186)	(-0.222)	(1.161)	(-0.162)	(-0.223)	(1.998)	(1.387)
Amihud Illiquidity	2.1465	1.1290	-0.1748	4.5949*	0.1518	-0.7623*	-0.0880	-1.3678***
	(1.296)	(0.532)	(-0.377)	(1.796)	(1.006)	(-1.652)	(-0.264)	(-3.266)
Market Value	0.0019**	0.0115***	-0.0002	0.0076***	0.0032**	0.0236***	0.0001	0.0169***
	(1.970)	(3.858)	(-0.378)	(3.074)	(2.247)	(7.051)	(0.174)	(4.218)
Q	-0.0015	0.0106*	0.0003	0.0124***	0.0025	0.0090*	0.0034	0.0037
	(-0.738)	(1.670)	(0.379)	(3.539)	(1.395)	(1.903)	(1.331)	(0.597)
N. Analysts	-0.0015	-0.0202***	-0.0002	-0.0096**	-0.0062**	-0.0319***	0.0014	-0.0089
	(-0.934)	(-3.607)	(-0.270)	(-2.447)	(-2.482)	(-4.951)	(0.882)	(-1.251)
Relative Market Value			0.0002	0.0072			-0.0002	-0.0150**
			(0.159)	(1.089)			(-0.152)	(-2.389)
Has a Common Owner			0.0002	0.0034			-0.0021	0.0028
			(0.108)	(0.493)			(-0.731)	(0.241)
% Common Analysts			0.0211*	0.0402			-0.0170	-0.1010
			(1.699)	(0.774)			(-1.240)	(-1.587)
% Ownership Parent in Sub.			0.0000	0.0000			-0.0000	-0.0000
			(0.437)	(0.173)			(-0.844)	(-0.031)
Common Name			0.0015	0.0060			-0.0025	-0.0093
			(1.011)	(0.839)			(-0.938)	(-0.881)
Directly Owned			-0.0011	-0.0095			0.0029	-0.0117
			(-0.659)	(-1.254)			(1.029)	(-0.961)
Same Country			-0.0010	0.0112			0.0035	0.0061
			(-0.584)	(1.401)			(1.271)	(0.535)
Subsidiary Industry FE	No	No	No	No	Yes	Yes	No	No
Parent Industry FE	Yes	Yes	No	No	No	No	No	No
Pair Industry FE	No	Yes	Yes	Yes	No	No	Yes	Yes
Year+Month+Day FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.038	0.105	0.014	0.119	0.034	0.140	0.073	0.167
Observations	2682	2682	5331	5331	3031	3031	3023	3023

Table 4. Calendar Days Distance between Parent and Subsidiary Announcements

The table reports the distribution of time distance, in calendar days, between a parent's earnings announcement and its subsidiary in a given year. The sample is partitioned into (i) link-year observations where the parent and its subsidiary close their financial year on the same date and (ii) link-year observations where the parent and its subsidiaries do not. The samples are then further partitioned into three subsamples: (i) the parent and subsidiary make their earnings announcement on the same day, (ii) the subsidiary releases its earnings information first, and (iii) the parent releases its earnings first.

	N. Obs.	Mean	Sd	P25	Median	P75
Parent and Subsidiary (with a Link) with the Same Financial Year						
Same Day	1841	0	0	0	0	0
Subsidiary First	5523	12.9	17.9	2	7	15
Parent First	4337	22.6	28.5	6	14	28
Parent and Subsidiary (with a Link) with a different Financial Year						
Same Day	4	0	0	0	0	0
Subsidiary First	1282	101.9	70.6	50	86	141
Parent First	990	142.1	80.7	85	118.5	198

Table 5. Does the Information Released by the First Announcer Matter?

The table presents OLS estimates and verifies whether information released by the first announcer is correlated to information released by the second announcement. Columns (1-2) correspond to the situations where the subsidiary announces first. Column 1 reports results from regression of the parent's actual earnings on the subsidiary's actual earnings. Column 2 reports results from regression of the parent's *Top Two Quantiles* on the subsidiary's *Top Two Quantiles*. Columns (3-4) correspond to the situations where the parent is the first announcer. Column 3 reports results from regression of the subsidiary's actual earnings on the parent's actual earnings. Column 4 reports results from regression of the subsidiary's *Top Two Quantiles* on the parent's *Top Two Quantiles*. Parents' *Top Two Quantiles* and subsidiary's *Top Two Quantiles* are calculated with respect to the parent's actual earnings distribution and subsidiary's actual earnings distribution, respectively. All models include link controls, pair (parent-subsidiary) industry SIC-2 fixed effects, and time (year, month and day-of-the-week) fixed effects. Link controls are the companies' relative market value, percentage of common analysts, percentage of control held by the parent, a direct ownership dummy, dummy variables equal to one if parent and subsidiary are located in the same country, if they share part of the corporate name, and if the parent and its subsidiary have a common institutional investor. Robust t -statistics are reported between brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Subsidiary Announces First		Parent Announces First	
	Parent Actual Earnings	Parent Top Two Quantiles	Subsidiary Actual Earnings	Subsidiary Top Two Quantiles
	(1)	(2)	(3)	(4)
Subsidiary Actual Earnings	0.3619***			
	(3.401)			
Subsidiary Top Two Quantiles		0.1919***		
		(5.177)		
Parent Actual Earnings			0.0501***	
			(3.095)	
Parent Top Two Quantiles				0.2254***
				(4.645)
Relative Market Value	-0.1818	0.0119	0.5092***	0.0679
	(-0.870)	(0.468)	(3.276)	(1.637)
% Common Analysts	3.4475**	0.2887	-3.6097***	-0.7197*
	(2.295)	(0.907)	(-2.850)	(-1.956)
Has a Common Owner	0.5529***	0.0863*	0.6935**	-0.0284
	(2.586)	(1.681)	(2.445)	(-0.450)
% Ownership Parent in Sub.	-0.0140**	0.0005	-0.0108**	-0.0012
	(-2.290)	(0.360)	(-2.184)	(-0.999)
Common Name	-0.1923	-0.0013	0.5279**	-0.0009
	(-1.004)	(-0.027)	(1.988)	(-0.014)
Directly Owned	-0.9821***	0.0395	-1.6978***	0.0452
	(-2.933)	(0.641)	(-6.419)	(0.616)
Same Country	0.7407**	0.1079*	-0.6858**	-0.0324
	(2.368)	(1.704)	(-2.559)	(-0.454)
Pair Industry FE	Yes	Yes	Yes	Yes
Year+Month+Day FE	Yes	Yes	Yes	Yes
R^2	0.193	0.183	0.359	0.099
Observations	5740	954	4459	673

Table 6. Parent and Subsidiary Announce on Same Day

The table presents results from regressions of the parent and subsidiary investor reactions to announcements of earnings surprises (belonging to the top two quantiles of their distribution), for the cases where the parent and its subsidiary close their financial year on the same day and their earnings announcements take place on the same day. Buy-and-hold-abnormal returns (BHARs) are calculated using the market model over the trading day period (−300,−46 days) and are measured over the (0,+1) and (+2,+60) event windows. Columns (1-4) report parent's investor reactions to the earnings announcements and columns (5-8) report subsidiary's investor reactions to the earnings announcements. Specifications in the even-numbered columns report results with pair (parent-subsidiary) industry SIC2 fixed-effects. Parent (subsidiary) controls are the parent's (subsidiary's) market value, the log of analyst coverage, the Tobin's Q, and the Amihud illiquidity measure. All models include time (year, month, and day-of- the-week) fixed effects. Robust t-statistics are reported between brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Parent investors' reactions				Subsidiary investors' reactions			
	BHAR[0;1]		BHAR [2;60]		BHAR [0;1]		BHAR [2;60]	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Top Two Quantiles	0.0163***	0.0166***	0.0058	-0.0049	0.0224***	0.0277***	-0.0302	-0.0573*
	(3.453)	(2.607)	(0.358)	(-0.228)	(3.024)	(3.810)	(-1.228)	(-1.706)
Amihud Illiquidity		0.5996		3.1066**		0.8200*		-1.3680*
		(1.380)		(2.285)		(1.855)		(-1.833)
Market Value		0.0037		0.0088		0.0018		0.0332
		(1.237)		(0.861)		(0.314)		(1.467)
Q		0.0033		-0.0092		-0.0061		0.0117
		(1.054)		(-1.052)		(-0.895)		(0.539)
N. Analysts		-0.0023		-0.0250		0.0075		-0.0913***
		(-0.456)		(-1.383)		(0.780)		(-2.741)
Relative Market Value		0.0038		-0.0129		-0.0108		0.0247
		(0.781)		(-0.737)		(-1.155)		(0.756)
Common ownership		0.0020		0.0038		0.0073		0.0055
		(0.210)		(0.105)		(0.533)		(0.101)
% Common Analysts		-0.0825		-0.0093		-0.0603		-0.1158
		(-1.381)		(-0.047)		(-0.877)		(-0.391)
% Ownership Parent in Sub.		-0.0003		0.0003		0.0004		0.0011
		(-1.200)		(0.339)		(1.018)		(1.065)
Common Name		0.0089		0.0043		-0.0115		0.0274
		(0.911)		(0.157)		(-0.987)		(0.653)
Directly Owned		-0.0174		-0.0426		-0.0093		0.0262
		(-1.607)		(-1.087)		(-0.633)		(0.540)
Same Country		-0.0068		0.0584		0.0008		-0.1536**
		(-0.620)		(1.401)		(0.060)		(-2.000)
Pair Industry FE	No	Yes	No	Yes	No	Yes	No	Yes
Year+Month+Day FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.009	0.010	0.052	0.032	-0.006	0.066	0.119	0.099
Observations	470	385	470	385	360	291	360	291

Table 7. Parent Announces First

The table presents results from regressions of investors' reactions to announcements of earnings surprises (belonging to the top two quantiles of their distribution) for the cases where the parent's and its subsidiary's financial years coincide and the parent releases its earnings prior to the subsidiary. Panel A reports the parent investor reactions to the announcement by the parent (columns 1-4), and to the subsidiary' announcement (columns 5-8). Panel B reports the subsidiary investor reaction to the parent's announcement (columns 1-4), and to the announcement of the subsidiary (columns 5-8). All specifications include year, month, and day-of-the-week fixed-effects. The even columns include firm controls and firm SIC-2 industry fixed effects for the models of investor reactions to their own company's announcement. If models test investors' reactions to the affiliated firm's announcement, they include pair (parent-subsidiary) industry SIC-2 fixed effects, and parent-subsidiary link controls in addition to firm controls. Parent (subsidiary) controls include the parent's (subsidiary's) market value, the log of analyst coverage, market-to-book ratio, and the Amihud illiquidity measure. Link controls comprise subsidiary-parent relative market value, percentage of control held by the parent, percentage of common analysts, a direct ownership dummy, dummy variables equal to one if parent and subsidiary are located in the same country, if they share part of a corporate name, and if common institutional investors own a stake in the parent and the subsidiary, respectively. Robust t-stats are reported between brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Panel A: Parent's Investor Reactions

	Parent investors' reactions							
	Parent's announcement				Subsidiary's announcement			
	BHAR [0;1]		BHAR [2;60]		BHAR [0;1]		BHAR [2;60]	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Announcer Top Two Quantiles	0.0117***	0.0106**	-0.0097	-0.0174	0.0034**	0.0049***	-0.0074	-0.0099
	(2.813)	(2.551)	(-0.697)	(-1.211)	(2.250)	(2.864)	(-1.088)	(-1.192)
Parent Amihud Illiquidity		4.3948*		0.0375		-0.7923***		9.7426***
		(1.836)		(0.027)		(-3.624)		(12.704)
Parent Market Value		-0.0005		0.0089		-0.0027**		0.0136***
		(-0.267)		(1.420)		(-2.517)		(2.936)
Parent Q		0.0003		0.0700***		0.0045**		0.0193**
		(0.067)		(3.255)		(2.145)		(1.982)
Parent N. Analysts		-0.0016		-0.0054		0.0026		-0.0146
		(-0.433)		(-0.508)		(1.144)		(-1.525)
Link Controls	No	No	No	No	No	Yes	No	Yes
Parent Industry FE	No	Yes	No	Yes	No	No	No	No
Pair Industry FE	No	No	No	No	No	Yes	No	Yes
Year+Month+Day FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.005	0.080	0.112	0.137	0.007	0.022	0.093	0.114
Observations	679	668	679	668	1866	1762	1866	1762

Table 7. Parent Announces First (Cont'd)

Panel B: Subsidiary's Investor Reactions

	Subsidiary investors' reactions							
	Parent's announcement				Subsidiary's announcement			
	BHAR [0;1]		BHAR [2;60]		BHAR [0;1]		BHAR [2;60]	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Announcer Top Two Quantiles	0.0003	-0.0023	0.0028	0.0014	0.0253***	0.0243***	0.0562***	0.0578***
	(0.096)	(-0.609)	(0.204)	(0.089)	(7.318)	(6.168)	(4.440)	(4.168)
Subsidiary Amihud Illiquidity		-0.7034		-1.5680***		-0.1369		0.0714
		(-1.084)		(-2.963)		(-0.817)		(0.108)
Subsidiary Market Value		0.0021		0.0287***		0.0042**		0.0180***
		(1.061)		(2.928)		(1.986)		(2.981)
Subsidiary Q		0.0012		0.0076		0.0032		0.0156
		(0.713)		(0.862)		(1.100)		(1.641)
Subsidiary N. Analysts		-0.0029		-0.0160		-0.0054*		-0.0357***
		(-0.791)		(-1.200)		(-1.709)		(-3.084)
Link Controls	No	Yes	No	Yes	No	No	No	No
Subsidiary Industry FE	No	No	No	No	No	Yes	No	Yes
Pair Industry FE	No	Yes	No	Yes	No	No	No	No
Year+Month+Day FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	-0.001	-0.028	0.159	0.196	0.053	0.063	0.123	0.151
Observations	871	798	871	798	1133	1129	1133	1129

Table 8. Subsidiary Announces First

The table presents results from regressions of investors' reactions to earnings announcement of earnings surprises (belonging to the top two quantiles of their distribution), for the cases where parent and subsidiary close their financial year on the same date and where the subsidiary releases its earnings first. Panel A reports the parent's reactions to the subsidiary's announcement (columns 1-4), and to the announcement of the parent which takes place after the subsidiary's (columns 5-8). Panel B reports the subsidiary's investor reactions to the subsidiary's announcement (columns 1-4), and to the parent's announcement (columns 5-8). All specifications report results with year, month, and day-of-the-week fixed-effects. The even-numbered columns include firm controls and firm SIC-2 industry fixed effects, if they concern investor's reactions to their own company's announcement. If models test investors reaction to the affiliated company's announcement, they include pair (parent-subsidiary) industry SIC-2 fixed effects and link (parent-subsidiary) controls in addition to firms' controls. Parent (subsidiary) controls comprise the parent's (subsidiary's) market value, log of analyst coverage, the Tobin's Q, and the Amihud illiquidity measure. Link controls comprise subsidiary-parent relative value, percentage of control held by the parent, percentage of common analysts, a directly ownership dummy, dummy variables equal to one if parent and subsidiary are located in the same country, share (part of) a corporate name, and if they share a common institutional owner, respectively. Robust t-stats are reported between brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Panel A: Parent's Investor Reactions

	Parent investors' reactions							
	Subsidiary's announcement				Parent's announcement			
	BHAR [0;1]		BHAR [2;60]		BHAR [0;1]		BHAR [2;60]	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Announcer Top Two Quantiles	0.0036**	0.0031*	0.0287***	0.0277***	0.0124***	0.0108***	0.0196*	0.0186*
	(2.392)	(1.677)	(3.689)	(3.205)	(4.352)	(3.832)	(1.835)	(1.676)
Parent Amihud Illiquidity		0.2668		19.7968		-1.6293		11.3764
		(0.316)		(1.111)		(-1.329)		(0.701)
Parent Market Value		-0.0007		0.0095*		0.0012		0.0175***
		(-0.629)		(1.901)		(0.864)		(3.252)
Parent Q		-0.0005		0.0148*		0.0020		0.0017
		(-0.355)		(1.704)		(0.777)		(0.144)
Parent N. Analysts		-0.0000		-0.0178**		-0.0014		-0.0282***
		(-0.015)		(-2.507)		(-0.603)		(-3.195)
Link Controls	No	Yes	No	Yes	No	No	No	No
Parent Industry FE	No	No	No	No	No	Yes	No	Yes
Pair Industry FE	No	Yes	No	Yes	No	No	No	No
Year+Month+Day FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.014	0.033	0.123	0.175	0.010	0.013	0.144	0.148
Observations	2083	1960	2083	1960	1147	1139	1147	1139

Table 8. Subsidiary Announces First (Cont'd)

Panel B: Subsidiary's Investor Reactions

	Subsidiary investors' reactions							
	Subsidiary's announcement				Parent's announcement			
	BHAR [0;1]		BHAR [2;60]		BHAR [0;1]		BHAR [2;60]	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Announcer Top Two Quantiles	0.0253***	0.0243***	0.0562***	0.0578***	0.0014	-0.0005	0.0317***	0.0301**
	(7.318)	(6.168)	(4.440)	(4.168)	(0.478)	(-0.165)	(2.799)	(2.273)
Subsidiary Amihud Illiquidity		-0.1369		0.0714		0.9656		-0.7069
		(-0.817)		(0.108)		(1.243)		(-1.125)
Subsidiary Market Value		0.0042**		0.0180***		0.0014		0.0152*
		(1.986)		(2.981)		(0.854)		(1.681)
Subsidiary Q		0.0032		0.0156		0.0042**		0.0112*
		(1.100)		(1.641)		(2.349)		(1.743)
Subsidiary N. Analysts		-0.0054*		-0.0357***		-0.0001		-0.0126
		(-1.709)		(-3.084)		(-0.047)		(-0.851)
Link Controls	No	No	No	No	No	Yes	No	Yes
Subsidiary Industry FE	No	Yes	No	Yes	No	No	No	No
Pair Industry FE	No	No	No	No	No	Yes	No	Yes
Year+Month+Day FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.053	0.063	0.123	0.151	0.007	0.177	0.107	0.195
Observations	1133	1129	1133	1129	1409	1334	1409	1334

Table 9. Channels of Parent Investor Unawareness

The table presents results from regressions of parent investor reactions to subsidiary's earnings announcement when parent and subsidiary close their financial year on the same date and the subsidiary releases its earnings first. Panel A reports immediate and delayed reactions to subsidiary's announcement when parent and subsidiary are located in the same country (columns 1-2) or in different countries (col. 3-4). Panel B reports immediate and delayed reactions to subsidiary's announcement when the subsidiary is directly owned by the parent (col. 1-2) and is indirectly controlled by the parent (columns 3-4). Panel C reports the parent reaction to subsidiary's announcement when parent and subsidiary share part of a corporate name (columns 1-2), and do not (columns 3-4). Panel D reports the parent reaction to the subsidiary's announcement when the parent controls less than 50% (columns 1-2), and more than 50% of the subsidiary (columns 3-4). Specifications in panels A, B and C include year, month, day-of-the-week fixed-effects, pair (parent-subsidiary) industry SIC-2 fixed effects, parent and link controls. Note that, specifications in panel D include time, parents' controls, and link controls and do not include pair industry fixed effects. Parent controls comprise the parent's market value, log of analyst coverage, the Tobin's Q, and the Amihud illiquidity measure. Link controls include subsidiary-parent relative market value, percentage of control held by the parent, percentage of common analysts, a direct ownership dummy, dummy variables equal to one if both firms located in the same country, operate in the same SIC-2 industry, share part of a corporate name, and share a common institutional owner, respectively. Robust t-stats are reported between brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Parent investor reactions to Sub.'s announcement (Sub. announces first)				
	(1)	(2)	(3)	(4)
Panel A	Same Country		Different Country	
	[0;1]	[2;60]	[0;1]	[2;60]
Subsidiary Top Two Quantiles	0.0044**	0.0276***	0.0003	0.0291*
	(1.977)	(2.661)	(0.095)	(1.814)
Observations	1433	1433	514	514
Panel B	Directly Owned		Indirectly Owned	
	[0;1]	[2;60]	[0;1]	[2;60]
Subsidiary Top Two Quantiles	0.0042**	0.0263**	0.0029	0.0306*
	(1.983)	(2.533)	(0.865)	(1.873)
Observations	1421	1420	518	518
Panel C	Common Name		Different Name	
	[0;1]	[2;60]	[0;1]	[2;60]
Subsidiary Top Two Quantiles	0.0047*	0.0308**	0.0030*	0.0219**
	(1.653)	(2.283)	(1.650)	(2.316)
Observations	699	699	1384	1384
Panel D	Ownership < 50%		Ownership > 50%	
	[0;1]	[2;60]	[0;1]	[2;60]
Subsidiary Top Two Quantiles	0.0035*	0.0230**	0.0035	0.0300***
	(1.715)	(2.168)	(1.525)	(2.692)
Observations	1050	1050	1031	1031
Parent Controls	Yes	Yes	Yes	Yes
Link Controls	Yes	Yes	Yes	Yes
Pair Industry FE	Yes	Yes	Yes	Yes
Year+Month+Day FE	Yes	Yes	Yes	Yes

Table 10. Investor Sophistication

The table presents results from regressions of parent investor reactions to subsidiary's earnings announcement, for the cases where parent and subsidiary close their financial year on the same date and where the subsidiary releases earnings first. Panel A studies the impact of the type of parents' institutional minority owners on the reaction to the subsidiaries' announcements. Columns (1-2) include the cumulative ownership percentages owned by types of institutional minority owners. Panel B studies the effect of common institutional minority ownership in the parent and in the subsidiary on the reaction of parent investors to the subsidiary's announcement. Columns (1-2) present results from regressions including cumulative ownership percentages owned by types of institutional minority owners that own a stake both in the parent and its subsidiary. We distinguish three types of institutional owners: mutual funds, active investors (PE, VC, HF), and banks and insurance companies (including other financial companies). All specifications report results with year, month, day-of-the-week fixed-effects, pair (parent-subsidiary) industry SIC-2 fixed effects, parents' controls, and link controls. Parent controls comprise the parent's market value, log of analyst coverage, the Tobin's Q, and the Amihud illiquidity measure. Link controls include subsidiary-parent relative market value, percentage of control held by the parent, percentage of common analysts, a directly ownership dummy, dummy variables equal to one if parent and subsidiary are located in the same country, operate in the same SIC-2 industry, share (part of) a corporate name, and if they share a common institutional owner, respectively. Robust t-stats are reported between brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Panel A. Institutional Owners in the Parent Company

	(1) BHAR[0;1]	(2) BHAR[2;60]
Subsidiary Top Two Quantiles	0.0047**	0.0181*
	(2.403)	(1.907)
% Mutual Funds	0.0005***	0.0002
	(3.351)	(0.196)
Top Two Quantiles x % Mutual Funds	-0.0006***	0.0007
	(-2.992)	(0.643)
% Active investors	-0.0002	-0.0011
	(-0.496)	(-0.712)
Top Two Quantiles x % Active investors	0.0009	0.0021
	(1.437)	(0.937)
% Banks and Insurance	0.0001	-0.0012*
	(0.798)	(-1.765)
Top Two Quantiles x % Banks and Insurance	0.0001	0.0002
	(0.794)	(0.185)
% Family Ownership	-0.0000	-0.0006
	(-0.295)	(-1.176)
% State Ownership	0.0000	-0.0003
	(0.119)	(-1.088)
Parent Controls	Yes	Yes
Link Controls	Yes	Yes
Pair Industry FE	No	No
Year+Month+Day FE	Yes	Yes
R^2	0.021	0.147
Observations	2083	2083

Table 10. Investor Sophistication (Cont'd)

Panel B. Common Institutional Owners

	(1) BHAR[0;1]	(2) BHAR[2;60]
Subsidiary Top Two Quantiles	0.003**	0.027***
	(2.128)	(3.346)
% Common Mutual Funds	-0.000	0.003
	(-0.463)	(0.687)
Top Two Quantiles x % Common Mutual Funds	0.000	0.002
	(0.318)	(0.400)
% Common Active Owners	0.005***	-0.002
	(2.726)	(-0.159)
Top Two Quantiles x % Common Active Owners	0.007**	0.005
	(2.458)	(0.332)
% Common Banks and Insurance	0.000	0.001
	(1.005)	(0.567)
Top Two Quantiles x % Common Banks and Insurance	-0.000	-0.002
	(-1.050)	(-1.299)
% Family Ownership	-0.000	-0.001
	(-0.143)	(-1.177)
% State Ownership	-0.000	-0.000
	(-0.269)	(-0.966)
Parent Controls	Yes	Yes
Link Controls	Yes	Yes
Pair Industry FE	No	No
Year+Month+Day FE	Yes	Yes
R^2	0.014	0.145
Observations	2083	2083

Table 11. Strategic Announcement Timing and Investor Reactions

The table tests the strategic disclosure hypothesis: The models in columns 1-2 (3-4) report results of parent's (subsidiary's) investor reactions to the earnings announcements of the subsidiary (announcing first) while endogenizing the parent's and subsidiary's decision about when to announce (on same day versus on different days). First stage specifications include parent's and subsidiary's earnings. Columns (1) and (3) report first stage results of parent's and subsidiary's announcement timing, respectively. The models in columns (5-7) estimates parent's investor immediate (column (6)) and longer-term (column (7)) reactions to the subsidiary's announcement conditional on the subsidiary announcing first (relative to the parent announcing first). First stage specifications include pair industry and time fixed effects. Second stage specifications include pair industry fixed effects, year, month and day-of-the-week fixed effects. Robust t-tats are between brackets. *, **, and *** indicate significance at 10, 5, and 1%, respectively.

Investors	Parent's reaction		Subsidiary's reaction		Parent's reaction		
Heckman stage	1st Stage	2nd Stage	1st Stage	2nd Stage	1st Stage	2nd Stage	2nd Stage
Dependent variable	Same Day	[0;1]	Same Day	[0;1]	Sub. First	[0;1]	[2;60]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Top Two Quantiles		0.0176***		0.0315***		0.0031*	0.0326***
		(3.4732)		(4.2155)		(1.9104)	(3.9989)
Market Value		0.0051***		0.0018		0.0007	0.0185***
		(2.7488)		(0.4574)		(1.0712)	(5.4806)
Amihud Illiquidity		0.0005		0.0000		0.0002	0.0153***
		(0.8558)		(0.2812)		(0.1785)	(3.6150)
N. Analysts		-0.0036		0.0027		-0.0025*	-0.0333***
		(-0.9408)		(0.3683)		(-1.8566)	(-4.9880)
% Common Analysts	-1.8803***	-0.0575	0.1357	0.0314	-0.6615**	0.0013	0.0266
	(-3.8094)	(-0.6388)	(0.3704)	(0.5191)	(-2.4041)	(0.0872)	(0.3315)
Relative Market Value	0.2042***	-0.0089	0.1413***	-0.0141	0.2463***	0.0049*	-0.0245
	(6.6806)	(-1.0846)	(3.9339)	(-1.0423)	(8.2233)	(1.7143)	(-1.5588)
Has a Common Owner	-0.1810***	0.0063	-0.0373	0.0044	-0.1485***	-0.0031	0.0201
	(-2.7051)	(0.6363)	(-0.5806)	(0.4301)	(-3.3959)	(-1.1958)	(1.4024)
% Ownership P in Sub.	0.0056***	-0.0003	0.0069***	0.0001	0.0048***	0.0001*	-0.0009**
	(4.2657)	(-1.1568)	(5.6393)	(0.2383)	(5.5693)	(1.8609)	(-2.5368)
Directly Owned	0.0993	-0.0118	0.1108	-0.0095	0.1056**	-0.0022	-0.0456***
	(1.3240)	(-1.4103)	(1.5153)	(-0.6051)	(2.2716)	(-0.8837)	(-3.3808)
Same Country	0.3388***	-0.0179	0.0436	0.0166	0.1744***	0.0001	0.0269*
	(4.2868)	(-1.1698)	(0.5889)	(1.4642)	(3.6763)	(0.0416)	(1.6652)
Common Name	0.3635***	-0.0085	0.1969***	-0.0088	0.3944***	0.0042	-0.0388
	(5.9483)	(-0.5678)	(3.4250)	(-0.4584)	(9.5202)	(0.8968)	(-1.5085)
Parent Surprise	-0.5439*		0.4958		-0.4477**		
	(-1.7555)		(1.1722)		(-1.9735)		
Subsidiary Surprise	-0.2647		-0.3384		-0.2986*		
	(-0.6733)		(-1.0484)		(-1.6509)		
Lambda	-0.054		-0.018		-0.166*		
	(-1.15)		(-0.19)		(-1.87)		
Observations	5,294	5,294	10,286	10,286	6,699	6,699	6,699
Pair Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	No	Yes	No	No	Yes	Yes
Day FE	Yes	No	Yes	No	No	Yes	Yes

Table 12. Parent's Subsidizing Behavior

The table investigates possible effects of internal capital markets by regressing the parents' investor reactions on the subsidiaries' earnings announcements, for the case where parent and subsidiary close their financial year on the same date and where the parent releases earnings first. *Parent Neg. Earnings* is equal to one if the parent announces negative earnings, and zero otherwise. *Q* is the subsidiary's market-to-book ratio. *dQ* is the difference between subsidiary's and parent's market-to-book ratios. All models include pair industry fixed effects, year, month, day-of-the-week fixed effects, parent controls (parent's market value, log of analyst coverage, and the Amihud illiquidity measure), and link controls (relative market value, percentage of control held by parent, percentage of common analysts, a direct ownership dummy, dummy variables equal to one if parent and subsidiary are located in the same country, if they share part of a corporate name, and if they share a common institutional investors, respectively. Robust t-stats are reported between brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Parent investors' response:	(1)	(2)	(3)	(4)
	BHAR[0;1]	BHAR[0;1]	BHAR[0;1]	BHAR[0;1]
Subsidiary Top Two Quantiles	0.0045***	0.0031*	0.0018	0.0020
	(2.610)	(1.673)	(0.776)	(1.042)
Parent Neg. Earnings	-0.0012	-0.0034	-0.0033	-0.0038
	(-0.458)	(-1.153)	(-0.998)	(-1.285)
Q (Subsidiary)	0.0028***	0.0028***	-0.0013	
	(2.621)	(2.619)	(-0.696)	
Sub. Top Two Quantiles x Parent Neg. Earnings		0.0087*	0.0126**	0.0098*
		(1.695)	(2.048)	(1.899)
Sub. Top Two Quantiles x Q (Subsidiary)			-0.0036	
			(-1.576)	
Parent Neg. Earnings x Q (Subsidiary)			-0.0004	
			(-0.181)	
Sub. Top Two x Parent Neg. Earnings x Q (S)			-0.0057*	
			(-1.775)	
dQ (Subsidiary. Q-Parent Q)				-0.0015
				(-0.940)
Sub. Top Two Quantiles x dQ				0.0057**
				(2.498)
Parent Neg. Earnings x dQ				-0.0047**
				(-2.096)
Sub. Top Two x Parent Neg. Earnings x dQ				-0.0090***
				(-2.845)
Q (Parent)	0.0049**	0.0049**	0.0051**	
	(2.300)	(2.283)	(2.396)	
Link Controls	Yes	Yes	Yes	Yes
Pair Industry FE	Yes	Yes	Yes	Yes
Year+Month+Day FE	Yes	Yes	Yes	Yes
R^2	0.027	0.028	0.028	0.022
Observations	1731	1731	1731	1731

Table 13. Confounding Events: Parent Investor Reaction to Subsidiary's Announcements

The table presents results from regressions of parent investor reactions to the subsidiary's earnings announcements of earnings surprises (belonging to the top two quantiles of their distribution) for the case where the subsidiary releases its earnings information first. Observations with parent and subsidiary closing their financial year at different dates are also included in this sample. Column (1) reports parent's investors delayed reaction to the subsidiary's announcement over [+2;+60] trading days after the announcement. A *contaminated window* variable is included and takes the value one if the parent announces within a period of 60 trading days after the subsidiary's announcement (over which the delayed reaction is calculated). Columns (2-5) report delayed parent investor reactions to the subsidiary's announcement, calculated for different event windows prior to the parent's announcement - observations with parent's announcements occurring within the event window are here excluded. All specifications include a dummy variable *same financial year* that is equal to one if parent and subsidiary close their financial year on the same date. The specifications include parent controls (market value, log of analyst coverage, Tobin's Q, and the Amihud illiquidity measure), time-varying link controls (relative market value, percentage of common analysts, and a dummy common institutional outside investor), pair (parent-subsidiary) fixed effects and time (year, month, day-of-the-week) fixed effects. Robust t-stats are reported between brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	[2;60]	[2;10]	[2;20]	[2;30]	[2;40]
	(1)	(2)	(3)	(4)	(5)
Subsidiary Top Two Quantiles	0.0244***	0.0094*	0.0141	0.0309**	0.0313*
	(2.744)	(1.939)	(1.514)	(2.161)	(1.789)
Same Financial Year	0.1083	0.0373	0.0454	-0.0174	-0.0562
	(1.427)	(1.166)	(0.748)	(-0.232)	(-0.514)
Contaminated Window	0.0065				
	(0.532)				
Parent Controls	Yes	Yes	Yes	Yes	Yes
Link Controls	Yes	Yes	Yes	Yes	Yes
Pair Par-Sub FE	Yes	Yes	Yes	Yes	Yes
Year+Month+Day FE	Yes	Yes	Yes	Yes	Yes
R^2	0.161	0.068	0.055	0.033	0.035
Observations	2141	801	521	402	359

Appendix A. Variable Description

Variable	Description
Main Dependent Variables	
BHAR[0;1]	Buy-and-hold-abnormal returns are calculated using the market model (MSCI World 600 index) over the trading day period (−300,−46) days and are measured over the (0,+1) event windows. *Source:* Datastream
BHAR[2;60]	Buy-and-hold-abnormal returns are calculated using the market model (MSCI World 600 index) over the trading day period (−300,−46) days and are measured over the (+2,+60) event windows. *Source:* Datastream
Earnings Announcement Characteristics	
Actual Earnings (Parent or Subsidiary Actual Earnings)	Annual actual earnings per share released by the announcing firm at date 0. *Source:* I/B/E/S
Surprise (Parent or Subsidiary Surprise)	Earning surprise calculated as the difference between actual earnings for the current year and the median of analyst forecast (whereby only those forecasts within a six-month period up to three days before the earnings announcement and maximally one forecast per analyst are retained), divided by the share price five trading days before the announcement date.. *Source:* I/B/E/S
Top Two Quantiles (Parent or Subsidiary Top Two Quantiles)	Dummy variable equal to one if the earnings surprise falls within the top two quantiles of its distribution, and zero if an earnings surprise falls within the bottom two quantiles. Distributions are split into 11 quantiles. The sixth quantile corresponds to zero-earnings surprise. The sixth quantile is the zero-surprise quantile. (See section 2.3. for more details). *Source:* I/B/E/S
Contaminated Window	Dummy variable equal to one if a subsidiary (parent) announces within the 60-day window after the parent (subsidiary) has made an earnings announcement, and zero otherwise. *Source:* I/B/E/S; BvD Orbis
Same Financial Year	Dummy variable equal to one if a parent and its subsidiary close their financial year on the same date, and zero otherwise. *Source:* I/B/E/S; BvD Orbis
Same Day	Dummy variable equal to one if a parent and its subsidiary announce their earnings on the same day, and zero otherwise. *Source:* I/B/E/S; BvD Orbis
Subsidiary First	Dummy variable equal to one if a subsidiary announces its earnings prior to its parent, and zero otherwise. *Source:* I/B/E/S; BvD Orbis
Parent First	Dummy variable equal to one if a parent announces its earnings prior to its subsidiary, and zero otherwise. *Source:* I/B/E/S; BvD Orbis
Announcement Distance	Logarithm of the number of calendar days between a parent's earnings announcement and its subsidiary's. *Source:* I/B/E/S; BvD Orbis
Parent Neg. Earnings	Dummy variable equal to one if the parent's realized earnings are negative, zero otherwise. *Source:* I/B/E/S
Firm Characteristics (Parent or Subsidiary)	
N. Analysts (Parent or Subsidiary N. Analysts)	Number of earnings forecasts issued by analysts in the six months preceding the annual earnings announcement and up to three days prior to the announcement. *Source:* I/B/E/S Detail history file
Amihud Illiquidity (Parent or Subsidiary Amihud Illiquidity)	Measure of stock illiquidity calculated following Amihud (2002). *Source:* Datastream
Market Value (Parent or Subsidiary Market Value)	Logarithm of market capitalization at the end of the previous financial year. *Source:* Datastream
Has an Institutional Owner (%)	Dummy variable equal to one if at least one institutional owner owns an equity stake (of at least 0.01%) in the company, and zero otherwise. Institutional owners include mutual funds, pension funds, hedge funds, private equity funds, venture capital, banks, and insurance companies. *Source:* BvD Orbis
N. Institutional Owners	Number of institutional owners who own a stake of at least 0.01%. *Source:* BvD Orbis
% Institutional Ownership	Total ownership percentage owned by institutional investors in the company. *Source:* BvD Orbis
% Mutual Funds	Cumulative ownership percentage owned by institutional investors identified as mutual funds. *Source:* BvD Orbis
% Active investors	Cumulative ownership percentage owned by institutional investors identified as private equity funds, venture capital funds, and hedge funds. *Source:* BvD Orbis
% Banks and Insurance	Cumulative ownership percentage owned by institutional investors identified as banks, insurance companies, and financial companies. *Source:* BvD Orbis
% Family Ownership	Cumulative ownership percentage owned by named individuals, families, employees, managers, and directors in the company. *Source:* BvD Orbis

% State Ownership	Cumulative ownership percentage owned by public authorities, states, and governments in the company. *Source:* BvD Orbis
Q (Parent or Subsidiary Q)	Market-to-book ratio: market capitalization divided by book value of assets. *Source:* Datastream
dQ	Difference between the subsidiary's and the parent's market-to-book ratios. *Source:* Datastream
Self-dealing Index	Country-level index of ex-post control over self-dealing transactions (ranging from zero to one); it represents the average of disclosure in periodic filings (e.g., annual reports) and ease of proving wrongdoing. Ease of proving wrongdoing is the average of five variables as defined in the source paper: (1) Disclosure in periodic filings, (2) Rescission, (3) Ease of holding someone liable, (4) Ease of holding the approving body liable, (5) Access to evidence. *Source:* Djankov et al. (2008)[15]
Public Enforcement Index	Country-level variable ranging from 0 to 1; one quarter point is added when each of the following sanctions is available in response to disclosure and approval requirements as defined in the source paper: (1) fines for the approving body; (2) jail sentences for the approving body; (3) fines; and (4) jail sentence. *Source*: Djankov et al. (2008)
Link (Parent-Subsidiary) Characteristics	
Relative Market Value	Subsidiary's market value divided by the parent's market value. *Source:* BvD Orbis
% Ownership Parent in Sub.	Percentage of equity that a parent holds in a subsidiary at the end of the previous year. *Source:* BvD Orbis
Directly Owned	Dummy variable equal to one if a parent holds a direct equity stake – not via intermediate subsidiaries - in its subsidiary, and zero otherwise. *Source:* BvD Orbis
Has a Common Analyst	Dummy variable equal to one if at least one analyst follows both a parent and its subsidiary, and zero otherwise. *Source:* I/B/E/S Detail history file; BvD Orbis
% Common Analysts	Number of analysts who issued both an earnings forecast analysts in the six months preceding the annual earnings announcement of the parent and in the six months preceding the annual earnings announcement of its subsidiary, divided by all the analysts who follow the parent and the subsidiary. *Source:* I/B/E/S Detail history file; BvD Orbis
Common Name	Dummy variable equal to one if the Jaro-Wicler string distance[16] between the parent's and subsidiary's names is higher than 0.75, and zero otherwise. *Source:* BvD Orbis
Same Country	Dummy variable equal to one if a parent and its subsidiary are located in the same country, and zero otherwise. *Source:* BvD Orbis
Same Industry	Dummy variable equal to one if a parent and its subsidiary operate in the same industry (based on the SIC 2 classification), and zero otherwise. *Source:* BvD Orbis
Has a Common Owner	Dummy variable equal to one if at least one institutional owner owns an equity stake in both a parent and its subsidiary, and zero otherwise. *Source:* BvD Orbis
N. Common Owners	Number of institutional owners by parent-subsidiary link, who own equity stakes in both a subsidiary and its parent. *Source:* BvD Orbis
% Common Ownership	The sum of the ownership stakes in a subsidiary held by institutional owners that also own equity in the parent of that subsidiary. *Source:* BvD Orbis
% Common Mutual Funds	Cumulative ownership percentage owned by institutional investors identified as mutual funds, that own a minority stake both in the parent and its subsidiary. *Source:* BvD Orbis
% Common Active investors	Cumulative ownership percentage owned by institutional investors identified as private equity funds, venture capital funds, and hedge funds, that own a minority stake both in the parent and its subsidiary. *Source:* BvD Orbis
% Common Banks and Insurance	Cumulative ownership percentage owned by institutional investors identified as banks, insurance companies, and financial companies, that own a minority stake both in the parent and its subsidiary. *Source:* BvD Orbis
Fixed Effects	
Pair Industry FE	Pair (parent-subsidiary) SIC 2-digit industry fixed effects.
Link FE	Pair (parent-subsidiary) fixed effects.
Industry FE	Firm SIC 2-digit industry fixed effects.
Year + Month + Day FE	Year of announcement fixed effects + Month of announcement fixed effects + Day of the week announcement fixed effects.

[15] https://scholar.harvard.edu/shleifer/publications/law-and-economics-self-dealing

[16] https://scholar.harvard.edu/jfeigenbaum/software/jaro-winkler-distance

Appendix B. Consolidation Rules around the World

Since the end of the 1990s, the two predominant accounting standards are U.S. GAAP (*Generally Accepted Accounting Principles*) and IFRS (*International Financial Reporting Standards*) when both standard setters, IASB (*International Accounting Standards Board*) and FASB (*Financial Accounting Standards Board*), initiated a convergence project (PricewaterhouseCoopers, 2015). As of 2015, IFRS 10, *Consolidated Financial Statements*, defines consolidation rules in 114 countries (PricewaterhouseCoopers, 2016b). More generally, IFRS rules apply to all or most domestic publicly listed companies in a country. The adoption of the IFRS system is a voluntary decision by the legislative and regulatory authorities in individual countries. Neither the IFRS Foundation nor the IASB (an independent, private sector, and not-for-profit organization) has the authority to mandate or supervise adoption.

Currently, 41 out of 42 European countries require IFRS (PricewaterhouseCoopers, 2016b). The major convergence happened in 2005 when 7,000 European companies in 25 countries (including UK) simultaneously switched from national GAAP to IFRS. The same year, Australia, Hong Kong, New Zealand and South Africa also adopted IFRS. In 2007, Brazil, Canada, Chile, Israel and Korea established timelines to adopt IFRS, and in 2009, Japan approved an IFRS road map to permit voluntary adoption of IFRS. Today, only 24 countries have still not fully converged to IFRS, although 12 of them (including India and Japan) permit IFRS. Thailand and Indonesia are in the process of adopting IFRS, while other countries such as China and the US have their national accounting standards.

IFRS 10 on Consolidated Financial Statements (which replaced the consolidation rules defined in IAS 27) outlines the presentation of consolidated financial statements, requiring firms to consolidate the entities they control. IFRS 10 introduces a new definition of control, which requires an investor to consolidate an investee when it has all of the following attributes:

- "Power to direct the activities that significantly affect the investee's returns
- Exposure, or rights, to variable returns from its involvement with the investee (returns must vary and can be positive, negative, or both)
- The ability to use its power over the investee to affect the amount of the investor's returns"

U.S. GAAP is the second most followed accounting standard. U.S. domestic companies whose securities are traded in public markets must comply with U.S. GAAP consolidation rules. Foreign companies whose securities are traded in the U.S. are permitted to choose between US GAAP or IFRS or their national GAAP. Nearly 500 foreign issuers in the U.S. use IFRS.

Some similarities exist between IFRS and U.S. GAAP related to consolidations. Both IFRS and U.S. GAAP use the notion of control to determine whether a reporting entity should consolidate another entity. However, there are differences in the definition of control such as the notion of de facto versus effective control (Ting, 2012). De facto control exists for instance in situations where a parent company may have control over another firm in spite of holding less than a 50% voting interest and lacking legal or contractual rights that would permit the parent to control the other firm's voting power or board. Consequently, de facto control may exist in a situation in which a major shareholder holds a stake of less than 50% of the voting rights in another entity where the other ownership holdings are dispersed. IFRS require parent companies to consolidate de facto controlled subsidiaries, whereas U.S. GAAP recognizes only effective control. U.S. GAAP consolidation rules are therefore more restrictive than IFRS rules.

In a nutshell, both U.S. GAAP and IFRS require parent companies to consolidate subsidiaries (in which they own more than 50% of the voting rights). When it comes to associate entities, in which the parent owns *between 20% and 50%*, IFRS standards require the parent to consolidate the entity if the company is presumably controlled by the parent ('de facto control'), whereas U.S. GAAP require to consolidate these entities only if

the parent demonstrates the exercise of a significant influence ('effective control') through voting rights or board control. In either case, consolidated financial statements use the equity method.

As almost half of our sample consists of Asian parent companies, we discuss hereafter the consolidation rules for Asian countries where business groups most frequently occur (Korean Chaebols, Japanese Keiretsus, and Indian conglomerates).

Korea: All companies listed on the Korea Exchange are currently required to apply IFRS. In addition, IFRS is also required for financial institutions with publicly traded securities and state-owned companies.

Japan: Japanese GAAP was developed by the Accounting Standards Board of Japan (ASBJ) and resulted from an agreement between the ASBJ and the International Accounting Standards Board (IASB) aiming to make Japanese accounting standards converge to IFRS (Tokyo Agreement, 2007). The Japanese GAAP is not identical but largely equivalent to IFRS. Since 2010, Japanese companies have the choice between Japanese GAAP, IFRS, or US GAAP when issuing consolidated financial statements. As of January 2015, 62 of the largest firms companies (with over US$650 billion of market capitalization on the Tokyo Stock Exchange) are using IFRS.

India (PricewaterhouseCoopers, 2016a): Consolidation in India is defined by the Securities and Exchange Board of India (SEBI), which requires all listed companies with subsidiaries to file consolidated financial statements to the stock exchanges. The SEBI requires those financial statements to be prepared in conformity with the Accounting Standards developed by the Institute of Chartered Accountants of India (ICAI) and approved by the Central Government. However, the SEBI has given the option to listed entities to prepare and file consolidated financial statements in conformity with IFRS.

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