1. INTRODUCTION

Most institutional investors are informed traders who understand the firms in which they invest and how those firms fit within the broader competitive landscape (Bushee & Goodman, 2007; Cunningham, 2021). The investment industry is highly competitive, so institutional investors typically develop extensive research resources, including data and research analysts, that are dedicated to providing them with valuable insights into different industries and trends (Kacperczyk, Sialm, & Zheng, 2005). Connelly et al. (2019a: 5) note that institutional investors are "likely to have extensive industry knowledge when they invest in more than one firm in an industry." Reflecting their perceived knowledge, institutional investor First Manhattan portrays themselves as "industry specialists who evaluate current and prospective portfolio companies from all angles to assess the soundness and growth potential of each business."[1] As a result of their knowledge, the decisions that institutional investors make about how to allocate capital among industries carries information that could be useful to external observers.

Chief among those observers are the CEOs and other top managers of the firms in which these investors invest. With the rise of investor relations, and the proliferation of services that support companies' awareness of their investors, top managers tend to be highly cognizant of their largest and most powerful investors. Strategy researchers have found that managers are aware of not only who owns their firm, but also where their investors are investing (Dharwadkar et al., 2008; Shi et al., 2020). Institutional investors have ample opportunities to engage with the managers of firms in which they own substantial stakes (Solomon & Soltes, 2015), thereby acting as a conduit for the exchange of information on industry competitors, trends, and opportunities. The information that managers glean from their major investors could be highly valuable—or at least they could perceive it to be.

[1] Many other institutional investors similarly emphasize their focus on analysing industry data to identify and understand industry trends and earnings potential. For example, investor group Blackstone states of their business: "We specialize in the production and analysis of enormous amounts of data, which we review every week… This process helps us identify trends before others" (Blackstone quarterly earnings call, Q2 2023, July 20, 2023).

One situation in which this information could be seen as valuable is when firms want to diversify into new industries. Top managers are often on the lookout for which industries, beyond those in which they already compete, are likely to offer the greatest opportunities for diversification (Kiss et al., 2020). And although they are often subject-matter experts on their own industries, they will naturally be less knowledgeable about other industries in which their firms do not yet compete (Crossland et al., 2014). This is a pertinent limitation in the case of diversifying acquisitions, because managers may look for external information about industries to assist in their decision-making process (Wright et al., 2002).

As managers consider expanding into new industries via acquisition, the example of industry selection that is available to them via their relationship with institutional investors could produce an information cascade that guides their industry selection. Information cascades refer to situations when "an individual, having observed the actions of those ahead of him, follows the behavior of the preceding individual without regard to his own information" (Bikhchandani, Hirshleifer, & Welch, 1992: 994). Given the industry expertise and specialized knowledge that some institutional investors may develop, managers who are faced with decision uncertainty may consider the actions of those investors as a guide for their own strategic decision-making. Accordingly, we argue that a firm's *investor industry exposure*, defined as the extent to which its major institutional investors own shares of firms in another industry, can create an information cascade that guides the investment decisions of managers. We focus on a firm's major institutional investors (defined by holdings) because prior studies (Gilje, Gormley, & Levit, 2020), anecdotal reports, and our own interviews (quotes below) reveal that managers pay the closest attention to their major institutional investors' holdings.

When investor industry exposure is high, meaning a firm's institutional investors have extensive holdings in another industry, managers may come to believe that those investors are confident about the earnings potential of that industry going forward. To cope with their own informational limitations and decision uncertainty, managers may themselves become more

convinced of the merits of the industry and "follow" those investors into the industry through a diversifying acquisition. On this basis, we posit that investor industry exposure is positively associated with a firm's likelihood of diversifying into the industry.

The information cascade that investor industry exposure creates, though, could hinge on characteristics of the investors, such as how credible their insights appear, and on the level of information asymmetry that managers encounter with the new industry. The holdings of institutional investors that are highly motivated to deeply understand an industry and its prospects should be trusted more by managers and thus trigger a stronger information cascade effect on managers' diversifying acquisition decisions. Because growth investors depend on realizing high capital growth, in contrast to value investors who rely on finding undervalued stocks (often with high dividend yields), the former tend to be more motivated to understand the industries in which they invest. Accordingly, we hypothesize that managers are more likely to diversify into those industries to which their growth investors are highly exposed, compared to those industries that their value investors are highly exposed. Additionally, when firms' board members have greater insights into specific industries through their prior work experiences, managers will face less information asymmetry related to those new industries. This should reduce their reliance on external information, including their investors' holdings, and thus attenuate the effect of investor industry exposure on their diversifying acquisition decisions.

If managers follow investors into industries based on the investors' investment decisions, the decisions managers make will naturally be more imitative and less based on a standard strategic rationale, such as the potential for synergies. A firm's investors might not prefer this approach. Even if investors are enamored with, or heavily invested in, an industry, they will not necessarily want all of their portfolio firms to expand into that same industry. As a result, the information that managers glean from investors' investment decisions could constitute a form of *misguidance costs*, which we define as an unintended adverse influence on managerial decisions that arises from managers following shareholders. In line with this idea, we reason that

diversifying acquisitions made based on investor industry exposure will not be well received by investors in capital markets. Analysis of 4,422 diversifying acquisitions over an 18-year period lends strong support to our theoretical arguments.

Our study makes several contributions. First, we enrich research on the influence of shareholders on strategic decisions by introducing the construct of investor industry exposure. This is important because academics have not yet envisioned investors as industry experts who carry information that could (mis)guide managers' strategic decisions. Understanding a firm's investors in this way sets them up as a potential resource—or liability—that managers could leverage to inform a range of decisions. Second, our work broadens the reach of the literature on investor influence on firm-level strategic decisions (Chen & Feldman, 2018; Connelly et al., 2019b) by accounting for a subtle, underexplored influence in the context of diversifying acquisitions. Lastly, we introduce the construct of misguidance costs, showing how investors could adversely influence managerial decision-making in ways they do not intend. Whereas management studies on institutional investors have focused largely on shareholder voice and the threat of exit (Oehmichen et al., 2021; Shi, Connelly, & Hoskisson, 2017), we theorize about a new influence channel, influence by example, that is less discernable but highly consequential to managerial decision-making.

2. CONCEPTUAL DEVELOPMENT

2.1. Institutional Investor Industry Knowledge

Strategy scholars have long been interested in the influence that investors have on firm-level strategic outcomes (Connelly et al., 2010), but have devoted less attention to passive, and potentially even unintended, forms of investor influence. Institutional investors have considerable levels of expertise and resources (e.g., data and research teams), and they often develop close relationships with firm managers (Feldman, 2020; Wiersema, Ahn, & Zhang, 2020). Many institutional investors conduct in-depth, in-house research on industry trends and prospects both prior to making any investment and regularly over the time of their investment

(Zhang, 2023). From their research, as well as their engagements with management teams, directors, and industry stakeholders, institutional investors can develop rich insights into an industry that provide them with an information advantage over outsiders (He & Huang, 2017; Kang, Luo, & Na, 2018). Accordingly, managers may perceive institutional investors as knowledgeable industry experts (Foss et al., 2021). Offering support for this perspective, Zhang (2023) suggests that managers seek out information concerning industry trends and pursue direct interactions with investors that they believe to be knowledgeable about those trends.

Given the perceived knowledge that institutional investors possess, many top managers will be highly attentive to their investors' portfolio holdings. Part of their awareness stems from their interactions with investors during earnings calls, investment conferences, annual shareholder meetings, and private meetings (Chapman et al., 2022; Palter, Rehm, & Shih, 2008; Solomon & Soltes, 2015). Additionally, their awareness of investors' portfolio holdings is informed by data on investor trading, which is available from investment data providers (e.g., Thomson Reuters and Rivel) and widely used by investor relations personnel.[2] In fact, the central function of a firm's investor relations group is to analyze its investor base and interact with those investors, a process that enables managers to understand and garner insights from their investors, including their investment ideas (Chapman et al., 2022).

If, however, investors are wrong about an industry's prospects, or if they are right but do not necessarily want the portfolio firms to expand into a given industry, then the information they convey could lead managers away from their principals' interests and toward misguided strategic pursuits. Though consistent with agency theoretic ideas, the assumptions of agency theory do not account for this scenario. In reviewing Jensen and Meckling's original agency model, Goshen and Squire (2017: 779) criticize that a key "limiting assumption in the model is that no one makes honest mistakes." The authors further note that "In real firms, managers

[2] Companies such as Rivel (https://www.rivel.com/) provide managers with insights about their major investors and sell customized reports that outline changes in the investments of a firm's major investors.

generate costs not just by deliberately shirking and diverting resources but also by making unwise decisions attributable to a lack of expertise, information, or innate ability." Given the perceived and privileged knowledge of institutional investors, managers may look to these investors to inform their own strategic decisions. In doing so, however, managers could be misguided in their strategic decisions as they follow their investors into industries where they are heavily invested, creating the potential for what we call misguidance costs.

2.2. Diversifying Acquisitions

To test our ideas about investor industry exposure, we consider its influence within the context of an industry selection decision that engenders considerable uncertainty: diversifying acquisitions (Helfat & Lieberman, 2002). Diversifying by acquisition is an essential strategy in defining corporate scope (Feldman, 2014, 2016), which can benefit firms by allowing them to obtain new customers, resources, and capabilities that they would otherwise need to build from the ground up (Ahern & Weston, 2007; Haleblian et al., 2009). Yet, as Sleptsov, Anand, and Vasudeva (2013: 957) note, there are considerable "information-related problems in acquisition transactions," especially in the case of diversifying acquisitions. Acquisitions that move firms into new industries are risky endeavors because acquirers may be unfamiliar with the new industry terrain and must compete against experienced incumbents.

Compared to related acquisitions, selecting an industry in which to diversify via a diversifying acquisition can be especially problematic, as such decisions are risky and potentially value-destroying. In new industries, firms tend to lack expertise and insight, forcing them to make challenging decisions with incomplete information (Feldman & Hernandez, 2022). Indeed, diversifying acquisitions can sometimes impair performance by diluting a firm's focus (Chen et al., 2021; Makri, Hitt, & Lane, 2010) through the acquisition of businesses that may later need to be divested (Feldman, 2023; Feldman & Sakhartov, 2022). As such, this type of acquisition creates considerable uncertainty and the need for insightful external information, thus providing a suitable research context for examining how investor industry exposure might

inform managers' decisions to enter an industry through acquisition.

3. HYPOTHESES

3.1. Investor Industry Exposure

Widely studied by behavioral economists, information cascades occur when decision makers who are faced with uncertainty observe others' decisions and follow the behavior of those whom they perceive to possess better information (Bikhchandani et al., 1992; Bikhchandani, Hirshleifer, & Welch, 1998). Two requirements must be met for information cascades to occur: uncertainty and sequentiality. Uncertainty refers to decision makers' lack of information about a particular decision. Sequentiality concerns whether decision makers can observe earlier decisions made by others. According to research on information cascades, when more actors have made similar decisions (e.g., a particular investment decision), later actors will receive a stronger signal about the credibility of those decisions (e.g., whether to make the same investment), especially when they lack their own information about the decision context.

In the context of organizational settings, research on information cascades suggests that managers could be highly receptive to information implicit in others' decisions and that such information, despite being imperfect, could influence managers' perceptions, beliefs, and decisions (Lieberman & Asaba, 2006). Indeed, information cascades have been shown to exist among managers in various settings. Kennedy (1995), for instance, finds that managers at television networks tend to make programming introductions in the same categories as their competitors, and Belderbos, Olffen, and Zou (2011) find that managers imitate industry peer firms when deciding in which foreign markets to expand. Applied to investors, Vismara (2018) shows that information cascades among individual investors improve the success of crowdfunding campaigns.

Whereas prior research has documented information cascades among peers (e.g., firms imitating other firms or investors imitating other investors), information cascades may also manifest among non-peers as long as the decisions are akin to each other and early decision

makers possess information perceived to be of use by later decision makers (Ordanini, Rubera, & DeFillippi, 2008). We draw on this idea of information cascades to theorize the influence of investors, based on their industry-level investment decisions, on firms' industry selection decisions in diversifying acquisitions. Of course, other informational signals could also contribute to such information cascades, such as the prior industry investment decisions of firms' competitors or alliance partners, but these decisions are often made infrequently and often driven by the competitors' and alliance partners' own unique strategic needs. Institutional investors' investments in an industry, by comparison, constitute an ongoing set of observable industry investment decisions that make a more general information cascade possible.

When a firm's major institutional investors invest in an industry, managers of the firm are likely to be aware of those investments. With the advent of investor relations, managers are advised to pay close attention to not only the profiles and identities of their investors and the sizes of their positions in their own firm and its peers, but also those investors' broader investment interests (Brown et al., 2019). By interacting with investors and observing their holdings, managers enjoy ample opportunities to pick up on the broader interests and insights their investors have about other industries. As one investor relations officer (IRO) we interviewed put it: "PMs [portfolio managers] will be very open about what they think management should do on a variety of fronts: use of capital, bonus structures, approach to a market or a competitor, *who to buy* or what to sell, *what they own or have an interest in*. Nothing is really out of bounds for them" (italics added). As this executive suggests, many investors seem eager to share information about their investments that go beyond the focal firm's business.

While managers could pick up on the industry investment choices of investors that do *not* own stock in their own firm, we expect managers will be most attentive to the insights gleaned from their own investors. There are so many institutional investors in most major capital markets that executives could not possibly attend to all of those investors and their diverse

investment strategies and portfolio holdings. Managers are likely to have elevated levels of trust in their own investors, however, and to develop far closer relationships with these investors (Solomon & Soltes, 2015). Because of this closer relationship, we anticipate that managers will more readily glean insights from their own investors. In these meetings, investors will also be open to sharing what they think, which influences managers' thinking beyond the lessons that might be learned by observing other investors' holdings. One former executive of IBM we interviewed observed, "At any given time the C-suite knows who owns their stock and why." When asked whether this group monitors the holdings of other major investors who do not hold stock in the firm, the same executive replied, "Oh no, there is only so much bandwidth for absorbing that kind of information."

When managers face uncertainty about where to diversify, information cascades theory suggests that they might aim to imitate their institutional investors' industry choice decisions. We posit that this effect occurs for two reasons. First, although managers will have developed rich knowledge about the industry in which their own firm operates, they may perceive that institutional investors possess new and better information about other industries in which they do not yet compete. When perceived as having expertise about an industry, institutional investors can send signals about the promise of that industry to managers via their shareholdings, thereby identifying the industry as a potential target for a diversifying acquisition. An executive we interviewed explained, "Managers enter industries where investors have extensive ownership because their ownership reflects the growth potential of the sector."

Second, managers may be motivated to imitate the industry investment decisions of their major institutional investors to avoid adverse consequences for themselves. As such investors play a critical role in shaping executive compensation and turnover outcomes, managers are highly incentivized to placate their major institutional investors (Westphal & Bednar, 2008). However, because institutional investors lack complete information about managers' skills and abilities, managers may try to signal the quality of their decisions by imitating the industry

preferences of their investors. That is, managers might try to identify informative signals from their investors and incorporate what they learn into their strategic decisions with a view toward impressing their major institutional investors (Palley, 1995; Scharfstein & Stein, 1990).

Taken together, these arguments suggest that managers making a diversifying acquisition face uncertainty that could lead them to rely on the information that resides in the industry investment decisions of their major institutional investors. Therefore, we expect:

> **Hypothesis 1:** *When a firm makes an acquisition in a new industry (i.e., a diversifying acquisition), it is more likely to choose an industry in which its institutional investors have higher exposure to the industry via their portfolio holdings.*

3.2. Moderating Effect of Information Credibility

A central assumption of information cascades is that for this phenomenon to unfold, decision makers should perceive earlier decision makers as being more informed and as possessing more credible information than they have themselves. To probe this assumption and provide further evidence for our theory, we investigate whether the example that institutional investors provide via their industry selection decisions hinges on the investment strategy of the firm's investors, which can shape how managers perceive the credibility of those investors' industry expertise.

The distinction between growth and value investors creates a central dichotomy in regard to the investment style of investors. Whereas growth investors seek to invest in areas that offer strong earnings growth, value investors look for investments that appear undervalued in the marketplace, often those with high dividend yields. Growth investing is associated with higher levels of risk than value investing because growth investors are more willing to pay high price-to-earnings multiples for stocks with the expectation that they can later sell those stocks at even higher prices (Battisti et al., 2019; Cronqvist, Siegel, & Yu, 2015). To achieve that growth, growth investors tend to favor investments in firms and industries with high earnings potential. Therefore, growth investors are highly motivated to understand the firms in which they invest, including trends in the industries in which these firms operate and the prospects of those industries going forward (Betermier, Calvet, & Sodini, 2017). In contrast, value investors look

for relative bargains in the stock market, often seeking out firms that pay dividends but appear undervalued compared to their peers. Given their heightened motivation to develop rich industry expertise, when growth investors have made substantial investments in an industry, those investments should send a credible signal to managers about the prospects of that industry.

Managers, in turn, will be more trusting of the industry selection decisions of growth investors, as opposed to value investors. Managers' added trust increases the potential for information cascades in their own diversifying acquisition decisions. Cognition-based trust refers to the assurance one has in the competence and dependability of a partner in the domains relevant to one's work relationship (McAllister, 1995). This form of trust arises out of the belief that someone is competent and knowledgeable (Butler Jr, 1991; Mayer, Davis, & Schoorman, 1995). As growth investors are perceived as more competent and highly knowledgeable about the industries in their portfolios, managers will more readily trust their industry choices and follow their investment holdings when making diversifying acquisitions. We therefore expect:

> **Hypothesis 2:** *The investment strategy of investors moderates the positive relationship between investor industry exposure and the likelihood that a firm will choose that industry for a diversifying acquisition. Specifically, the relationship is stronger when growth investors have a high level of holdings in the target industry than it is when value investors have a high level of holdings in the target industry.*

3.3. Moderating Effect of Director Industry Expertise

Another assumption in information cascades theory is that decision makers will look for information from others' decisions when faced with a high degree of uncertainty. When decision makers face less uncertainty, an information cascade will be less likely to occur because a decision maker can make their decision based on their own information (Bikhchandani et al., 1992). We probe our theory and this second tenet of information cascades by examining whether director experience in a target industry affects the likelihood that managers will follow the industry selection example of their major institutional investors.

Although managers encounter uncertainty when deciding to diversify into an unrelated industry, the level of uncertainty they face will be mitigated when directors have prior work

experience in the industry. In addition to their monitoring role, directors play a critical role in advising managerial decisions (Hillman & Dalziel, 2003). In the context of diversifying acquisitions, having directors with work experience in a target industry can reduce managers' decision uncertainty because experienced directors can share their knowledge, expertise, and resources about the industry with managers, who can then more prudently assess the industry's potential (Cai & Sevilir, 2012; Diestre, Rajagopalan, & Dutta, 2015; Kroll, Walters, & Wright, 2008; Wang, Xie, & Zhu, 2015). Consistent with this idea, Diestre et al. (2015) find that appointing directors with experience in a target industry can increase the likelihood of entering the industry, and Kroll et al. (2008) argue that directors with more target industry experience are better at advising and monitoring executives, which promotes effective decision-making and leads to better acquisition outcomes.

Thus, managers will be subject to a lower level of decision uncertainty in diversifying acquisitions when a larger cohort of their firm's directors have work experience in the target industry. Bhagat and Huyett (2013: 1) reason that "the diverse experiences of board members with long leadership careers in different corporate settings can shed useful light on common organizational risks in [investment] deals." Utilizing the knowledge, expertise, and resources they obtained from their relevant careers, directors with target-industry experience can better advise managers by delivering more valuable insights about the target industry, such as identifying promising acquisition targets and potential pitfalls (Diestre et al., 2015; Kroll et al., 2008). In contrast, when directors lack industry experience in the target industry, managers have less internal access through their directors to knowledge, expertise, and resources relevant to the industry, elevating the level of information asymmetry they encounter and their desire to look externally for more information. Consequently, managers will be more likely to look to the example offered by their institutional investors and imitate their industry selection decisions. Therefore:

Hypothesis 3: *Director industry expertise moderates the positive relationship between*

investor exposure and the likelihood that a firm will choose that industry for a diversifying acquisition. Specifically, the relationship is weaker when more directors possess work experience in the target industry.

3.4. Market Reactions to Diversifying Acquisition Announcements

How does the broader market of investors react to these decisions? On the one hand, one might expect that investors could be favorably inclined to these decisions because some of them also invest in the industries that managers choose to enter. However, the portion of investors that satisfy this criterion is probably small, and unlikely to outweigh the broader market's response. On the other hand, because these decisions are made by managers following the example of investors, rather than a demonstrated strategic rationale (e.g., the realization of synergies), the broader market might respond negatively. In other words, at least as far as the broader market is concerned, the information cascade created by their investors' holdings could misguide managers into making acquisition decisions that mimic the industry selection decisions of investors, which most investors might not necessarily want.

One reason we might expect a negative stock market reaction is that investors may perceive that the subtle influence of investor industry exposure could push firms into diversifying acquisitions that are not strategically sound. A major risk of the information cascade created by investors' industry exposure is that it can weaken managers' motivation to collect their own information through a thorough due diligence process. As managers become more confident about making decisions based on imitating their major institutional investors, they could be less driven to collect and process their own information about a target industry (Devers et al., 2013; Gamache et al., 2019). Prior research shows that confidence heightens risk taking (Li & Tang, 2010) and quickens decision speed (Clark & Maggitti, 2012), which could lead managers to assemble overly risky acquisition deals (Billett & Qian, 2008) or pay more for acquisitions (Malmendier & Tate, 2008). Consistent with these ideas, Chen, Crossland, and Luo (2015) find that more confident CEOs are more resistant to outside feedback on their decisions—but feedback from board members and oversight committees is critical for

preventing missteps in diversifying acquisitions (Feldman, Amit, & Villalonga, 2019). As investors perceive that managerial confidence stemming from imitating investors can lead them to make suboptimal diversifying acquisition decisions, investors' reactions to announcements of such decisions may be less positive.

For investors that managers actually follow, they might react negatively to announcements of diversifying acquisitions in industries where they are already invested because those expansions make the investors' portfolios less diversified. Although managers might think differently, when investors are invested in an industry, they do not necessarily want firms they own to follow their example by also entering that industry. Not only will these investors' portfolios become riskier due to a decreased level of portfolio diversification, but having a new firm enter the industry could hurt the competitive prospects of other firms in the industry in which these investors own. Research on common ownership shows that investors will sometimes actively intervene so that their portfolio firms compete less directly with one another (Connelly et al., 2019a). Although investors want growth, they may be less excited about firms that merely mimic the structure of their already-established forms of industry diversification and elevate the competitive intensity between their portfolio firms. These arguments suggest:

> **Hypothesis 4:** *Investor industry exposure is negatively associated with stock market reactions to diversifying acquisition announcements.*

4. METHODS

4.1. Data and Sample

Our sample starts with all U.S. domestic acquisition deals obtained from the Securities Data Company (SDC) Mergers and Acquisitions (M&A) database from 2001 to 2018. We exclude cross-border acquisitions because it is difficult to disentangle industry and country choice decisions (Shimizu et al., 2004). We keep only deals categorized as a "merger," "acquisition of majority interests," "acquisition of partial interests," or "acquisition of assets" (Netter,

Stegemoller, & Wintoki, 2011).[3] We include both majority- and minority-owned acquisitions because both are effective channels of implementing diversification strategies (Arikan & Stulz, 2016; Ragozzino & Reuer, 2009). However, as extant minority shareholdings in the target firm can reduce information asymmetry, we require that the acquirer does not have an ownership stake in the target before the transaction occurs (Li, Qiu, & Shen, 2018).

To identify diversifying acquisitions, we follow prior studies (e.g., Gantchev, Sevilir, & Shivdasani, 2020; Masulis, Wang, & Xie, 2007, 2009) and require that the acquirer and the target operate in different Fama–French 48 industries (Fama & French, 1997). Moreover, we exclude deals in which the acquirer and the target share the same parent firm to partial out the influence of common ownership on acquisition decisions. We also keep only deals with transaction values greater than $1 million to ensure that decision makers pay sufficient attention to each acquisition decision (e.g., Ocasio, 1997; Seo et al., 2015). After applying these constraints and matching all available variables, we retain 4,422 diversifying acquisitions (conducted by 1,733 unique acquirers) during the sample period.

We draw other data from several additional archival sources. We procure institutional investor data from Thomson Reuters Institutional (13F) Holdings, stock price data from the Center for Research in Security Prices (CRSP), strategic alliance data from SDC, firm financial data from Compustat, board and CEO characteristics from BoardEx, firm-pairwise product similarity and vertical relatedness scores from Hoberg and Phillips (2010, 2016) and Frésard, Hoberg, and Phillips (2020), goodwill impairment data from Audit Analytics, CEO stock holding data from the Thomson Reuters Insider Filing Data (TRIFD), divestiture data from the SDC M&A database, and conference call transcripts from Capital IQ.

Our theoretical arguments in Hypotheses 1–3 posit that investor exposure to a given industry can lead firms to engage in diversifying acquisitions in that industry. Empirically, this

[3] We do not include deals categorized as an "acquisition of remaining interests" because the acquirers in these deals have already taken partial interests in the target firm, and thus have already diversified into the target industry, prior to the transactions.

requires us to identify a set of control firms that share similar characteristics with the acquirers (i.e., treated firms) but that did not pursue diversifying acquisitions. To identify these control firms, we use coarsened exact matching (CEM), which has been widely adopted in strategy research (e.g., Connelly et al., 2020; Feldman et al., 2019; Li, Xia, & Lin, 2017). This technique coarsens covariates into multiple bins, according to which observations are matched. As a result, the matched sample can achieve an ideal balance between the treated and control groups in terms of the distributions of matching covariates.

To implement CEM, we first identify a pool of potential control firms that did not experience any acquisition in the focal year and the preceding five years. For a match, we require each control firm to operate in the same industry (based on Fama–French 48 industries) as the treated firm (acquirer) and to match the focal firm based on several characteristics in the same year as the deal announcement. We consider the following firm characteristics that can affect the decision to engage in diversifying acquisitions (Jung & Shin, 2019; Miller, Le Breton-Miller, & Lester, 2010): *Firm size* (natural logarithm of total assets), *ROA* (ratio of operating income to total assets), *Market-to-book ratio* (ratio of market value of total assets to book value of total assets), *Financial leverage* (ratio of total debt to total assets), *Cash holding ratio* (ratio of cash and cash equivalents to total assets), and *R&D intensity* (ratio of R&D expenses to total revenues). Following prior studies (e.g., Feldman, Amit, & Villalonga, 2016; Li et al., 2017), we coarsen all of these variables into quintiles based on their distributions to conduct the matching process. Our results are also robust to various other coarsening schemes (e.g., from quartiles to deciles).[4]

Among all 4,422 diversifying acquisition deals, 3,884 can be successfully matched using

[4] Our results are similar if we also consider board and CEO characteristics, including *Female director ratio*, *Directors appointed with CEO*, *CEO gender*, *CEO duality*, and *CEO tenure*, in the matching process. As *CEO gender* and *CEO duality* are dichotomous categories, including them and coarsening them by natural breaks (0 and 1) significantly reduces the number of control firms that can be matched to each acquiring firm (e.g., a firm with a female CEO cannot be matched with a firm with a male CEO using CEM), thereby potentially limiting our empirical analysis if we coarsened on dichotomous variables. As a result, we control for these characteristics in the regression analyses (discussed in Section 4.5) instead of including them in the matching process.

this process. For each diversifying acquisition deal, we use the matching results to identify a set of matched pairs in which the control firms share similar characteristics with the acquirers but did not engage in diversifying acquisitions. On average, 9.7 potential matches can be found for each diversifying acquisition deal. In total, the matched sample used to test Hypotheses 1–3 consists of 41,484 observations, in which 3,884 are diversifying acquisitions and 37,600 are their matched controls.

Our deal-level sample used to test Hypothesis 4 initially includes all 4,422 diversifying acquisition deals (prior to matching). After requiring data for the dependent variable, *Cumulative abnormal returns* (discussed in Section 4.2), we retain 3,256 diversifying acquisition deals for the sample we use to test Hypothesis 4.[5]

4.2. Dependent Variables

The dependent variable used to test Hypotheses 1–3 is *Diversifying acquisition*, which captures whether a firm diversifies into a new industry via an acquisition. It is coded as 1 for diversifying acquisition deals and as 0 for matched controls.

The dependent variable used to test Hypothesis 4 is *Cumulative abnormal returns* (*CARs*), which captures market reactions to diversifying acquisition announcements. Following prior studies (e.g., Anand & Singh, 1997; Feldman et al., 2016), we first identify the announcement dates of all diversifying acquisitions in our sample, and then collect daily stock returns from CRSP within a 250-day estimation window [–800, –551] before the announcement dates, for deals with at least 30 days' stock return data available (Schuler et al., 2017). Based on this window, we apply the Fama–French three-factor model to calculate expected returns and, correspondingly, abnormal returns within the 3-day event window [–1, +1] surrounding the announcement dates. *CARs* equals the sum of these abnormal returns over the 3-day event window.

[5] The sample size drops because we need to impose several restrictions to calculate CARs (discussed in Section 4.2).

4.3. Independent Variable

Our independent variable is *Investor industry exposure*, which captures a firm's institutional investors' total portfolio holdings in each target industry (based on Fama–French 48 industries). We first measure an institutional investor's *j*'s holdings in a target industry *k* in year *t* using the formula:

$$Industry\ exposure_{j,k,t} = \frac{Holding_{j,k,t}}{\Sigma_{k=1}^{K} Holding_{j,k,t}}, \quad (1)$$

where $Holding_{j,k,t}$ is the dollar value of investor *j*'s holdings in industry *k* in year *t* and *K* is the number of industries. We then aggregate all institutional investors' holdings in the target industry *k* in each year *t* for each focal firm *i* using the weighted average of industry exposure, calculated as follows:

$$Investor\ industry\ exposure_{i,k,t} = \Sigma_{j=1}^{J} Weight_{i,j,t} \times Industry\ exposure_{j,k,t}, \quad (2)$$

where $Weight_{i,j,t}$ is the percentage of the focal firm *i*'s outstanding shares held by investor *j* in year *t* and *J* is the number of investors holding stock in the focal firm. Because executives have limited attention and resources, they are unlikely to track the industry investment status for *all* institutional investors, but instead will focus primarily on institutional investors with large ownership stakes in the focal firm (i.e., those with a large $Weight_{i,j,t}$). Therefore, we follow prior studies (e.g., Brickley, Lease, & Smith Jr, 1988; Tihanyi et al., 2003) and retain only those institutional investors holding more than 1% of the focal firm's stock when calculating *Investor industry exposure*.

For actual diversifying acquisition deals, we directly measure *Investor industry exposure* based on the acquirer *i*, target industry *k*, and year *t*. For matched pairs, we measure *Investor industry exposure* based on the control firm *i*, the target industry *k* into which its corresponding acquirer is trying to diversify through an acquisition, and year *t*. This variable allows us to test how different levels of investor industry exposure to the *same* target industry between look-alike

firms influences managers' decisions to engage in diversifying acquisitions in that industry.

4.4. Moderators

To test Hypothesis 2, we disaggregate *Investor industry exposure* into *Growth investor industry exposure* and *Value investor industry exposure*. We obtain institutional investors' investment strategy data from Abarbanell, Bushee, and Raedy (2003).[6] Using factor and cluster analyses, Abarbanell et al. (2003) classify institutional investors into four types—large-growth, small-growth, large-value, and small-value—based on their past investment preferences for growth versus value firms and large- versus small-cap (capitalization) firms. Drawing on their "growth–value" classification scheme, we replicate the calculation process in formulas (1) and (2) to separately calculate *Growth investor industry exposure* and *Value investor industry exposure*.

To test Hypothesis 3, we construct the moderator *Director industry expertise*, which captures the collective expertise in the target industry *k* of all directors on a focal firm *i*'s board in year *t*. As expertise largely arises from directors' prior work experience in other firms, we follow Faleye, Hoitash, and Hoitash (2017) by gathering directors' historical employment data from BoardEx and identifying the industry of each firm where directors have worked using Compustat data (based on Fama–French 48 industries). In year *t*, a director is considered to have work experience in the target industry *k* if one of the industries where the director had worked in or before year $t - 1$ is the same as the target industry *k*. For each firm *i* in year *t*, *Director industry expertise* equals the ratio of the number of directors who have work experience in the target industry *k* to the total number of directors on the board. Similarly, for actual diversifying acquisition deals, we directly measure *Director industry expertise* based on the acquirer *i*, the target industry *k*, and year *t*. For matched pairs, we measure *Director industry expertise* based on the control firm *i*, the target industry *k* into which its corresponding acquirer is trying to diversify through an acquisition, and year *t*.

[6] See: https://accounting-faculty.wharton.upenn.edu/bushee/

4.5. Control Variables

We control for *Director industry expertise* (discussed earlier) and *Alliance industry experience* (natural logarithm of the number of strategic alliances formed in the target industry over the past five years) to proxy acquiring firms' relevant expertise and experiences in the target industry, which may affect diversifying acquisition decisions in the same industry (Haleblian et al., 2009). To rule out the influence of common ownership of the focal firm and the target on the focal firm's diversifying acquisition decisions (Goranova, Dharwadkar, & Brandes, 2010), we control for an indicator *Common ownership* (1 if the acquirer and the target have common institutional ownership and 0 otherwise).[7] We also control for several firm-level characteristics from the matching process (with the same calculations), including *Firm size*, *ROA*, *Market-to-book ratio*, *Financial leverage*, *Cash holding ratio*, and *R&D intensity*. We further control for several corporate governance characteristics to partial out governance effects on diversifying acquisition decisions (Haleblian et al., 2009; Jung & Shin, 2019), including *Female director ratio* (ratio of the number of female directors to board size), *Directors appointed with CEO* (ratio of the number of directors appointed after the CEO began his/her current position to board size), *CEO gender* (1 for female CEO and 0 otherwise), *CEO duality* (1 if the CEO also serves as board chair and 0 otherwise), *CEO tenure* (natural logarithm of the number of years after the CEO began his/her current position), and *Institutional ownership* (percentage of shares held by institutional investors).

To test Hypothesis 4, we control for *Acquisition experience* (natural logarithm of 1 plus the number of acquisitions conducted during the past five years) to address the influence of prior acquisition experience on market reactions to acquisition announcements (Haleblian et al., 2009).[8] We also control for several deal-level characteristics that may shape market reactions to

[7] Our results are robust to excluding deals by acquirers whose institutional investors have ownership in the target firms.

[8] We do not control for *Acquisition experience* when testing Hypotheses 1–3 because we require that the control firms do not have acquisition experience during the previous five years when constructing the matched sample.

acquisitions (Chen et al., 2021; King et al., 2004; Shi, Zhang, & Hoskisson, 2017). Specifically, we control for whether a firm acquires a target within the *Same state* (1 if the headquarters of the acquirer and the target are in the same state and 0 otherwise), whether a deal is a *Tender offer* (1 for tender offer and 0 otherwise) or a *Cash deal* (1 for all cash payment and 0 otherwise), the existence of *Competing bidders* (1 if competing bidders exist and 0 otherwise), and *Target public status* (1 if the target is a public firm and 0 otherwise).

As target industry characteristics may influence acquisition performance (Cuypers, Cuypers, & Martin, 2017; Malhotra, Zhu, & Reus, 2015), we further control for *Target industry growth* (average revenue growth rate of firms in each target industry), *Target industry ROA* (average ROA of firms in each target industry), *Target industry R&D intensity* (average R&D intensity of firms in each target industry), and *Target industry concentration* (industry-level Herfindahl–Hirschman index based on each firm's total revenues). Furthermore, we control for two variables, *Complementarity* and *Vertical relatedness*, to proxy for horizontal and vertical relatedness between the acquirer and the target industry, respectively (King et al., 2004). These variables are generated from the firm-pairwise product similarity and vertical relatedness scores developed by Hoberg and Phillips (2010, 2016) and Frésard et al. (2020); the process is explained in detail in the Online Appendix. Tables 1A and 1B present descriptive statistics for all variables used in this study.

[Insert Tables 1A & 1B about here]

4.6. Analyses

To test Hypotheses 1–3, we conduct conditional logistic regressions with pair fixed effects (including a diversifying acquisition deal and its matched control) based on the CEM matched sample. The pair fixed effects allow comparisons within each matched group, thereby enabling us to estimate the probability of engaging in diversifying acquisitions given each firm's investor industry exposure. To test Hypothesis 4, we run ordinary least squares (OLS) regressions with industry and year fixed effects based on the deal-level sample. In all regressions, we lag the

explanatory variables (except the deal-level variables) by one year to mitigate potential reverse-causality issues (Bellemare, Masaki, & Pepinsky, 2017), and cluster standard errors at the target industry level to address potential correlations of residuals among all diversifying acquisition decisions into each specific target industry (Petersen, 2008).

The deal-level sample used to test Hypothesis 4 is potentially subject to sample selection issues. For example, unobservable factors, such as firms' post-acquisition integration capabilities, might simultaneously drive firms' decisions to engage in diversifying acquisitions as well as investors' reactions to those acquisition announcements. We use Heckman sample selection models to address this issue (Certo et al., 2016). In the first-stage probit regression, we use a panel dataset including all firm-year observations with available control variables during our sample period (50,040 observations in total) to estimate the decision to engage in *Diversifying acquisition*, which equals 1 if a firm engages in a diversifying acquisition in a year and 0 otherwise.

The exclusion restriction included in the first-stage regression is *Local diversifying acquisitions*, measured as the number of diversifying acquisitions conducted by firms located in the same state as the focal firm over the past five years divided by the total number of firms headquartered in the state (excluding the focal firm). The extant literature suggests that firms may imitate geographic peers' diversifying acquisitions (Marquis, Glynn, & Davis, 2007); if this relationship holds, *Local diversifying acquisitions* should be correlated with *Diversifying acquisitions*. However, geographic peers' diversifying acquisitions should not directly influence the focal firm's acquisition announcement returns because investors are unlikely to assess acquisition decision quality based on geographic peers' acquisition intensity (Shi et al., 2020).

In the first-stage probit regression, the coefficient for *Local diversifying acquisitions* is 0.234 ($p < 0.001$) in predicting *Diversifying acquisition*, consistent with the exclusion restriction being relevant. In the second-stage regression, *Local diversifying acquisitions* does not significantly predict *CARs* ($p = 0.929$), consistent with the exclusion restriction being

exogenous. These results suggest that *Local diversifying acquisitions* should satisfy the criteria for a valid exclusion restriction (Certo et al., 2016). We then calculate the *Inverse Mills ratio* from the first-stage probit regression and include it as a control in our second-stage regression.[9]

5. RESULTS

5.1. Baseline Results

Table 2 reports the regression results used to test our hypotheses. Hypothesis 1 posits that firms are more likely to engage in diversifying acquisitions in a given industry when their institutional investors have higher ownership exposure in that industry. In Model 1, with *Diversifying acquisition* as the outcome, the coefficient for *Investor industry exposure* is 0.099 ($p < 0.001$), supporting Hypothesis 1. The economic magnitude can be interpreted using odds ratios (Buis, 2010), which have been widely used in studies with conditional logistic models (e.g., Chatain & Meyer-Doyle, 2017; Chen, Kale, & Hoskisson, 2018; Tandon, Asgari, & Ranganathan, 2023).[10] We find that the odds ratio for *Investor industry exposure* is 1.104 (= exp[0.099]), which implies that firms are 10.4% more likely to pursue a diversifying acquisition in an industry where their institutional investors are invested when *Investor industry exposure* increases by 1%.

[Insert Table 2 about here]

Hypothesis 2 suggests that the association between investor exposure in an industry and the likelihood of pursuing diversifying acquisitions in that industry is stronger when the investors are growth oriented than when they are value oriented. In Model 2, the coefficient of *Growth investor industry exposure* is 0.192 ($p < 0.001$) and the coefficient of *Value investor industry exposure* is 0.085 ($p = 0.150$). A Wald test (one-tailed) suggests that the difference

[9] We cannot correct for sample selection bias using this method in our tests for Hypotheses 1–3 because the *Inverse Mills ratio* would be subsumed by the pair fixed effects.

[10] The odds ratio is the exponentiated coefficient, which captures the percentage of change in the dependent variable for a unit change in an explanatory variable, allowing us to present effects on a multiplicative scale (Buis, 2010). Two approaches are commonly used to explain the economic magnitudes in nonlinear models: an odds ratio approach and a marginal effects approach (Buis, 2010). However, the latter is not suitable for conditional logistic models, since it cannot take group fixed effects (i.e., in our context, pair fixed effects generated from the matching process) into account, thereby potentially giving rise to bias (Ai & Norton, 2003; Karaca-Mandic, Norton, & Dowd, 2012).

between the two coefficients is statistically significant (p = 0.048), supporting Hypothesis 2. In terms of economic magnitude, the odds ratio for *Growth investor industry exposure* is 1.212 (= exp[0.192]), which implies that firms are 21.2% more likely to engage in a diversifying acquisition in an industry where their institutional investors are invested when *Growth investor industry exposure* increases by 1%. By comparison, the odds ratio for *Value investor industry exposure* is 1.088 (= exp[0.085]), indicating that firms are 8.8% more likely to pursue a similar diversifying acquisition when *Value investor industry exposure* increases by 1%.

Hypothesis 3 suggests that the association between investor exposure in an industry and the likelihood of pursuing diversifying acquisitions in that industry is weaker when more directors have experience in the industry. In Model 3, the coefficient of *Investor industry exposure* × *Director industry expertise* is –0.117 (p = 0.015), supporting Hypothesis 3. Economically, the odds ratio for the interaction term is 0.889 (= exp[–0.117]). This implies that the positive association between investor industry exposure and diversifying acquisitions in the industry is weakened by 3.34% (= 1 – exp[–0.117 × (0.05 + 0.12 × 2)]) when a high percentage of directors (two standard deviations above the mean) have experience working in the target industry compared to when no directors have that experience.

Hypothesis 4 predicts a negative relationship between investor industry exposure and market reactions to diversifying acquisition announcements. As shown in Model 4, the coefficient for *Investor industry exposure* is –0.001 (p = 0.015) when predicting *CARs* [–1, +1], supporting Hypothesis 4. When *Investor industry exposure* increases from a low value (zero) to a high value (mean plus one standard deviation), *CARs* decreases by 0.8%. Benchmarking against the mean value of acquirers' market capitalizations ($12.774 billion), this decrease in *CARs* equates to a $102.2 million loss in market capitalization.

5.2. Robustness Checks

5.2.1. Institutional Investor Ownership Thresholds

The independent variable in our baseline analyses, *Investor industry exposure*, captures the

portfolio holding exposure to the target industry of institutional investors holding more than 1% of the focal firm's stock. To ensure that our results are not driven by the selection of this cutoff, we conduct robustness checks by modifying our independent variable to have, in turn, no cutoff and a 2% cutoff. We replicate the calculation process in formula (2) to generate two new measures of *Investor industry exposure* using these criteria. As shown in Table 3, the results remain consistent with our main findings.

[Insert Table 3 about here]

5.2.2. Mitigating Endogeneity Concerns

Omitted variable bias may give rise to endogeneity concerns when examining the market reactions described in Hypothesis 4. For example, unobservable factors, such as a firm's influence on its institutional investors, could be associated with both investor industry exposure to a given industry and investor reactions to diversifying acquisition announcements. To address this concern, we utilize exogenous changes in investors' ownership that result from acquisitions between institutional investors. When an institutional investor acquires another institutional investor, stocks in the target institutional investor's portfolios are likely to be sold due to overlap or potential inconsistencies with the acquiring institutional investor's investment strategy and policies. Therefore, such acquisitions constitute a meaningful event that can change investor industry exposure to a given industry (Hong & Kacperczyk, 2010) but that is relatively unrelated to market reactions to acquisition announcements.

To identify institutional investors' acquisition events, we retrieve acquisition data from the SDC and then determine which acquirers and targets are institutional investors using data from Thomson Reuters Institutional (13F) Holdings. We identify 103 institutional investors' acquisition events from 2000 to 2018. For each acquirer in our deal-level sample, we construct a new independent variable, *Institutional investor acquisition*, which is coded as 1 if at least one of the acquirer's institutional investors that had holdings in the target industry was acquired by another institutional investor in the previous year and as 0 otherwise. Accordingly, a positive

value of *Institutional investor acquisition* indicates that the acquirer's investor holding exposure to the target industry is likely to decrease.

For each deal in which the acquirer completed an institutional investor acquisition (i.e., a treated deal), we use CEM to identify a set of control deals in which the acquirers share similar characteristics but did not participate in an institutional investor acquisition in the previous year. We follow the same matching procedure discussed earlier, matching by industries, calendar year, and the same set of firm-level characteristics using quintiles based on their distributions (Feldman et al., 2016). This process yields a sample of 807 deals, in which 474 are treated deals and 333 are matched control deals. We control for pair fixed effects, defined as the matched deal pairs.

In Model 1 in Table 4, with *CARs* as the outcome, the coefficient for *Institutional investor merger* is 0.013 ($p = 0.027$), suggesting that the market reacts more positively to deals announced by firms whose investors have gone through mergers, and implying that investor industry exposure is negatively associated with *CARs*. These results support Hypothesis 4.

[Insert Table 4 about here]

We also probe the influence an omitted variable would need to have to invalidate our inferences by calculating the impact threshold of a confounding variable (ITCV) (Frank, 2000). As shown in Model 4 in Table 2, the ITCV results indicate that an omitted variable would need to be correlated at 0.102 with *Investor industry exposure* and at –0.102 with *CARs* to invalidate the focal inference. Correspondingly, the impact of an omitted variable must be –0.0104 (= –0.102 × 0.102) to invalidate our inference. Among our controls, the variable with the strongest impact is *Institutional ownership*, which has an impact of –0.007, lower than the –0.0104 threshold.[11] In combination with our comprehensive set of controls, this indicates that our focal inference may not be driven by an omitted variable (for similar conclusions based on the

[11] The "impact" of a control variable is defined as the product of the partial correlation between the control variable and the independent variable and the partial correlation between the control variable and the dependent variable.

magnitude of ITCV results, see: Chin et al., 2021; Gamache et al., 2019).

5.2.3. Alternative Performance Measures

We use several alternative measures of acquisition performance to test the robustness of Hypothesis 4. First, we adjust the *CARs* event window to [–2, +2] and [–3, +3]. Consistent with Hypothesis 4, in Models 2 and 3 in Table 4, the coefficients for *Investor industry exposure* are –0.001 ($p = 0.053$) and –0.001 ($p = 0.026$), respectively, when predicting *CARs* using the windows [–2, +2] and [–3, +3]. Second, we use 3-year buy-and-hold abnormal returns (*BHARs*) after acquisition announcements to capture firms' acquisition performance over longer periods, which complements the immediate reactions of the market measured by *CARs*. Following Rabier (2017), we measure *BHARs* by compounding 36-month returns after each acquisition announcement, with monthly returns being adjusted to the weighted average market returns using CRSP (Savor & Lu, 2009). As shown in Model 4 in Table 4, the coefficient for *Investor industry exposure* is –0.006 ($p = 0.028$), supporting Hypothesis 4 and demonstrating the persistent negative response by the market to diversifying acquisitions based on investor industry exposure.

Finally, post-acquisition divestitures usually signal failures of acquisitions, so they serve as a good proxy for acquisition performance (Kaplan & Weisbach, 1992; Shimizu & Hitt, 2005). We therefore construct another dependent variable, *Post-acquisition divestiture*, which equals 1 if the acquirer divests the target in the 3 years after an acquisition and 0 otherwise. Using logistic regression, the results in Model 5 in Table 4 show that the coefficient for *Investor industry exposure* is 0.098 ($p = 0.006$) in predicting *Post-acquisition divestiture*, again supporting Hypothesis 4.

5.3. Supplementary Analyses

To further probe our theorized mechanisms and mitigate the possibility of alternative explanations, we investigate the effect of investor industry exposure on managers' confidence in their diversifying acquisition decisions. If managers who are making diversifying acquisitions

look to their investors to help them understand a target industry's prospects, as our theory suggests, then they should be more confident about entering industries in which their major institutional investors have greater ownership. We assess two behaviors of CEOs related to diversifying acquisitions to test this idea: stock sales and communications.

Looking at stock sales, Devers et al. (2013) argue that the degree of CEOs' stock sales following an acquisition announcement can reflect management's confidence in the value-creating potential of the acquisition. We thus construct a new dependent variable, *CEO stock sales*, measured as the percentage of stocks sold by a CEO through open market transactions in the quarter after an acquisition announcement (Ali & Hirshleifer, 2017). A high value for this variable indicates a CEO has a low level of confidence in an acquisition.

When testing the relationship between *Investor industry exposure* and *CEO stock sales*, we control for two additional variables, *Past CEO stock sales* (percentage of CEO-owned stocks sold in the quarter prior to the acquisition announcement) and *Stock risk* (captured by the beta of the capital asset pricing model based on stock prices in the prior year), as both of these variables can influence CEOs' stock sales behaviors (Devers et al., 2013). As shown in Model 1 in Table 5, the coefficient for *Investor industry exposure* is –0.001 ($p = 0.010$), suggesting CEOs are less likely to sell their stocks, and thus more confident in their diversifying acquisitions, when investor industry exposure increases.

[Insert Table 5 about here]

Next, we use CEOs' portrayal of acquisitions in acquisition conference calls to capture management's confidence in announced acquisitions, though we note this factor is potentially subject to impression management. We collect available acquisition conference call transcripts for 399 deals from Capital IQ Transcripts.[12] We content-analyze the CEO's spoken words using the business-specific dictionaries of positive words and negative words developed by Loughran

[12] We were able to obtain only 399 acquisition conference call transcripts because relatively few firms hold acquisition-specific conference calls following their announcement of an acquisition.

and McDonald (2011). We measure *CEO positive tone* (*CEO negative tone*) as the number of positive (negative) words divided by the total number of words spoken by a CEO in an acquisition conference call following the focal deal. As shown in Models 2 and 3 in Table 5, the coefficients for *Investor industry exposure* are 0.005 ($p = 0.061$) and –0.002 ($p = 0.013$) in predicting *CEO positive tone* and *CEO negative tone*, respectively. These findings imply that CEOs appear more confident about diversifying acquisitions made in industries where their major institutional investors are more exposed, consistent with our arguments.

6. DISCUSSION

We developed theory, based on information cascades, about how managers make strategic decisions based on insights they infer from their institutional investors. Our results indicated that managers are more likely to make diversifying acquisitions in industries in which those investors own more shares (i.e., have chosen to invest themselves), which we call investor industry exposure. Using various models and measures, and applying multiple approaches to alleviate endogeneity, our findings are both significant and meaningful: on average, firms are 10.4% more likely to engage in a diversifying acquisition in an industry when their investors' exposure to that industry increases by 1%.

We probed two assumptions of our theory related to information cascades: that managers need to perceive investors as having credible information and that they need to face sufficient decision uncertainty to follow investors into new industries. Regarding the credibility of the information investors hold, we argued and found that managers are more likely to follow growth investors, as opposed to value investors, when making diversifying acquisition decisions. The effect of investor industry exposure on a diversifying acquisition in an industry increases from 10.4% to 21.3% for each 1% increase in industry ownership by growth investors. We also argued and found that managers are less likely to follow their investors into new industries when more of their directors have work experience in those industries, which decreases managers' reliance on external industry information.

Lastly, we explored the potential for what we call misguidance costs, where managers are misguided by information they glean from their investors. Our findings indicate that investor industry exposure is negatively associated with stock market reactions to diversifying acquisition announcements. Based on the market capitalizations of firms in our sample, managers erase an average $102.2 million of their firms' market values when they announce a diversifying acquisition into an industry where their investors' industry exposure is high.

In supplemental analyses, and in line with our information cascades logic, we found that CEOs are more confident about diversifying acquisitions when their investors' exposure in the industry is high, evidenced by CEOs' post-acquisition stock trading behaviors and their linguistic patterns when discussing these acquisition decisions. These findings lend support to the notion that managers appear to willingly follow their investors into new markets, rather than being pressured into these deals by those investors.

6.1. Implications for Research

Our findings contribute to research on the strategic implications of individual-level industry experience by adding investors into the mix. Prior research suggests that industry-specific experience directly exposes managers to valuable tacit knowledge about an industry (Harris & Helfat, 1997). Reflecting this idea, a founder's industry experience appears to be critical to the success of new ventures (Roberts & Berry, 1984) and managers' and directors' industry experience has been found to be beneficial in making industry-related strategic decisions (Custodio & Metzger, 2013; Kroll et al., 2008), including by inspiring more novel strategic decisions (Crossland et al., 2014). In light of these various benefits of industry experience, our findings present a very different picture: institutional investors that have experience investing in an industry can affect managerial decision-making about industry selection in ways that actually hamper firm success.

This finding underscores the importance of more carefully theorizing the different types of experience managers can draw on, and their implications for firm success. Whereas

managers' and directors' experience in an industry arise from these individuals having personally worked in an industry (i.e., direct experience), investor experience comes from investing in an industry (i.e., indirect experience). Moreover, because managers make inferences from their investors' indirect experiences, the chain through which this experience flows into the strategic decision-making process takes an even more indirect pathway. Accordingly, as our results imply, the effects of indirect types of experience on firm value might be far less beneficial than those that arise from more direct types of experience.

In the acquisitions literature, an important body of work explores the factors that lead firms to acquire certain targets versus others, as well as the consequences of those decisions (Feldman et al., 2019; Feldman & Hernandez, 2022). Especially relevant to our study, existing research has found that direct interventions and hands-on monitoring by institutional investors can steer the direction of managers' acquisition decisions (Fich, Harford, & Tran, 2015; Swidler, Trinh, & Yost, 2019). Compared to this work, our findings suggest a more passive and subtle form of influence is at play in acquisitions. That is, simply through their prior investment decisions, institutional investors can play an information brokerage role that unobtrusively informs managers about potential areas for future acquisitions and steers them away from others.

Moreover, our findings extend research on strategic imitation. Imitation is a pervasive organizational behavior and a key theoretical construct in strategy research (Posen et al., 2023). Studies have shown that firms imitate strategic decisions of others in terms of new market entries (Haveman, 1993), innovation (Semadeni & Anderson, 2010), acquisitions (Haunschild, 1993), and corporate social responsibility (Gupta & Misangyi, 2018). However, most of this research has focused on industry peers as imitation targets, neglecting the possibility that a firm's investors might also be a target for managers to imitate—which is what we found.[13]

[13] For example, it would be fair to ask the extent to which managers making diversifying acquisitions imitate the example provided by industry peers or alliance partners that have made similar acquisitions in the past. Investigating this question would offer a much more limited amount of information because firms have only a small subset of peers that may or may not have diversified via acquisition. The industry information afforded to managers

Future research can investigate whether firms may imitate their investors in other ways, such as following their example of investing in different geographic regions.

Our study also adds to research that examines whether managers learn from investors' stock trading. Studies in this domain provide evidence that managers can learn about investment opportunities and the merits of their strategic decisions by observing changes in their company's stock price, which is shaped in part by investor trading patterns (Dessaint et al., 2019). For example, finding that firms are less likely to complete an acquisition after its announcement when investors sell their shares, Luo (2005) argues that managers can learn new information about the acquisition target that they might have otherwise overlooked (e.g., barriers to achieving synergies). Our study extends this line of research by going beyond the informativeness of aggregate stock price movements to unpack how investor portfolio holdings, and especially the holdings of growth investors, shape managerial decisions.

Lastly, we believe the introduction of misguidance costs is valuable for illuminating how managerial decision-making can be impaired, not only from investors inserting themselves in the strategic decision making process, but from managers willingly basing that process on the examples of their investors. We expect that misguidance costs could arise in other facets of corporate strategy and could have broad appeal to scholars in a range of disciplines. It is plausible, for instance, that managers might overspend on corporate social responsibility initiatives in value-limiting ways when prominent social investors purchase more of their company's stock, or that they might diversify their firms' operations into markets with excessive political risk when more shares are owned by foreign investors in those countries. Additionally, for scholars interested in corporate scope, it is possible that managers become more willing to divest from industries that are not widely held by their investors. Extending our ideas, it could also be that managers become more inclined to acquire specific target firms held by their

---

via investor industry exposure, by comparison, is far-reaching (insofar as it covers many potential industries) and current (insofar as investors routinely update their portfolio holdings).

investors, rather than just investing in specific industries to which those investors are exposed. As researchers consider the various ways that managers may look to investors for strategic insights, there is a considerable uncharted territory in which to study misguidance costs in other contexts.[14]

6.2. Implications for Practice

As many investors have the incentive and ability to monitor managers and to prevent them from extracting private benefits, some corporate governance practitioners claim that investors are an antidote to managerial opportunism. Yet, through their monitoring efforts and development of close relations with managers, the information that investors share could affect managers' decisions in ways they do not intend. Managers need to carefully evaluate the information they receive from institutional investors so that their decision-making is not biased by their investors' portfolios and preferences.

For boards, our study highlights the considerable value of prior industry work experience in guiding managers' strategic decisions. Our results suggest that having directors on the board with relevant work experience decreases the potential for bias arising from investor industry exposure. Therefore, especially in firms that have ambitions to widely diversify their operations, managers would benefit from both having boards with broad industry experience and thoughtfully pondering the advice they receive from board members about target industries for diversification.

6.3. Opportunities for Future Research

By offering a first look at how investors' experience can (mis)guide managerial decision-making, our study reveals new opportunities for valuable research. First, while we considered managers' perceptions of investors' credibility based on the investor's investment style, there are other ways to theorize how managers will perceive different investors—and, in turn, their

[14] We are thankful to two anonymous reviewers for bringing many of these ideas to our attention.

willingness to follow them into new industries and markets. According to our theory, managers should be more trusting of investors with greater investment depth, as determined by the size of those investors' holdings in an industry. However, it is also worth considering investors' breadth of experience. Crossland et al. (2014) found that the breadth of a CEO's career experience can lead to more novel strategic decisions. Could investor breadth have a similar effect on firms' strategic decisions, such that managers develop more novel diversification strategies (e.g., diversifying into nonadjacent industries) when their investors have broader investment experience? Moreover, given Mueller et al. (2021) that a CEO's experience can be too broad, perhaps managers might be willing to follow investors with broader portfolios only to a certain extent.

Our findings indicate that board members' work experience in the target industry can weaken the information cascade effect of investor investment decisions on diversifying acquisitions. To further enhance our understanding of the board's role, future research could investigate whether directors' *acquisition* experience moderates the impact of investor industry exposure on diversifying acquisitions. Field and Mkrtchyan (2017) demonstrate a positive relationship between board acquisition experience and subsequent acquisition performance. Future research can explore whether managers are less likely to be inadvertently influenced by their investors' investment decisions when board members possess richer acquisition experience.

Our study reveals that investors' investment decisions can shape firms' expansion into an industry through acquisitions. However, it remains unclear whether firms also follow their investors' lead in asset divestment decisions. For instance, if a firm's growth investors divest their holdings in an industry, will the firm choose to divest its assets in that industry as well? Moreover, will the firm utilize proceeds from those divestments to fund acquisitions in industries where these growth investors are more invested? Since such archival data do not exist, future studies could use qualitative methods to investigate whether managers earmark divestments from industries where their investors are not invested to fund acquisitions in

industries in which their investors do participate. Such a finding would amplify the degree to which misguidance occurs in the context of corporate scope.

Lastly, our study focuses on the subtle, passive influence of investors on managers' acquisition decisions. However, institutional investors may exert pressure on managers to acquire a specific target when those same investors also have ownership stakes in the target company. For example, Carl Icahn pressured Xerox to pursue a hostile takeover of Hewlett-Packard, and he owned substantial shares in both companies (CNBC, 2019). Such acquisitions may serve the interests of these investors on one or both ends of a deal.

7. CONCLUSION

Institutional investors are a prominent force on the corporate governance landscape. Strategy scholars have contributed to the academic community's cognitive and behavioral understanding of investor influence on corporate outcomes. However, studies of investor influence have been bound in terms of both the *means* and the *ends*. For the *means*, scholars have mainly examined active forms of influence, such as voice and the threat of exit. In this research, we introduce a new means of influence wherein investors affect managerial decision-making by way of serving as an example. For the *ends*, scholars have focused largely on investor preferences for firm outcomes, such as investment horizons, efficiency, and levels of risk. We introduce a new end by conceptualizing institutional investors as credible industry experts that make them consequential to managerial decisions about industry diversification. Taken as a whole, our study advances the literature on ownership as a form of corporate governance and the literature on corporate diversification.

REFERENCES

Abarbanell JS, Bushee BJ, Raedy JS. 2003. Institutional investor preferences and price pressure: The case of corporate spin-offs. *The Journal of Business* **76**(2): 233-261.

Ahern KR, Weston JF. 2007. M&As: The good, the dad, and the ugly. *Journal of Applied Finance* **17**(1): 5-20.

Ai C, Norton EC. 2003. Interaction terms in logit and probit models. *Economics Letters* **80**(1): 123-129.

Ali U, Hirshleifer D. 2017. Opportunism as a firm and managerial trait: Predicting insider trading profits and misconduct. *Journal of Financial Economics* **126**(3): 490-515.

Anand J, Singh H. 1997. Asset redeployment, acquisitions and corporate strategy in declining industries. *Strategic Management Journal* **18**(S1): 99-118.

Battisti E, Miglietta N, Salvi A, Creta F. 2019. Strategic approaches to value investing: a systematic literature review of international studies. *Review of International Business and Strategy* **29**(3): 253-266.

Becht M, Franks JR, Wagner HF. 2021. The benefits of access: Evidence from private meetings with portfolio firms. *European Corporate Governance Institute–Finance Working Paper* **751**.

Belderbos R, Olffen WV, Zou J. 2011. Generic and specific social learning mechanisms in foreign entry location choice. *Strategic Management Journal* **32**(12): 1309-1330.

Bellemare MF, Masaki T, Pepinsky TB. 2017. Lagged explanatory variables and the estimation of causal effect. *Journal of Politics* **79**(3): 949-963.

Betermier S, Calvet LE, Sodini P. 2017. Who are the value and growth investors? *Journal of Finance* **72**(1): 5-46.

Bhagat C, Huyett B. 2013. Modernizing the board's role in M&A. *McKinsey Quarterly* **45**(Winter): 9-13.

Bikhchandani S, Hirshleifer D, Welch I. 1992. A theory of fads, fashion, custom, and cultural change as informational cascades. *Journal of Political Economy* **100**(5): 992-1026.

Bikhchandani S, Hirshleifer D, Welch I. 1998. Learning from the behavior of others: Conformity, fads, and informational cascades. *Journal of Economic Perspectives* **12**(3): 151-170.

Billett MT, Qian Y. 2008. Are overconfident CEOs born or made? Evidence of self-attribution bias from frequent acquirers. *Management Science* **54**(6): 1037-1051.

Brickley JA, Lease RC, Smith Jr CW. 1988. Ownership structure and voting on antitakeover amendments. *Journal of Financial Economics* **20**: 267-291.

Brown LD, Call AC, Clement MB, Sharp NY. 2019. Managing the narrative: Investor relations officers and corporate disclosure☆. *Journal of Accounting and Economics* **67**(1): 58-79.

Buis ML. 2010. Stata tip 87: Interpretation of interactions in nonlinear models. *The Stata Journal* **10**(2): 305-308.

Bushee BJ, Goodman TH. 2007. Which institutional investors trade based on private information about earnings and returns? *Journal of Accounting Research* **45**(2): 289-321.

Butler Jr JK. 1991. Toward understanding and measuring conditions of trust: Evolution of a conditions of trust inventory. *Journal of management* **17**(3): 643-663.

Cai Y, Sevilir M. 2012. Board connections and M&A transactions. *Journal of Financial Economics* **103**(2): 327-349.

Certo ST, Busenbark JR, Woo Hs, Semadeni M. 2016. Sample selection bias and Heckman models in strategic management research. *Strategic Management Journal* **37**(13): 2639-2657.

Chapman KL, Miller GS, Neilson JJ, White HD. 2022. Investor relations, engagement, and shareholder activism. *The Accounting Review* **97**(2): 77-106.

Chatain O, Meyer-Doyle P. 2017. Alleviating managerial dilemmas in human-capital-intensive firms through incentives: Evidence from M&A legal advisors. *Strategic Management Journal* **38**(2): 232-254.

Chen G, Crossland C, Luo S. 2015. Making the same mistake all over again: CEO overconfidence and corporate resistance to corrective feedback. *Strategic Management Journal* **36**(10): 1513-1535.

Chen G, Huang S, Meyer-Doyle P, Mindruta D. 2021. Generalist versus specialist CEOs and acquisitions: Two-sided matching and the impact of CEO characteristics on firm outcomes. *Strategic Management Journal* **42**(6): 1184-1214.

Chen S, Feldman ER. 2018. Activist-Impelled Divestitures and Shareholder Value. *Strategic Management Journal* **39**(10): 2726-2744.
Chen Z, Kale P, Hoskisson RE. 2018. Geographic overlap and acquisition pairing. *Strategic Management Journal* **39**(2): 329-355.
Chin M, Zhang SX, Jahanshahi AA, Nadkarni S. 2021. Unpacking political ideology: CEO social and economic ideologies, strategic decision-making processes, and corporate entrepreneurship. *Academy of Management Journal* **64**(4): 1213-1235.
Clark KD, Maggitti PG. 2012. TMT potency and strategic decision-making in high technology firms. *Journal of Management Studies* **49**(7): 1168-1193.
CNBC. 2019. Carl Icahn takes stake in HP, pushes for merger with Xerox, CNBC:
Connelly BL, Lee KB, Tihanyi L, Certo ST, Johnson JL. 2019a. Something in common: Competitive dissimilarity and performance of rivals with common shareholders. *Academy of Management Journal* **62**(1): 1-21.
Connelly BL, Li Q, Shi W, Lee KB. 2020. CEO dismissal: Consequences for the strategic risk taking of competitor CEOs. *Strategic Management Journal* **41**(11): 2092-2125.
Connelly BL, Shi W, Hoskisson RE, Koka BR. 2019b. Shareholder influence on joint venture exploration. *Journal of Management* **45**(8): 3178-3203.
Connelly BL, Tihanyi L, Certo ST, Hitt MA. 2010. Marching to the beat of different drummers: The influence of institutional owners on competitive actions. *Academy of Management Journal* **53**(4): 723-742.
Cronqvist H, Siegel S, Yu F. 2015. Value versus growth investing: Why do different investors have different styles? *Journal of Financial Economics* **117**(2): 333-349.
Crossland C, Zyung J, Hiller NJ, Hambrick DC. 2014. CEO career variety: Effects on firm-level strategic and social novelty. *Academy of Management Journal* **57**(3): 652-674.
Cunningham LA. 2021. Ask the Smart Money: Shareholder Votes by a" Majority of the Quality Shareholders". *UC Davis L. Rev.* **55**: 1019.
Custodio C, Metzger D. 2013. How do CEOs matter? The effect of industry expertise on acquisition returns. *Review of Financial Studies* **26**(8): 2007-2047.
Cuypers IR, Cuypers Y, Martin X. 2017. When the target may know better: Effects of experience and information asymmetries on value from mergers and acquisitions. *Strategic Management Journal* **38**(3): 609-625.
Dessaint O, Foucault T, Frésard L, Matray A. 2019. Noisy stock prices and corporate investment. *The Review of Financial Studies* **32**(7): 2625-2672.
Devers CE, McNamara G, Haleblian J, Yoder ME. 2013. Do they walk the talk? Gauging acquiring CEO and director confidence in the value creation potential of announced acquisitions. *Academy of Management Journal* **56**(6): 1679-1702.
Dharwadkar R, Goranova M, Brandes P, Khan R. 2008. Institutional ownership and monitoring effectiveness: It's not just how much but what else you own. *Organization Science* **19**(3): 419-440.
Diestre L, Rajagopalan N, Dutta S. 2015. Constraints in acquiring and utilizing directors' experience: An empirical study of new-market entry in the pharmaceutical industry. *Strategic Management Journal* **36**(3): 339-359.
Faleye O, Hoitash R, Hoitash U. 2017. Industry expertise on corporate boards. *Review of Quantitative Finance and Accounting* **50**(2): 441-479.
Fama EF, French KR. 1997. Industry costs of equity. *Journal of Financial Economics* **43**(2): 153-193.
Feldman ER. 2014. Legacy Divestitures: Motives and Implications. *Organization Science* **25**(3): 815-832.
Feldman ER. 2016. Dual Directors and the Governance of Corporate Spinoffs. *Academy of Management Journal* **59**(5): 1754-1776.
Feldman ER. 2020. Corporate strategy: Past, present, and future. *Strategic Management Review* **1**(1): 179-206.
Feldman ER. 2023. *Divestitures: Creating Value Through Strategy, Structure, and Implementation*. McGraw Hill: New York.
Feldman ER, Amit R, Villalonga B. 2016. Corporate divestitures and family control. *Strategic Management Journal* **37**(3): 429-446.
Feldman ER, Amit R, Villalonga B. 2019. Family firms and the stock market performance of acquisitions and divestitures. *Strategic management journal* **40**(5): 757-780.
Feldman ER, Hernandez E. 2022. Synergy in mergers and acquisitions: Typology, life cycles,

and value. *Academy of Management Review* **47**(4): 549-578.
Feldman ER, Sakhartov AV. 2022. Resource redeployment and divestiture as strategic alternatives. *Organization Science* **33**(3): 926-945.
Fich EM, Harford J, Tran AL. 2015. Motivated monitors: The importance of institutional investors′ portfolio weights. *Journal of Financial Economics* **118**(1): 21-48.
Field LC, Mkrtchyan A. 2017. The effect of director experience on acquisition performance. *Journal of Financial Economics* **123**(3): 488-511.
Foss NJ, Klein PG, Lien LB, Zellweger T, Zenger T. 2021. Ownership competence. *Strategic Management Journal* **42**(2): 302-328.
Frank KA. 2000. Impact of a confounding variable on a regression coefficient. *Sociological Methods & Research* **29**(2): 147-194.
Frésard L, Hoberg G, Phillips GM. 2020. Innovation activities and integration through vertical acquisitions. *The Review of Financial Studies* **33**(7): 2937-2976.
Gamache DL, McNamara G, Graffin SD, Kiley J, Haleblian J, Devers CE. 2019. Impression offsetting as an early warning signal of low CEO confidence in acquisitions. *Academy of Management Journal* **62**(5): 1307-1332.
Gantchev N, Sevilir M, Shivdasani A. 2020. Activism and empire building. *Journal of Financial Economics* **138**(2): 526-548.
Gilje EP, Gormley TA, Levit D. 2020. Who's paying attention? Measuring common ownership and its impact on managerial incentives. *Journal of Financial Economics* **137**(1): 152-178.
Goranova M, Dharwadkar R, Brandes P. 2010. Owners on both sides of the deal: Mergers and acquisitions and overlapping institutional ownership. *Strategic Management Journal* **31**(10): 1114-1135.
Goshen Z, Squire R. 2017. Principal Costs: A New Theory for Corporate Law and Governance. *Colum. L. Rev.* **117**: 767.
Gupta A, Misangyi VF. 2018. Follow the leader (or not): The influence of peer CEOs' characteristics on interorganizational imitation. *Strategic Management Journal* **39**(5): 1437-1472.
Haleblian J, Devers CE, McNamara G, Carpenter MA, Davison RB. 2009. Taking stock of what we know about mergers and acquisitions: A review and research agenda. *Journal of Management* **35**(3): 469-502.
Harris D, Helfat C. 1997. Specificity of CEO human capital and compensation. *Strategic Management Journal* **18**(11): 895-920.
Haunschild PR. 1993. Interorganizational imitation: The impact of interlocks on corporate acquisition activity. *Administrative Science Quarterly* **38**(4): 564-592.
Haveman HA. 1993. Follow the leader: Mimetic isomorphism and entry into new markets. *Administrative Science Quarterly* **38**(4): 593-627.
He J, Huang J. 2017. Product market competition in a world of cross-ownership: Evidence from institutional blockholdings. *Review of Financial Studies* **30**(8): 2674-2718.
Helfat CE, Lieberman MB. 2002. The birth of capabilities: market entry and the importance of pre-history. *Industrial and corporate change* **11**(4): 725-760.
Hillman AJ, Dalziel T. 2003. Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management Review* **28**(3): 383-396.
Hoberg G, Phillips G. 2010. Product market synergies and competition in mergers and acquisitions: A text-based analysis. *Review of Financial Studies* **23**(10): 3773-3811.
Hoberg G, Phillips G. 2016. Text-based network industries and endogenous product differentiation. *Journal of Political Economy* **124**(5): 1423-1465.
Hong H, Kacperczyk M. 2010. Competition and bias. *The Quarterly Journal of Economics* **125**(4): 1683-1725.
Jung J, Shin T. 2019. Learning not to diversify: The transformation of graduate business education and the decline of diversifying acquisitions. *Administrative Science Quarterly* **64**(2): 337-369.
Kacperczyk M, Sialm C, Zheng L. 2005. On the industry concentration of actively managed equity mutual funds. *Journal of Finance* **60**(4): 1983-2011.
Kang J-K, Luo J, Na HS. 2018. Are institutional investors with multiple blockholdings effective monitors? *Journal of Financial Economics* **128**(3): 576-602.
Kaplan SN, Weisbach MS. 1992. The success of acquisitions: Evidence from divestitures. *Journal of Finance* **47**(1): 107-138.
Karaca-Mandic P, Norton EC, Dowd B. 2012. Interaction terms in nonlinear models. *Health*

Services Research **47**(1pt1): 255-274.
Kennedy RE. 1995. *Strategy Fads and Strategic Positioning: An Empirical Test for Herd Behavior in Prime Time Television Programming*. Division of Research, Harvard Business School.
King DR, Dalton DR, Daily CM, Covin JG. 2004. Meta-analyses of post-acquisition performance: Indications of unidentified moderators. *Strategic Management Journal* **25**(2): 187-200.
Kiss AN, Libaers D, Barr PS, Wang T, Zachary MA. 2020. CEO cognitive flexibility, information search, and organizational ambidexterity. *Strategic Management Journal* **41**(12): 2200-2233.
Kroll M, Walters BA, Wright P. 2008. Board vigilance, director experience, and corporate outcomes. *Strategic Management Journal* **29**(4): 363-382.
Li J, Tang Y. 2010. CEO hubris and firm risk taking in China: The moderating role of managerial discretion. *Academy of Management Journal* **53**(1): 45-68.
Li J, Xia J, Lin Z. 2017. Cross-border acquisitions by state-owned firms: How do legitimacy concerns affect the completion and duration of their acquisitions? *Strategic Management Journal* **38**(9): 1915-1934.
Li K, Qiu B, Shen R. 2018. Organization capital and mergers and acquisitions. *Journal of Financial and Quantitative Analysis* **53**(4): 1871-1909.
Lieberman MB, Asaba S. 2006. Why do firms imitate each other? *Academy of Management Review* **31**(2): 366-385.
Loughran TIM, McDonald B. 2011. When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. *Journal of Finance* **66**(1): 35-65.
Luo Y. 2005. Do insiders learn from outsiders? Evidence from mergers and acquisitions. *The Journal of Finance* **60**(4): 1951-1982.
Makri M, Hitt MA, Lane PJ. 2010. Complementary technologies, knowledge relatedness, and invention outcomes in high technology mergers and acquisitions. *Strategic management journal* **31**(6): 602-628.
Malhotra S, Zhu P, Reus TH. 2015. Anchoring on the acquisition premium decisions of others. *Strategic Management Journal* **36**(12): 1866-1876.
Malmendier U, Tate G. 2008. Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics* **89**(1): 20-43.
Marquis C, Glynn MA, Davis GF. 2007. Community isomorphism and corporate social action. *Academy of Management Review* **32**(3): 925-945.
Masulis RW, Wang C, Xie F. 2007. Corporate governance and acquirer returns. *Journal of Finance* **62**(4): 1851-1889.
Masulis RW, Wang C, Xie F. 2009. Agency problems at dual-class companies. *Journal of Finance* **64**(4): 1697-1727.
Mayer RC, Davis JH, Schoorman FD. 1995. An integrative model of organizational trust. *Academy of management review* **20**(3): 709-734.
McAllister DJ. 1995. Affect-and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of management journal* **38**(1): 24-59.
Miller D, Le Breton-Miller I, Lester RH. 2010. Family ownership and acquisition behavior in publicly-traded companies. *Strategic Management Journal* **31**(2): 201-223.
Mueller PE, Georgakakis D, Greve P, Peck S, Ruigrok W. 2021. The curse of extremes: generalist career experience and CEO initial compensation. *Journal of Management* **47**(8): 1977-2007.
Netter J, Stegemoller M, Wintoki MB. 2011. Implications of data screens on merger and acquisition analysis: A large sample study of mergers and acquisitions from 1992 to 2009. *Review of Financial Studies* **24**(7): 2316-2357.
Oehmichen J, Firk S, Wolff M, Maybuechen F. 2021. Standing out from the crowd: Dedicated institutional investors and strategy uniqueness. *Strategic Management Journal* **42**(6): 1083-1108.
Palley TI. 1995. Safety in numbers: A model of managerial herd behavior. *Journal of Economic Behavior & Organization* **28**(3): 443-450.
Palter RN, Rehm W, Shih J. 2008. Communicating with the right investors. *McKinsey Quarterly* **2**: 64.
Petersen MA. 2008. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* **22**(1): 435-480.

Posen HE, Ross J-M, Wu B, Benigni S, Cao Z. 2023. Reconceptualizing imitation: Implications for dynamic capabilities, innovation, and competitive advantage. *Academy of Management Annals* **17**(1): 74-112.
Rabier MR. 2017. Acquisition motives and the distribution of acquisition performance. *Strategic Management Journal* **38**(13): 2666-2681.
Ragozzino R, Reuer JJ. 2009. Contingent earnouts in acquisitions of privately held targets. *Journal of Management* **35**(4): 857-879.
Savor PG, Lu Q. 2009. Do stock mergers create value for acquirers? *Journal of Finance* **64**(3): 1061-1097.
Scharfstein DS, Stein JC. 1990. Herd behavior and investment. *American Economic Review* **80**(3): 465-479.
Schuler DA, Shi W, Hoskisson RE, Chen T. 2017. Windfalls of emperors' sojourns: Stock market reactions to Chinese firms hosting high-ranking government officials. *Strategic Management Journal* **38**(8): 1668-1687.
Semadeni M, Anderson BS. 2010. The follower's dilemma: Innovation and imitation in the professional services industry. *Academy of Management Journal* **53**(5): 1175-1193.
Seo J, Gamache DL, Devers CE, Carpenter MA. 2015. The role of CEO relative standing in acquisition behavior and CEO pay. *Strategic Management Journal* **36**(12): 1877-1894.
Shi W, Connelly BL, Hoskisson RE. 2017. External corporate governance and financial fraud: Cognitive evaluation theory insights on agency theory prescriptions. *Strategic Management Journal* **38**(6): 1268-1286.
Shi W, Connelly BL, Hoskisson RE, Ketchen Jr DJ. 2020. Portfolio spillover of institutional investor activism: An awareness–motivation–capability perspective. *Academy of Management Journal* **63**(6): 1865-1892.
Shi W, Zhang Y, Hoskisson RE. 2017. Ripple effects of CEO awards: Investigating the acquisition activities of superstar CEOs' competitors. *Strategic Management Journal* **38**(10): 2080-2102.
Shimizu K, Hitt MA. 2005. What constrains or facilitates divestitures of formerly acquired firms? The effects of organizational inertia. *Journal of Management* **31**(1): 50-72.
Shimizu K, Hitt MA, Vaidyanath D, Pisano V. 2004. Theoretical foundations of cross-border mergers and acquisitions: A review of current research and recommendations for the future. *Journal of International Management* **10**(3): 307-353.
Sleptsov A, Anand J, Vasudeva G. 2013. Relational configurations with information intermediaries: The effect of firm-investment bank ties on expected acquisition performance. *Strategic Management Journal* **34**(8): 957-977.
Solomon D, Soltes E. 2015. What are we meeting for? The consequences of private meetings with investors. *Journal of Law and Economics* **58**(2): 325-355.
Swidler S, Trinh T, Yost K. 2019. The Effects of Activist Investors on Firms' Mergers and Acquistions. *Journal of Financial Research* **42**(1): 181-201.
Tandon V, Asgari N, Ranganathan R. 2023. Divestment of relational assets following acquisitions: Evidence from the biopharmaceutical industry. *Strategic Management Journal* **44**(4): 1013-1052.
Tihanyi L, Johnson RA, Hoskisson RE, Hitt MA. 2003. Institutional ownership differences and international diversification: The effects of boards of directors and technological opportunity. *Academy of Management Journal* **46**(2): 195-211.
Vismara S. 2018. Information cascades among investors in equity crowdfunding. *Entrepreneurship Theory and Practice* **42**(3): 467-497.
Wang C, Xie F, Zhu M. 2015. Industry Expertise of Independent Directors and Board Monitoring. *Journal of Financial and Quantitative Analysis* **50**(5): 929-962.
Westphal JD, Bednar MK. 2008. The pacification of institutional investors. *Administrative Science Quarterly* **53**(1): 29-72.
Wiersema M, Ahn A, Zhang Y. 2020. Activist hedge fund success: The role of reputation. *Strategic Management Journal* **41**(13): 2493-2517.
Wright P, Kroll M, Lado A, Van Ness B. 2002. The structure of ownership and corporate acquisition strategies. *Strategic Management Journal* **23**(1): 41-53.
Zhang RX. 2023. Do Managers learn from institutional investors through direct interactions? *Journal of Accounting and Economics* **75**(2): 101554.

TABLE 1A. Descriptive Statistics for Matched Sample

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 Diversifying acquisition	0.09	0.29	1.00																		
2 Investor industry exposure (%)	1.59	2.30	0.10	1.00																	
3 Growth investor industry exposure (%)	0.63	1.30	0.11	0.83	1.00																
4 Value investor industry exposure (%)	0.86	1.26	0.06	0.82	0.43	1.00															
5 Director industry expertise	0.05	0.12	0.19	0.27	0.24	0.20	1.00														
6 Alliance industry exposure (log)	0.01	0.06	0.10	0.11	0.14	0.06	0.15	1.00													
7 Common ownership	0.05	0.23	0.01	0.09	0.06	0.09	0.02	0.02	1.00												
8 Firm size (log)	6.47	1.53	0.12	0.08	–0.02	0.15	0.04	0.04	0.04	1.00											
9 ROA	0.06	0.16	0.08	0.08	0.05	0.10	0.00	0.01	0.01	0.22	1.00										
10 Market-to-book ratio	1.79	1.55	0.05	0.08	0.17	–0.04	0.09	0.07	0.02	–0.24	–0.11	1.00									
11 Financial leverage	0.22	0.23	0.04	–0.03	–0.05	–0.01	0.01	–0.03	–0.01	0.29	–0.02	–0.09	1.00								
12 Cash holding ratio	0.15	0.18	0.03	0.13	0.22	0.00	0.15	0.09	0.03	–0.37	–0.23	0.47	–0.28	1.00							
13 R&D intensity	0.08	0.44	–0.02	0.04	0.11	–0.04	0.05	0.04	0.04	–0.20	–0.48	0.25	–0.04	0.44	1.00						
14 Female director ratio	0.08	0.10	0.02	0.05	0.00	0.07	–0.01	0.00	0.03	0.25	0.04	0.00	0.00	–0.10	–0.02	1.00					
15 Directors appointed with CEO	0.68	0.29	0.02	0.04	0.03	0.04	0.07	0.00	0.01	0.00	–0.03	–0.03	–0.02	0.02	0.03	0.11	1.00				
16 CEO gender	0.03	0.17	–0.02	0.02	0.01	0.00	0.02	–0.01	0.01	0.01	–0.02	0.01	–0.01	0.00	0.04	0.33	0.07	1.00			
17 CEO duality	0.57	0.50	0.04	0.04	0.05	0.03	–0.02	0.01	0.01	0.10	0.09	0.04	0.05	0.02	–0.05	–0.02	–0.25	–0.06	1.00		
18 CEO tenure (log)	1.54	0.85	–0.02	–0.01	–0.02	0.01	–0.08	0.01	0.01	0.00	0.07	–0.06	–0.08	–0.02	–0.05	–0.03	–0.09	–0.06	0.15	1.00	
19 Institutional ownership	0.41	0.33	0.13	0.53	0.43	0.48	0.12	0.05	0.11	0.26	0.23	0.15	0.04	0.13	0.00	0.12	0.06	0.01	0.11	–0.03	1.00

Note: N = 41,484.

TABLE 1B. Descriptive Statistics for Deal-Level Sample

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 CARs [–1, +1]	0.01	0.09	1.00																		
2 Investor industry exposure (%)	2.68	2.87	–0.03	1.00																	
3 Director industry expertise	0.14	0.19	–0.04	0.35	1.00																
4 Alliance industry exposure (log)	0.04	0.16	–0.03	0.09	0.22	1.00															
5 Common ownership	0.09	0.28	–0.07	–0.02	0.07	0.04	1.00														
6 Firm size (log)	7.38	1.94	–0.10	–0.05	0.14	0.21	0.20	1.00													
7 ROA	0.12	0.11	–0.04	–0.04	–0.03	0.03	0.04	0.15	1.00												
8 Market-to-book ratio	2.05	1.35	–0.03	0.07	0.12	0.14	0.01	–0.11	0.11	1.00											
9 Financial leverage	0.23	0.20	0.02	–0.11	–0.08	–0.07	0.01	0.19	0.02	–0.18	1.00										
10 Cash holding ratio	0.16	0.17	–0.03	0.21	0.18	0.12	0.00	–0.21	–0.16	0.29	–0.41	1.00									
11 R&D intensity	0.05	0.16	–0.03	0.14	0.14	0.10	0.01	–0.10	–0.37	0.22	–0.15	0.39	1.00								
12 Female director ratio	0.10	0.10	–0.01	0.00	0.06	0.10	0.07	0.37	0.07	0.06	0.03	–0.03	–0.01	1.00							
13 Directors appointed with CEO	0.71	0.28	0.03	0.03	0.02	–0.03	–0.03	–0.02	0.02	–0.03	0.00	0.05	–0.02	0.10	1.00						
14 CEO gender	0.02	0.15	0.00	–0.01	–0.01	–0.02	0.00	0.02	–0.01	0.02	–0.03	–0.01	–0.03	0.21	0.06	1.00					
15 CEO duality	0.64	0.48	–0.01	–0.06	–0.09	0.01	0.06	0.12	0.04	–0.01	0.03	–0.02	–0.02	0.03	–0.14	–0.06	1.00				
16 CEO tenure (log)	1.55	0.76	–0.01	–0.02	–0.04	–0.01	0.02	–0.01	0.05	0.01	0.03	–0.04	–0.01	–0.06	–0.07	–0.05	0.08	1.00			
17 Institutional ownership	0.67	0.26	–0.06	0.31	0.08	0.01	0.06	0.32	0.22	0.01	–0.04	0.07	–0.01	0.19	0.19	0.01	–0.03	–0.02	1.00		
18 Acquisition experience (log)	0.76	0.66	–0.02	0.00	0.10	0.04	0.00	0.23	0.03	–0.11	0.20	–0.14	–0.07	0.04	0.04	–0.03	0.03	0.01	0.09	1.00	
19 Same state	0.21	0.41	0.03	0.00	0.09	0.06	0.01	0.01	–0.05	0.05	–0.05	0.11	0.09	–0.03	–0.08	0.04	–0.04	–0.03	–0.11	0.01	1.00
20 Tender offer	0.03	0.16	–0.03	0.00	0.04	0.03	0.40	0.08	0.04	0.05	–0.02	0.01	0.08	0.02	–0.03	–0.01	0.06	0.01	0.03	–0.02	0.00
21 Cash deal	0.79	0.41	–0.03	–0.06	–0.02	0.05	–0.06	0.18	0.09	–0.01	0.10	–0.07	–0.02	0.09	–0.02	–0.01	0.03	0.01	0.09	0.04	–0.04
22 Competing bidders	0.01	0.10	–0.01	–0.01	0.02	0.00	0.21	0.05	0.02	0.01	0.02	0.02	0.00	–0.01	–0.01	0.01	0.04	–0.01	0.02	–0.02	0.03
23 Target public status	0.13	0.33	–0.08	–0.02	0.07	0.03	0.81	0.20	0.01	0.03	0.01	–0.01	0.07	0.06	–0.04	0.01	0.05	–0.01	0.01	–0.03	0.02
24 Target industry growth	0.09	0.06	–0.04	0.27	0.11	0.16	0.01	–0.01	–0.03	0.14	–0.11	0.09	0.10	–0.02	–0.10	–0.01	0.08	–0.02	–0.10	–0.15	0.05
25 Target industry ROA	0.12	0.04	0.00	0.13	0.13	0.05	0.02	–0.11	0.12	0.15	–0.05	0.13	0.08	0.00	0.04	0.01	0.00	0.00	0.09	0.06	–0.06
26 Target industry R&D intensity	0.04	0.04	–0.01	0.36	0.22	0.09	0.08	–0.03	0.01	0.16	–0.16	0.22	0.23	0.06	0.05	–0.03	0.03	0.02	0.11	–0.01	–0.02
27 Target industry concentration	0.07	0.05	0.00	–0.45	–0.25	–0.13	0.01	–0.08	0.05	–0.03	0.08	–0.08	–0.05	0.01	0.07	0.05	0.02	0.03	0.03	0.01	–0.07
28 Complementarity	0.03	0.05	–0.03	0.09	0.22	0.01	0.08	0.14	–0.06	0.01	0.02	–0.02	0.06	0.02	–0.04	0.00	–0.01	–0.04	–0.07	0.05	0.12
29 Vertical relatedness	0.06	0.09	0.03	–0.29	–0.16	–0.12	–0.01	–0.05	0.13	–0.09	0.06	–0.18	–0.10	–0.12	0.09	0.00	–0.02	0.03	0.11	–0.04	–0.07

Note: N = 3,256.

TABLE 1B. Descriptive Statistics for Deal-Level Sample (continued)

Variable	20	21	22	23	24	25	26	27	28	29
20 Tender offer	1.00									
21 Cash deal	0.00	1.00								
22 Competing bidders	0.19	–0.04	1.00							
23 Target public status	0.43	–0.05	0.24	1.00						
24 Target industry growth	0.04	–0.01	0.00	0.04	1.00					
25 Target industry ROA	0.04	0.01	0.02	–0.02	0.18	1.00				
26 Target industry R&D intensity	0.08	–0.01	0.02	0.10	0.20	0.35	1.00			
27 Target industry concentration	0.01	0.03	0.02	0.00	–0.22	–0.03	–0.12	1.00		
28 Complementarity	0.03	–0.06	0.02	0.10	0.08	–0.10	0.03	0.00	1.00	
29 Vertical relatedness	0.01	0.06	–0.01	–0.04	–0.29	–0.02	–0.14	0.26	–0.13	1.00

Note: N = 3,256.

TABLE 2. Main Results (Hypotheses 1–4)

Variable	Model 1	Model 2	Model 3	Model 4
	Conditional logistic regressions			OLS regression
	Diversifying acquisition			*CARs* [–1, +1]
Investor industry exposure (%)	0.099		0.125	–0.001
	[0.000]		[0.000]	[0.015]
Growth investor industry exposure (%)		0.192		
		[0.000]		
Value investor industry exposure (%)		0.085		
		[0.150]		
Investor industry exposure (%)			–0.117	
× Director industry expertise			[0.015]	
Director industry expertise	2.868	2.884	3.198	–0.004
	[0.000]	[0.000]	[0.000]	[0.599]
Alliance industry exposure (log)	1.628	1.571	1.655	0.009
	[0.000]	[0.000]	[0.000]	[0.057]
Common ownership	0.075	0.072	0.078	0.002
	[0.674]	[0.679]	[0.659]	[0.835]
Firm size (log)	0.414	0.418	0.415	–0.005
	[0.000]	[0.000]	[0.000]	[0.000]
ROA	0.887	0.863	0.886	–0.043
	[0.000]	[0.000]	[0.000]	[0.002]
Market-to-book ratio	0.068	0.062	0.068	–0.002
	[0.003]	[0.001]	[0.003]	[0.050]
Financial leverage	–0.445	–0.448	–0.453	0.012
	[0.008]	[0.008]	[0.007]	[0.043]
Cash holding ratio	–0.615	–0.633	–0.594	–0.019
	[0.161]	[0.139]	[0.174]	[0.082]
R&D intensity	–0.236	–0.240	–0.224	–0.023
	[0.022]	[0.019]	[0.029]	[0.007]
Female director ratio	0.459	0.497	0.448	0.028
	[0.232]	[0.209]	[0.234]	[0.215]
Directors appointed with CEO	0.220	0.222	0.223	0.003
	[0.043]	[0.041]	[0.037]	[0.400]
CEO gender	–0.327	–0.300	–0.339	–0.000
	[0.106]	[0.157]	[0.095]	[0.993]
CEO duality	0.033	0.039	0.031	0.002
	[0.566]	[0.509]	[0.588]	[0.544]
CEO tenure (log)	–0.011	–0.012	–0.009	–0.001
	[0.765]	[0.747]	[0.797]	[0.486]
Institutional ownership	–0.077	–0.173	–0.105	–0.005
	[0.673]	[0.401]	[0.559]	[0.576]
Acquisition experience (log)				–0.001
				[0.689]
Same state				0.011
				[0.215]
Tender offer				0.003
				[0.621]
Cash deal				–0.004
				[0.159]
Competing bidders				0.016
				[0.182]
Target public status				–0.021
				[0.002]
Target industry growth				0.000
				[0.336]
Target industry ROA				–0.005
				[0.895]
Target industry R&D intensity				0.058
				[0.316]
Target industry concentration				–0.086
				[0.060]

Complementarity				–0.004
				[0.908]
Vertical relatedness				0.003
				[0.907]
Inverse Mills ratio				0.009
				[0.368]
Constant				0.062
				[0.000]
Observations	41,484	41,484	41,484	3,256
Pair fixed effects	Yes	Yes	Yes	No
Industry fixed effects	No	No	No	Yes
Year fixed effects	No	No	No	Yes
Pseudo/adjusted *R*-squared	0.111	0.113	0.112	0.027

Note: p-Vvalues are reported in brackets; standard errors are clustered by target industry; two-tailed tests.

TABLE 3. Robustness Checks using Different Cutoffs for Investor Industry Exposure

Variable	Model 1	Model 2	Model 3	Model 4
	Conditional logistic regressions			OLS regression
	Diversifying acquisition			*CARs* [–1, +1]
Panel A: no cutoff				
Investor industry exposure (%)	0.113		0.132	–0.001
	[0.000]		[0.000]	[0.027]
Growth investor industry exposure (%)		0.157		
		[0.000]		
Value investor industry exposure (%)		0.069		
		[0.035]		
Investor industry exposure (%)			–0.089	
× Director industry expertise			[0.027]	
Constant				0.060
				[0.000]
Control variables	Yes	Yes	Yes	Yes
Pair fixed effects	Yes	Yes	Yes	No
Industry fixed effects	No	No	No	Yes
Year fixed effects	No	No	No	Yes
Observations	41,484	41,484	41,484	3,256
Pseudo/adjusted *R*-squared	0.116	0.117	0.116	0.027
Panel B: 2% cutoff				
Investor industry exposure (%)	0.086		0.112	–0.001
	[0.001]		[0.000]	[0.016]
Growth investor industry exposure (%)		0.128		
		[0.000]		
Value investor industry exposure (%)		0.048		
		[0.316]		
Investor industry exposure (%)			–0.115	
× Director industry expertise			[0.035]	
Constant				0.061
				[0.000]
Control variables	Yes	Yes	Yes	Yes
Pair fixed effects	Yes	Yes	Yes	No
Industry fixed effects	No	No	No	Yes
Year fixed effects	No	No	No	Yes
Observations	41,484	41,484	41,484	3,256
Pseudo/adjusted *R*-squared	0.109	0.110	0.110	0.026

Note: p-values are reported in brackets; standard errors are clustered by target industry; two-tailed tests.

TABLE 4. Robustness Checks using Different Measures of Stock Market Returns (Hypothesis 4)

	Model 1	Model 2	Model 3	Model 4	Model 5
	OLS regressions				Logistic regression
Variable	*CARs* [–1, +1]	*CARs* [–2, +2]	*CARs* [–3, +3]	*BHARs (3-year)*	*Post-acquisition divestiture*
Institutional investor acquisition	0.013				
	[0.027]				
Investor industry exposure (%)		–0.001	–0.001	–0.006	0.098
		[0.053]	[0.026]	[0.028]	[0.006]
Constant	0.081	0.061	0.063	–0.012	–2.403
	[0.019]	[0.000]	[0.000]	[0.802]	[0.001]
Control variables	Yes	Yes	Yes	Yes	Yes
Pair fixed effects	Yes	No	No	No	No
Industry fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	Yes	Yes	Yes	Yes
Observations	807	3,290	3,289	3,313	2,618
Adjusted/pseudo *R*-squared	0.082	0.024	0.026	0.015	0.126

Note: p-values are reported in brackets; standard errors are clustered by target industry; two-tailed tests.

TABLE 5. Tests of Managerial Confidence using CEO Stock Sales and CEO Tone

	Model 1	Model 2	Model 3
Variable	*CEO stock sales*	*CEO positive tone*	*CEO negative tone*
Investor industry exposure (%)	–0.001	0.005	–0.002
	[0.010]	[0.061]	[0.013]
Constant	–0.010	0.013	0.013
	[0.407]	[0.244]	[0.001]
Control variables	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	4,422	399	399
Adjusted *R*-squared	0.074	0.108	0.133

Note: p-values are reported in brackets; standard errors are clustered by target industry; two-tailed tests.

ONLINE APPENDIX

This appendix explains the multistep process used to construct two control variables: *Complementarity* and *Vertical relatedness*.

We obtain the annually updated firm-by-firm pairwise product similarity scores and vertical relatedness scores from Hoberg and his colleagues (Frésard et al., 2020; Hoberg & Phillips, 2010, 2016) (https://hobergphillips.tuck.dartmouth.edu/). To calculate the product similarity score, they first create a word vector for each firm in a given year (P_i) based on the business descriptions in 10-K filing. Each element of P_i indicates whether firm i uses a given word in its product description. Then, they normalize P_i to generate V_i, and the similarity score between two firms i and j is calculated as the dot product of V_i and V_j. To calculate the vertical relatedness score, the authors first create the vertical relatedness matrix V for the commodities based on the dollar value of each commodity produced and purchased by each industry using BEA Input–Output (IO) tables. Next, they compute the textual cosine similarity between firm i and the commodities using the business descriptions in 10-K filings and the descriptions of commodities in BEA's "Detailed Item Output" table, thereby creating the firm to IO commodity correspondence matrix B in each year. The upstream vertical relatedness score between firms i and j is calculated as the i, j-th entry of the product $B \cdot V \cdot B^{T}$.

We use these scores to compute industry relatedness for each acquirer industry–target industry pair (based on Fama–French 48 industries). For each industry pair in a given year, we measure *Complementarity* (*Vertical relatedness*) as the average pairwise product similarity scores (vertical relatedness scores) among all available firm pairs embedded in the industry pair. For example, suppose that industry k_1 has 3 firms and industry k_2 has 5 firms in a given year. The total number of available firm pairs embedded in the industry pair is 15 (= 3 × 5). Therefore, the *Complementarity* (*Vertical relatedness*) between these two industries is the sum of product similarity scores (vertical relatedness scores) divided by 15.