Mutual Fund Centrality and the Remote Acquisitions of Listed Firms in China*

Shenglan Chen [a], Jing Li [b], Xiaoling Liu [c], Cheng Yan [d],

[a] *School of Economics, Zhejiang University of Technology, Hangzhou, Zhejiang, PRC.*

[b] *School of Economics and Management, University of Inner Mongolia, Inner Mongolia, PRC.*

[c] *School of Management, Xiamen University, Xiamen, Fujian, PRC.*

[d] *Essex Business School, University of Essex, Colchester, UK.*

E-mail addresses: chenshenglan@zjut.edu.cn (Shenglan Chen)
lijing@163.com (Jing Li)
liuxiaoling0672@126.com (Xiaoling Liu)
cheng.yan@essex.ac.uk (Cheng Yan)

Professor Shenglan Chen acknowledges financial support from the Zhejiang Provincial Social Science Planning Project of China (No. 21WZQH08Z). We thank Zhejiang Provincial Natural Science Foundation of China under Grant (No: LZ20G010002).

*Corresponding author: Cheng Yan, Essex Business School, University of Essex, Colchester, UK.

Mutual Fund Centrality and the Remote Acquisitions of Listed Firms in China

ABSTRACT

We empirically investigate the effect of the centrality of mutual funds (MFs) on the holding network of each listed firm in cross-province acquisitions in China using a unique dataset covering the 2010–2019 period. We find a positive association between the centrality of MFs and the likelihood and value of cross-province acquisitions made by the listed firm, especially when the central blockholder MF pays corporate site visits, when target firms are difficult for the acquirer to reach, and when the central blockholder MF is low-risk or high-performance. We also show that blockholder centrality improves the market valuation and post-acquisition performance of cross-province acquisitions. These results support the notion that a MF with the largest blockholder centrality increases the value of the listed firms it owns by alleviating information asymmetry in cross-province acquisitions. Collectively, our evidence highlights the advisory role of a blockholder network for listed firms.

Keywords: Mutual Fund; Centrality; Acquisition; China

JEL classification: G30; G32; G34; G38

[Intentionally blank page]

1. Introduction

Cross-regional acquisitions can promote firms to obtain scarce or useful resources, expand business scope, enhance competitiveness, etc., and ultimately enhance corporate value (Cornaggia and Li, 2019; Masulis et al., 2020). However, based on China's unique research background, the domestic market has long been characterized by serious market segmentation (Poncet, 2003, 2005), which results in higher information search costs for cross-province acquisitions than for intra-province acquisitions. Therefore, how to alleviate the information asymmetry faced by the company in the process of cross-province acquisitions and reduce its information search costs, is crucial for the company to conduct cross-province acquisitions smoothly and improve post-merger synergistic value.

Institutional investors play a crucial advisory role in the mergers and acquisitions (M&A) decision-making of firms (Stulz et al., 1990; Chen et al., 2007; Brooks et al., 2018). However, how does the heterogeneity of MFs in terms of information advantage brought by social network affect their advisory role remains ambiguous in theory. On the one hand, recent studies have shown that social network plays an important role in fund managers' portfolio asset allocation and diversification decisions due to the complementarity of information structures (Hwang et al., 2018). As an effective advisor, taking advantage of the information advantage of the network location, institutional investors located in the centre of the network can collect more effective information, and provide more valuable advice to the holding companies. On the other hand, central location within a network may reduce institutional investors ex-ante incentive to acquire costly information, since they can free-ride on other connected investors (Zhu, 2018). This may crowd out information collected by themselves of the central institutional investors, and make the information providing to their holding companies less precise in the aggregate.

As the industry of mutual funds (MFs) in China have grown rapidly in the recent decade[1], and the overlapping phenomenon of fund holdings has become increasingly

[1] In recent years, institutional investors in China have risen rapidly and have gradually become the dominant force in the capital market, playing an increasingly prominent role in corporate decision-making. Among them, as the largest institutional investor in the A-share market, the value of A-shares held by mutual funds has continued to rise, reaching $0.96 trillion by the end of 2021, an increase of 11.68% over the third quarter. It is an important manifestation of the continuous strengthening of the motivation and influence of public funds to participate in the company's decision-making.

prominent[2], the aim of this paper is to examine their potential role as the determinations of cross-province acquisitions in China, which is novel to the existing academic literature. Specifically, when fund managers allocate assets to their portfolios, they have overlapping holdings of the same listed company, that is, they form a co-ownership relationship. Based on this co-ownership relationship, a complex social network relationship is formed between fund managers. We use the different positions of MFs in the holding network of each listed firm to identify the heterogeneity of MFs in terms of information advantage, based on recent work on the intersection of network theory and economics. A standard finding in this literature is that the central location of network can bring information advantage through information-sharing, trust, and cooperation (Cohen et al., 2008; Foroughi, 2018; Crane et al., 2019; He and Li, 2022)[3]. We also rely on insights from social network research that suggests that the centrality can evaluate the position of an individual within a network (Freeman, 1977), and investigate empirically the effect of the centrality of MFs on cross-province acquisitions[4] of the firms held by them in China.

We start our analysis by investigating whether the centrality of a MF (i.e., *Betweenness*, Buchuk et al., 2020) in the holding network of each listed firm in China increases the likelihood and value of the cross-province acquisitions of a firm held by the MF using a unique dataset covering the 2010–2019 period. Controlling for various firm and deal characteristics, the estimates from our baseline regression suggest that the listed firms held by the MFs are more likely to acquire targets from different provinces, and that the deal's value is larger when the centrality of the MF in the holding network is higher. The estimates are both statistically and economically significant. Specifically, when our centrality measure of *Betweenness* value increases by one standard deviation,

[2] In particular, when public funds allocate assets to their investment portfolios, they often have overlapping shareholdings in the same listed company, that is, forming a common shareholding relationship. According to Wind statistics, as of the end of the fourth quarter of 2021, 2,076 A-share listed companies were held by public funds. Among them, Kweichow Moutai is heavily held by 1715 funds; Ningde Times is heavily held by 1676 funds; Oriental Fortune is heavily held by 1045 funds. In addition to the above-mentioned 3 listed companies that are heavily held by multiple funds, there are 11 companies that are heavily held by more than 500 funds at the end of the fourth quarter of 2021.

[3] For example, Cohen et al. (2008) show that mutual fund managers outperform when they are socially connected to their portfolio firms' board members. Foroughi (2018) focuses on the centrality of an activist in its trading network and highlights an "information gathering channel" through which activists may receive valuable information that helps them with their targeting decisions. Crane et al. (2019) find that investors connected through the network of institutional holdings can improve governance by cooperation. He and Li (2022) suggest that social networks reduce information asymmetry around activist campaigns by facilitating information exchange and increasing trust.

[4] We use "acquisitions" instead of "mergers and acquisitions" to improve the flow of this manuscript. Our data include both mergers and acquisitions.

the likelihood that the firm will acquire companies headquartered in other provinces rises by 9.32%.

The centrality of a firm's largest institutional investors and their acquisitions may be jointly determined by firm's unobservable time-varying characteristics. Thus, we rely on the quasi-natural experiment approach to mitigate this endogeneity concern. From 2015 to 2016, there were three large-scale crashes in China's A-share market. In order to stabilize market expectations and maintain the overall security of the financial system, the most notable is the bailout measures launched by the Chinese government, represented by China Securities Finance Corporation (CSF) and Central Huijin Investment Ltd., to directly enter the secondary market to buy or sell stocks (Cheng et al., 2022). This brings an exogenous impact on the position of institutional investors in the network. The difference-in-differences (DID) regressions using the bailout in 2015 as an exogenous shock to the institutional investor network also reveal a qualitatively similar relationship between cross-province acquisitions and blockholder centrality.

We corroborate our findings by running two placebo tests. First, we perform falsification tests using passive index funds and re-estimate the network centrality of the largest index fund investors of the companies from 2010 to 2019. As the connections between index funds are due to a mere replication of a benchmark index, we conjecture that we would not find similar effects. Second, we randomly match companies with the largest institutional investors and use a virtual company's largest institutional investor centrality to examine the impact on the company's cross-province acquisitions. We repeat this process at least 1,000 times to obtain a distribution of estimates. In both placebo tests, the estimates are no longer statistically significant, suggesting that our previous findings are not artificial.

In addition, our findings survive a battery of robustness tests. First, we control for alternative centrality measures, such as the fund geographic network (*GABetweenness*), alumni network (*AlBetweenness*), and job network (*JobBetweenness*). Second, we replace our baseline model with Probit or Tobit models. Third, we restrict our attention to the subsample of equity funds by deleting hybrid funds that hold equity and debts. Fourth, we restrict our attention to the subsample of funds with a below-average fund size. Fifth, we restrict our attention to the subsample of funds with at least a 5% equity stake. Sixth, we further control for fund-level characteristics. Seventh, we replace our baseline model with the lagged model. Lastly, we replace the firm-province-year paired

samples with the firm-year samples.

Having established the relationship between blockholder MF centrality and the cross-province acquisitions of the listed firm held by the MF, we next ask what drives the relationship. We conjecture that the blockholders MF at the central position of a network may help the listed firms alleviate information asymmetry in cross-province acquisitions. We test this hypothesis by regressing the times of visits by the central blockholder on the measure of centrality and find a highly positive association. In addition, the established relationship between cross-province acquisitions and blockholder centrality is intensified in the subsample with non-zero central blockholder visits but diminished in the subsample with zero central blockholder visits.

To further understand the association between blockholder centrality and information asymmetry, we split the firms in our sample based on their respective extent of information asymmetry. Consistent with our conjecture, we find that our baseline results are mainly driven by the subsample of cross-province acquisitions whose target firms are in remote instead of neighboring provinces or by a scenario wherein the number of high-speed rails between the acquirer's and target's province is below the median. In addition, our baseline results are mainly driven by the subsample of cross-province acquisitions when the central blockholder MF has a below-median Morningstar risk rating or an above-median Sharpe ratio. We find no such effect on the counterpart subsamples. This initial evidence supports our conjecture that blockholder centrality alleviates information asymmetry.

One natural follow-up question is whether blockholder centrality improves the post-acquisition performance of cross-province acquisitions. We show that as blockholder centrality increases, both the post-acquisition CAR and post-acquisition ROA increase, and institutional ownership after the cross-province acquisitions increases to a greater degree. In other words, blockholder centrality improves the short- and long-term post-acquisition performance of cross-province acquisitions. These results support the notion that a MF with the largest blockholder centrality increases the value of the listed firms it owns by alleviating information asymmetry among cross-province acquisitions. Collectively, our evidence highlights the advisory role of the blockholder network for listed firms.

We complement existing work and extend it in several directions. First, while the literature assumes that institutional investors in China act independently and deems

them ineffective advisers (e.g., Jiang et al., 2010; Jiang and Kim, 2015; Jiang et al., 2020), we demonstrate that a MF with the largest blockholder centrality increases the value of the listed firms it owns by site visiting them and communicating information relevant to their decision making. This is one step towards opening the "black box" of the advisory role of mutual funds in the decision-making of their holding companies, i.e., cross-province acquisitions. Second, we not only show a positive relationship between institutional ownership and a firm-level attribute, e.g., firm value, but also document a specific channel through which institutional investors positively influence firms, i.e., in cross-province acquisitions. Moreover, we document that this specific channel indeed leads to positive outcomes, i.e., post-acquisition performance.

We also contribute to the literature on the investigation of institutional investor networks and their impact on company's behavior (Foroughi, 2018; Crane et al., 2019; Bajo et al., 2020; Wu et al., 2020). Most studies have assumed that institutional investors are homogeneous; however, there is a lack of research on the heterogeneity of institutional investors and their interactions (Edmans and Holderness, 2017). We expand this field by constructing a dynamic network of institutional investors based on shareholdings, demonstrating information exchanges between institutional investors with heavy holdings, reflecting the interactions among institutional investors, and distinguishing the shareholding of institutional investors from the perspective of network location.

In addition, Bajo et al. (2020) and Wu et al. (2020) are the two studies most similar to ours. Bajo et al. (2020) investigates the influence of institutional investor network on corporate performance, but fails to open the channels; while Wu et al. (2020) emphasizes the supervision role of institutional investors over their holding companies. Completely different from them, we examine the advisory role of institutional investors to their holding companies, and further examine the mechanism of institutional investors' network influencing the investment decisions of companies, opening the black box of institutional investor network influencing corporate performance.

Finally, we contribute to the literature on cross-border M&A (Ahern et al., 2015; Humphery-Jenner et al., 2017; Brooks et al., 2018). There is a small but growing literature on the impact of institutional investors' role in monitoring acquisition decisions (Andriosopoulos and Yang, 2015; Li et al., 2018); however, we focus on the information advisory role of institutional investors. Compared with domestic

acquisitions, the problem of information asymmetry is particularly serious in cross-border M&A (Ragozzino and Reuer, 2011; Jiang et al., 2019). Studies that examine the effectiveness of information in M&A mainly focus on the role of *target* signals while ignoring the importance of the *acquirer* signals (Humphery-Jenner et al., 2017). Based on the information advantage of an *acquirer*, we find that the betweenness centrality of the largest institutional investor of an acquirer has a significant positive impact on its cross-province acquisition behavior. Due to cultural, political, and economic differences between countries, most current investigations on cross-border M&A encounter the serious problem of omitted variables. In contrast, we take cross-province acquisitions in China as the research context to alleviate this problem.

The rest of the paper is organized as follows. Section 2 provides a detailed description of our empirical methodology and data. Section 3 investigates the possible association between centrality of the blockholder and the remote acquisitions of listed firms in China. Section 4 investigates the post-acquisition performance of acquirers. Section 5 concludes the paper.

2. Data and Sample Description

2.1. Data sources and Sample Selection

From the China Stock Market and Accounting Research (CSMAR) database, we obtain data about mutual funds and A-share listed companies during 2010–2019. First, we keep the active open-end mutual funds whose fund type is identified as equity funds and hybrid funds in CSMAR database. Then, we keep the largest 10 stocks in above fund's portfolio, and exclude stocks in the financial and insurance industries based on China Securities Regulatory Commission Industry Classification (2012). Finally, we obtain the M&A events initiated by these listed companies and conduct the following screening process: (1) exclude small transactions in which the deal value is less than 1 million RMB; (2) exclude deals that are not mergers or acquisitions, i.e., repurchases, recapitalizations, spinoffs, self-tender offers, and others; (3) exclude the observations with missing annual financial statement information, stock return data, and deal-level information; (4) exclude the observations with missing the physical location of the firms (i.e., headquarter). Fund holdings data, company acquisitions data, and company financial data come from CSMAR and RESSET.

2.2. Variable Definition

2.2.1. Centrality of MFs

The independent variable of interest is the centrality of MFs. The rationale behind the holdings-based definition of information networks is that the private information possessed by two MF managers who invest large portions of their portfolios in the same stock is likely to be intercorrelated (Jiang, 2010; Crane et al., 2019). That is, if two institutional investors have large portfolio holdings in common, they may be connected, thus forming an institutional investor network (Foroughi, 2018; Crane et al., 2019) in which there is information dissemination. We define connections between institutions using their common holdings in each calendar year. At given time *t*, we define two investors as connected if they both own a large stake (accounting for the top 10 of the fund's net value) in at least one common firm. The definition of a connection between two institutional investors assumes that sharing large common holdings in at least one firm increases the probability of interactions relative to the institutions that do not share such common ownership (Crane et al., 2019). Specifically, based on the MF network constructed by stock holdings every year, the basic element $Path_{bc}$ is defined as:

$Path_{bc}$
- 1 — Fund *b* and Fund *c* hold the same one or more stocks which are the largest 10 stocks in their portfolio in period *t* but do not belong to the same fund company
- 0 — Other

Based on the network of common stock holdings, we use centrality measures from social network analysis (SNA) to create proxies for the position of the fund in the investors' informational network, which represents the degree of information exchange of the fund in the network (El-Khatib et al., 2015; Houston et al., 2018; Bajo et al., 2020). Specifically, we follow Buchuk et al. (2020) and use *Betweenness* to measure network centrality; this global measure depicts how well-situated a node is in terms of the path that it lies on and measures the advantages of a fund as an intermediary within a fund network or the importance of a fund for connecting other funds within a fund network. Therefore, this method assesses the extent to which an institutional investor can act as a bridge between two other groups of institutional investors that are otherwise unlinked or the ability of the institutional investor to control information flows within a network (Freeman, 1977; Newman, 2005). It assigns a higher score to nodes that lie on a larger proportion of the shortest paths linking pairs of other nodes. Specifically, it can be defined as the ratio of the shortest paths between all of the pairs of nodes in the network that pass-through node *a* (deflated by the number of alternative shortest paths).

Formally, the betweenness centrality for fund *a* is calculated as:

$$Betweenness_a = \sum_{a \neq b \neq c} \frac{bet_{bc}(a)}{bet_{bc}} \quad (1)$$

where $bet_{bc}(a)$ is the total number of the shortest paths between funds *b* and *c* passing through *a*, and bet_{bc} is the total number of the shortest paths between nodes *b* and *c*. If a fund lies along the shortest path between every pair of other funds, its *Betweenness* reaches the maximum value. On the contrary, if a fund is isolated or belongs to a fully connected network where every fund lies on the shortest paths between nodes, *Betweenness* equals zero. In our setting, a more central (high *Betweenness*) fund can act as a broker with respect to other funds. This privileged position is likely to allow the fund to disseminate or extract information more easily and control the type of information conveyed. On the one hand, the more central (high *Betweenness*) fund is the only one having access to information from each disconnected subnetwork. On the other hand, the more central (high *Betweenness*) fund can filter and mediate any information that must pass through it between subnetworks.

2.2.2. Cross-province Acquisitions

We focus on two dependent variables in this study. Our first dependent variable is the *CrossMerge* indicator, which equals one if the listed firm acquires at least one firm in another province during year *t* and zero otherwise. The second dependent variable is *CMergeV*, the natural logarithm of the total value of firm *i*'s cross-province acquisitions during year *t*. Given that the institutional investor shareholding data in the CSMAR database may be less reliable before 2010, we start our sample in 2010. Our final sample consists of 222,115 firm-province-year observations and 1,913 unique firms from 2010 to 2019.

2.2.3. Control Variables

Following the literature (Jiang et al., 2019; Chen et al., 2021), we control for a set of firm characteristics that are likely to influence firms' acquisition decisions: size (*Size*), leverage (*Lev*), sales growth (*SaleGrowth*), excess return (*ExReturn*), fixed asset ratio (*FixedAsset*), performance (*ROA*), research and development expenditure (*R&D*), firm value (*Tobin's Q*), and capital expenditures (*CapitalEx*). We define the province of a firm as the province where the firm's headquarters are located. We control for the influence of macro factors in different years by including Year fixed effects. In addition, we control for the influence of unobservable industry characteristics by including

Industry fixed effects. Finally, we control for the influence of unobservable institutional investor characteristics by including MF fixed effects.

We also control for geographic and firm heterogeneity by including Firm × Province paired fixed effects; there are 31 fixed effects for each firm. This way, we can exploit within-firm variation in the province where the firm is headquartered. Notably, these fixed effects can absorb potential acquirer and target location effects and unobservable firm characteristics, including the distances and cultural similarities between the acquirer and target provinces. Finally, we winsorize all continuous variables at the 1st and 99th percentiles. Detailed variable definitions are provided in Table A1.

2.3. Summary Statistics

We use a firm-province paired sample to investigate whether firms with a higher MF centrality have a higher propensity to acquire cross-province targets. Each firm is paired with each of the 31 provinces each year. Table 1 presents the summary statistics of the main variables used in our study. Panel A reports the summary statistics of the firm-province-year observations. The mean of the MF's *Betweenness* is 0.0011, consistent with the literature on centrality (e.g., El-Khatib et al., 2015; Buchuk et al., 2020). There are 0.61% cross-province acquisitions among all of the firm-province-year observations in our sample, consistent with the literature (e.g., Jiang et al., 2019). Over the sample period, there are 1,426 cross-province acquisitions with an average deal value of RMB 15.96 million, approximately 2,465,820 USD under the current exchange rate.

Panel B of Table 1 reports the summary statistics of the deal characteristics based on deal observations. The average *ROA* of the firms that have implemented cross-province acquisitions is 3.90%. Of these cross-province acquisitions, the average 3-day, 5-day, and 7-day cumulative abnormal announcement returns are 0.03%, 0.04%, and 0.05%, respectively.

Panel C of Table 1 reports the summary statistics of MF characteristics based on MF observations. Of these observations, around 89.32% of the MFs increased their holdings of the acquirer after a cross-province acquisition. Specifically, the average increase in the proportion of mutual funds is 3.92%.

[Insert Table 1 about here]

3. Institutional Investor Networks and Cross-province Acquisitions

We begin our analysis by investigating whether the network of largest institutional investors plays a role in a firm's cross-province acquisitions. That is, are firms with a

higher institutional investor centrality more likely to engage in cross-province acquisitions?

3.1. Baseline Results

Following Pool et al. (2012) and Jiang et al. (2019), we use a firm-province paired sample to test the above hypothesis. Specifically, we use firm-province-year observations, where each firm is paired with each of the 31 provinces each year, and estimate the following regression:

$$\begin{aligned} Y_{i,r,p,t} = {} & \beta_0 + \beta_1 Betweenness_{i,p,t} + \beta_2 Size_{i,p,t} + \beta_3 Lev_{i,p,t} + \beta_4 SaleGrowth_{i,p,t} \\ & + \beta_5 ExReturn_{i,p,t} + \beta_6 FixedAsset_{i,p,t} + \beta_7 ROA_{i,p,t} + \beta_8 R\&D_{i,p,t} + \beta_9 Tobin's\ Q_{i,p,t} \\ & + \beta_{10} CapitalEx_{i,p,t} + Year\ fixed\ effect + Industry\ fixed\ effect \\ & + MF\ fixed\ effect + Firm \times Province\ paired\ fixed\ effecct + \varepsilon_{i,p,t} \end{aligned} \quad (2)$$

The dependent variable, $Y_{i,r,p,t}$, measures the cross-province acquisition activities of firm i in province p during year t. We use two measures to capture this: *CrossMerge*, which is 1 if firm i acquires at least one firm in province r ($r \neq p$) during year t, and 0 otherwise, and *CMergeV*, which is the natural logarithm of the total value of firm i's acquisitions in province r ($r \neq p$) during year t. The subscripts r and p indicate the registered provinces of the target firm and the acquirer (i.e., firm i), respectively. The variable of interest is *Betweenness*, the centrality of the largest MF of firm i in year t registered in province p. If the network of the firm's largest MF can facilitate cross-province acquisitions, then we expect the estimate of β_1 to be positive and significant at conventional statistical levels. In all regressions, t-statistics are computed based on the robust standard errors clustered at the firm level (Petersen, 2009).

Table 2 reports the baseline results. The dependent variable is *CrossMerge* in Panel A and *CMergeV* in Panel B. Each panel reports various regressions that differ by their fixed effects. In Column 1, we report the results with Year and Firm × Province paired fixed effects. The coefficient of *Betweenness* is positive and significant at the 1% level (estimated coefficient = 0.2472; t-statistic = 2.7711), suggesting that the firms are more likely to make cross-province acquisitions when the betweenness centrality of their largest MF is larger. The coefficient estimate implies that the incremental effect of *Betweenness* on the propensity to acquire a target headquartered in other provinces is 0.2472. The unconditional probability of making a cross-province acquisition is 0.0061, implying that firms are 9.32% (0.2472 × 0.0023 / 0.0061) more likely to acquire firms headquartered in other provinces when *Betweenness* increases by one standard

deviation. In Columns 2 and 3 of Table 2, we include Industry and Industry × Year fixed effects to control for any time-invariant and time-varying industry-level factors, respectively, that affect the firms' propensity to make cross-province acquisitions. In Column 4 of Table 2, we add MF fixed effects to control for any time-invariant institutional investor-level factors. Different specifications do not qualitatively change our estimates.

Panel B of Table 2 uses *CMergeV* as the dependent variable and presents qualitatively similar results. On average, firms spend more to acquire targets in other provinces when the betweenness centrality of their largest MF is larger. In unreported results, we also attempt to control for institutional ownership and find that our results are largely unaffected; the estimated coefficients for institutional ownership are small and less significant. These results are available upon request[5].

[Insert Table 2 about here]

3.2. Endogeneity

Our findings on the effects of the betweenness centrality of a firm's largest institutional investor on cross-province acquisitions are subject to endogeneity problems. The centrality of a firm's largest institutional investor and their acquisitions may be jointly determined by the firm's unobservable time-varying characteristics. For example, institutional investors at the center of their holding network can self-select into firms with ownership that systematically participates in cross-province acquisitions more often. Thus, we address the potential endogeneity problem above using quasi-natural experiment.

From 2015 to 2016, there were three large-scale crashes in China's A-share market. The stock index fell by 49% in half a year, and the market value was evaporated by about $5.34 trillion. In order to stabilize market expectations and maintain the overall security of the financial system, the Chinese government has launched a number of rescue measures, the most notable of which is the bailout represented by CSF and Central Huijin Investment Ltd. directly entering the secondary market to buy and sell stocks. On June 15, 2015, the A-share market began to experience plummeting and abnormal fluctuations. At the beginning of July 2015, the Chinese government began to enter and rescue the market. Therefore, the shareholding data of bailout first appeared

[5] When the dependent variable is replaced by the number of cross-province acquisitions, *CMergeNO*, the results are still valid.

in the third quarter of 2015 (Cheng et al., 2022).

The bailout in 2015 is not passively investing in index funds, but random buying various stocks and managing positions through active trading. During the bailout, representative funds invested in at least 1,401 stocks, which about 50% of the total listed stocks[6]. As the government rescues the market by buying and selling stocks, it will directly affect the type, quantity and scale of the fund's holdings. This means that when the relevant funds begin to rescue the market, it will have an impact on the network between funds, and thus have an exogenous impact on the position of the fund in the network. At the same time, the bailout is not affected by unobservable factors at the firm level (such as performance, size, and strategy), which meets exogenous conditions[7].

Most importantly, the Chinese government decided to keep much of its bailout operation secret, by disclosing neither the total amount of committed capital nor the bailout's target firms (Chi and Li, 2019). Therefore, according to the characteristics of the bailout and our logic, we select the funds with increased network centrality after bailout as the treatment, and the other funds are the control. Taking 2015 to 2017 as the period after the event occurred, that is, the *Post* is 1, and the *Post* is 0 during 2012 to 2014. We use the DID model to investigate the impact of the bailout on the firm's cross-province acquisitions. The specific model is as follows:

$$\begin{aligned} Y_{i,r,p,t} = {} & \beta_0 + \beta_1 Treat_{i,p} \times Post_{p,t} + \beta_2 Size_{i,p,t} + \beta_3 Lev_{i,p,t} + \beta_4 SaleGrowth_{i,p,t} \\ & + \beta_5 ExReturn_{i,p,t} + \beta_6 FixedAsset_{i,p,t} + \beta_7 ROA_{i,p,t} + \beta_8 R\&D_{i,p,t} + \beta_9 Tobin's\ Q_{i,p,t} \\ & + \beta_{10} CapitalEx_{i,p,t} + Year\ fixed\ effect + Industry\ fixed\ effect \\ & + MF\ fixed\ effect + Firm \times Province\ paired\ fixed\ effecct + \varepsilon_{i,p,t} \end{aligned} \tag{3}$$

where the dependent variable Y is the variable of the firm's cross-province M&A, measured by the *CrossMerge* and *CMergeV*. *Treat* equals one if the betweenness centrality of firm *i*'s largest MF increases in 2015 and zero otherwise. *Post* equals one if the firm-year observation is from 2015 to 2017 and zero from 2012 to 2014. Other control variables are defined in Appendix.

We regressed equation (3) using a fixed-effects model, and the results are shown in Table 3. The dependent variable in column (1) is *CrossMerge*, and the coefficient of

[6] The scale of the Chinese government's rescue of the stock market is very large, which further illustrates the effectiveness of the bailout.

[7] The motivation of the bailout is purely to quickly stabilize the stock price, rather than saving the company from daily operational problems (Cheng et al., 2022).

Treat × *Post* is 0.0022, which is significant at the 5% level. The dependent variable in column (2) is *CMergeV*, and the coefficient of *Treat* × *Post* is 0.0304, which is significant at the 10% level. The results above suggest that network centrality increases a firm's propensity to make cross-province acquisitions and, therefore, mitigates the concern that causality runs in the opposite direction.

[Insert Table 3 about here]

3.3. Robustness

3.3.1. Placebo Tests

We conduct two placebo tests to further show that institutional investors who are at the center of their network may pass relevant information to the firms they hold, increasing the possibility of these firms' acquisitions in other provinces.

First, we follow Agarwal et al. (2015) and build a placebo institutional investor network using index funds. The rationale for using an institutional investor network built by index funds as a placebo is that, by definition, index funds are passive investors whose investment portfolio is a mere replication of a benchmark index and, therefore, less likely to participate in the decision-making of the firms they hold.

Specifically, if two index funds held at least one or more stocks (top 10 stocks in their portfolios) at the same time in the previous period, but the two index funds do not belong to the same fund company, it is considered that the two index funds have a shareholding relationship, and the network of the index fund is the collection of all other funds that have a shareholding relationship with it. We compute the betweenness centrality of the largest index fund investors of the firms and re-examine its impact on the firms' cross-province acquisitions. According to the results reported in Table 4, the insignificant coefficients of *Betweenness* in Columns 1 and 2 show that unlike passive index funds, active MFs are motivated to pass information obtained through their network to the firms they hold.

[Insert Table 4 about here]

Second, although the inclusion of Firm × Province paired fixed effects should control for any omitted time-invariant variables that could drive our estimates of the effect of *Betweenness* on cross-province acquisitions, we run another placebo test using data in which we randomize the paired relationship between a firm and its largest MF to ensure that our coefficient estimates are not capturing some other aspect of the joint distributions of these variables. Specifically, we randomize the company and its largest

institutional investor. After randomly matching companies with their largest institutional investors' betweenness centrality, we regress the betweenness centrality of largest institutional investors of the randomly matched companies on its cross-province acquisitions, and repeat this random process 1,000 times. We then estimate the regressions analogous to those in Column 4 of Table 2 to obtain the coefficient estimates on *Betweenness*.

We plot the distributions of the coefficient estimates on *Betweenness* from the placebo regressions in Figures 1a and 1b with the dependent variables *CrossMerge* and *CMergeV*, respectively. The randomization procedure maintains the original data structure but reshuffles the relationship between firms and their largest MF. Each histogram plots 1,000 simulations and indicates the estimate obtained using actual data. The figure shows that the coefficient estimates from Column 4 of Table 2 are well to the right of the entire distribution of coefficient estimates from the placebo test. Moreover, in Figures 1a and 1b, only 0.3% and 0.1%, respectively, of the random simulated coefficients are greater than the estimated coefficient from the real data. That is, the significant and positive coefficients generated in our main tests can hardly be generated by a randomly matched firm and its largest MF.

[Insert Figure 1 about here]

3.3.2. Alternative Measures of Social Networks

The institutional investor network we build in this paper relies on insights from prior research suggesting that overlapping portfolio positions are correlated with interactions and communications for information between investors (Hong et al., 2005; Pool et al., 2015). There are also other forms of social networks, e.g., geographic (Levine et al., 2020), alumni (Butler and Gurun, 2012), and job networks (Houston et al., 2018), that can promote information exchange and transmission. We ensure that the effects on cross-province acquisitions we find are indeed due to the holding network instead of other forms of social networks by adding the fund geographic (*GABetweenness*), alumni (*AlBetweenness*), and job networks (*JobBetweenness*) to the baseline model.

GNBetweenness is the betweenness centrality of the geographic network of the firm's largest blockholder. Specifically, if the management companies of two funds are located in the same city, then the two funds are connected and form a geographical network of funds. *AlBetweenness* is the betweenness centrality of the alumni network of the firm's largest blockholder. Specifically, if the fund managers of the two funds are alumni from

the same university, then the two funds are connected, forming an alumni network of funds. Meanwhile, *JobBetweenness* is the betweenness centrality of the job network of the firm's largest blockholder. Specifically, if the fund managers of the two funds are employed in the same company, then the two funds are connected, forming a job network of funds. The results are reported in Panels A and B of Table 5 with the dependent variables *CrossMerge* and *CMergeV*, respectively. We control for the influence of geographic network in Column 1, alumni network in Column 2, and job network in Column 3. In Column 4, we further control for the influence of the three social networks simultaneously. The coefficients of *Betweenness* are positive and significant in all columns in Table 5, confirming that the effects on cross-province acquisitions we find are due to the holding network instead of other forms of social networks.

[Insert Table 5 about here]

3.3.3. Other Robustness Tests

(1) *Robustness to Alternative Specifications*. As we have a high dimension of fixed effects, a non-linear model, such as a Probit or Tobit model, is impractical and likely to produce biased estimates due to the incidental parameter problem (Lancaster, 2000). Thus, for robustness, we re-estimate our tests based on a Probit and Tobit model that includes only Industry and Year fixed effects for the dependent variable *CrossMerge* and *CMergeV*, respectively. The results are reported in Column 1 in Panels A and B of Table 6.

(2) *Robustness to Sub-sample Analysis*. Considering that our network is built by institutions' overlapping stock holdings, we restrict our sample to equity funds by removing hybrid (equity and debt) funds and using the network of MFs constructed by equity funds as a sub-sample to investigate the impact of the network of MFs on the firm's cross-province acquisitions. The results are reported in Column 2 in Panels A and B of Table 6. Due to the positive correlation between fund size and centrality (Rossi et al., 2018), one concern is that our results can be explained simply by the more central institution being larger. We rule out the fund size effect by restricting our sample to small-scale funds (i.e., those with size below average) and using the network of MFs constructed by small-scale funds as a sub-sample to investigate the impact of the network of MFs on the firm's cross-province acquisitions. The results are reported in Column 3 in Panels A and B of Table 6.

(3) *Robustness to Alternative Definition of Network Connection*. In the baseline model, we define two institutions in our network to be connected if they overlap in their 10 largest stock holdings. According to Crane et al. (2019), we re-define two institutions in our network to be connected if they each have a large ownership stake (more than 5% of the fund's net worth) in each firm. Then, we re-examine the impact of the network of MFs on the firm's cross-province acquisitions. The results are reported in Column 4 in Panels A and B of Table 6.

(4) *Robustness to Further Controlling for Fund Characteristics*. Although we control for the effect of time-invariant institution-level factors by adding MF fixed effects to the baseline model, our findings in this study may still be affected by time-varying institutional-level factors. Therefore, we further control for fund-level characteristics, including fund age (*FundAge*), fund size (*FundSize*), and fund investment style (*FundStyle*). The results are reported in Column 5 in Panels A and B of Table 6. In addition, we further control the Fund × Year fixed effects in the regression model, thereby controlling for the possible impact of time-varying fund characteristics on the research. After controlling for the Fund × Year fixed effect, the institutional investor network still has a significant positive impact on the firm's cross-province acquisition[8].

(5) *Lagged model*. Referring to Jiang et al. (2019) and Chen et al. (2021), we lag the main explanatory variable *Betweenness* and control variables by one period. The results are reported in Column 6 in Panels A and B of Table 6.

(6) *Firm-year samples*. In the baseline model, we use firm-province-year paired samples. In this section, we examine the impact of MF centrality on cross-province acquisitions using firm-year samples. The results are shown in Column 7 in Panels A and B of Table 6. The results show that even after using the firm-year sample, the MF centrality still has a significant positive impact on the firm's cross-province acquisitions.

The results in Table 6 show that our findings are robust despite using alternative specifications, re-examining with different sub-samples, re-defining the connection between two institutions, controlling for fund characteristics, using lagged model, and using firm-year level samples.

[Insert Table 6 about here]

3.4. Direct Channel: Corporate Site Visits of Institutional Investors

[8] Due to space limitations, we do not present the table for robustness tests controlling for the Fund × Year fixed effect. If necessary, you can request it from us.

In this subsection, we directly test the conjecture that when a firm's largest institutional investor is at the central position of their network, they can obtain more information and pass it to the firms they hold, resulting in more cross-province acquisitions. During corporate site visits, institutional investors can acquire and transmit more useful information by observing a firm's operations on-site or directly communicating with managers (Jiang and Yuan, 2018; Cheng et al., 2019). Therefore, we first examine the effect of the betweenness centrality of MFs on the probability of their site visits to the firms they hold. The results are presented in Panel A of Table 7. The dependent variable, *Visit*, is a dummy variable that equals one if the firm's largest MF visits the firm in year *t* and zero otherwise. The coefficient of *Betweenness* is positive and significant at the 5% level, suggesting that MFs are more inclined to conduct corporate site visits when they gain information from their network.

Then, we examine whether MFs pass information obtained from their network to the firms they hold. We split the sample into two subsamples based on whether *Visit* equals one or zero to examine the effect of the betweenness centrality of a firm's largest MF on cross-province acquisition probabilities (Columns 1 and 2) and acquisition volume (Columns 3 and 4). The results are presented in Panel B of Table 7. The coefficients of *Betweenness* are positive and significant at the 10% level at least in Columns 1 and 3, the groups visited by the largest MFs, while the coefficients of *Betweenness* are insignificant and small in magnitude in Columns 2 and 4, the groups without visits from the largest MFs. These results suggest that through site visits, MFs pass more useful information obtained from their central position in the network by directly communicating with managers.

[Insert Table 7 about here]

3.5. Indirect Channels

In this subsection, we examine the effect of the betweenness centrality of a firm's largest institutional investor on cross-province acquisitions via two potential indirect channels, one on the information demand side, i.e., the acquirers' search cost of information, and the other on the information supply side, i.e., the institutional investors' information quality.

3.5.1. Information Demand Side: Acquirers' Information Search Costs

We first examine how the cost of the acquirers' information search affects our results. Geographic distance may increase the cost of information search, hindering lenders'

ability to acquire information on borrowers (Hollander and Verriest, 2016), analysts' ability to acquire corporate information (O'Brien and Tan, 2015), and acquirers' ability to obtain information on targets (Chakrabarti and Mitchell, 2013). However, the construction of high-speed railways probably has the opposite effect. In addition, as state-owned enterprises enjoy more government subsidies and credit allocations (Song et al., 2011), they may have lower information search costs during remote M&A. Hence, we implement the following three tests.

First, we split the sample based on whether an acquirer's province is adjacent to or remote from the target's province, a reasonable proxy for information asymmetry (Sufi, 2007; Costello, 2013) and information acquisition cost (Butler, 2008; Tian, 2011). When the acquirer's province is adjacent to the target's province, the acquirer's information search cost and knowledge required to properly evaluate the assets and abilities of potential targets is low; thus, the incremental effect of the information from their largest MF is small. A significant coefficient on cross-province acquisitions for firms far from their targets and an insignificant coefficient for firms adjacent to their targets would suggest that the information held by a firm's largest MF is important for cross-province acquisitions when the information asymmetry between acquirers and targets is large. The results are reported in Table 8. Consistent with the finding that the incremental effect of information from the firms' largest MF on cross-province acquisition probabilities (Columns 1 and 2) and acquisition volume (Columns 3 and 4) is larger when acquirers face difficulty in obtaining information and knowledge about potential targets, the coefficient on *Betweenness* is significant at the 5% level and large in magnitude only for Columns 1 and 3, which represent the group in which the acquirer's province is not adjacent to the target's province.

[Insert Table 8 about here]

Second, we use the number of high-speed railways between the acquirer's province and the target's province as a proxy of information asymmetry between acquirers and targets. High-speed rail is a large-scale transportation infrastructure investment launched by China since 2008 to facilitate the flow of information, capital and labor between cities (Lin, 2017). As of 2021, China had 37,900 kilometers of high-speed railways in operation, ranking first in the world and covering nearly 95% of cities with a population of more than one million. According to a World Bank report (China's High Speed Rail Development, 2019/06/06), the opening of high-speed rail has eliminated

the need for short-haul flights and has become the preferred mode of transportation in China. Geographical location is closely related to the degree of information asymmetry, and face-to-face communication will be more efficient, while the opening of high-speed rail will "pull" the geographical distance, which promotes the flow of information and the exchange of ideas by facilitating travel between cities (Zhang and Zhang, 2021).

The opening of the high-speed rail shortens the travel time of the acquirer, makes it easier for them to approach the target, can collect more information on the target party, and reduces the information asymmetry between the acquirer and the target. We split the sample by the median of the proxy. When the number of high-speed rails between the acquirer's and target's province is higher than the median, the search cost is low, and the incremental effect of information from their largest MF is small. The results are reported in Table 9. Consistent with the finding that the incremental effect of information from the firms' largest MF on cross-province acquisition probabilities (Columns 1 and 2) and acquisition volume (Columns 3 and 4) is larger when there are fewer high-speed railways between acquirers and targets, the coefficient on *Betweenness* is significant at least at the 10% level and large in magnitude only in Columns 1 and 3, which represent the group in which the number of high-speed railways between the acquirer's and the target's provinces is below the median.

[Insert Table 9 about here]

Finally, we split the firms according to the nature of their ownership into state-owned and non-state-owned enterprises. When the acquirer is a state-owned enterprise, it receives administrative support from the central and local governments in terms of market access, financing convenience, and property rights arrangements; as a result, its search cost is low, and the incremental effect of information from their largest mutual fund is small. The results are reported in Table 10. Consistent with the finding that the incremental effect of information from a firm's largest MFs on the cross-province acquisition probabilities (Columns 1 and 2) and acquisition volume (Columns 3 and 4) is larger when the acquirer is a non-state-owned enterprise, the coefficient on *Betweenness* is significant at least at the 10% level for the group in which the acquirer is a non-state-owned enterprise.

[Insert Table 10 about here]

3.5.2. Information Supply Side: Institutional Investors' Information Quality

Existing research suggests that institutional investors' information quality may be

positively correlated with their past performance (e.g., Boot et al., 1993; Han and Yang, 2013). Therefore, we use two proxies to measure fund performance. One proxy is the Morningstar risk rating of a fund in the past three years, which is used to measure the downside risk of a fund compared with similar funds. The higher the Morningstar risk rating, the higher the downside risk of the fund, (i.e., poorer fund performance). The other proxy is the Sharpe ratio, which is used to measure the fund's risk-adjusted return. The higher the Sharpe ratio, the better the fund performance.

In the first measurement of fund performance, we split the sample based on whether the Morningstar risk rating is below or above the median. When the Morningstar risk rating is below the median, the ex-ante incentive for the fund to acquire costly information is strong, and the information and knowledge are more reliable and accurate in terms of properly evaluating the assets and abilities of the potential targets for the firms; thus, the incremental effect of information from these outperforming largest mutual funds is larger. A significant (insignificant) coefficient on cross-province acquisitions for the firms who's largest MFs outperform (underperform) suggest that the information of the firm's largest MF is important for cross-province acquisitions when the reliability and accuracy of information is high. The results are reported in Table 11. Consistent with the observation that the incremental effect of information from the firms' largest MF on cross-province acquisition probabilities (Columns 1 and 2) and acquisition volume (Columns 3 and 4) is larger when the information and knowledge from the largest MF are more reliable and accurate, the coefficient on *Betweenness* is significant at the 5% level and large in magnitude only in Columns 1 and 3, which represent the group in which the reliability and accuracy of information from the largest MF is higher.

[Insert Table 11 about here]

In the second measurement of fund performance, we split the sample into two subsamples based on whether a MF's Sharpe ratio is above the median. If the MF has a Sharpe ratio above the median, the reliability and accuracy of information provided by the MF should be higher than that of its counterparts, and the incremental effect of information from the firm's largest MF should be larger. The results are reported in Table 12. Consistent with the larger incremental effect of information from firms' largest MFs on cross-province acquisition probabilities (Columns 1 and 2) and acquisition volume (Columns 3 and 4) when acquirers obtain higher-quality

information from their largest MFs, the coefficient on *Betweenness* is significant at the 5% level and large in magnitude only in Columns 1 and 3, which represent the group in which the acquirers can obtain higher-quality information from their largest MFs.

[Insert Table 12 about here]

4. Market Valuation and Post-acquisition Performance

With robust evidence that the betweenness centrality of a firm's largest institutional investor can result in higher cross-province acquisition probabilities and acquisition volume, we next investigate the stock market reactions and incremental performance related to these deals. If a firm engages in these deals to exploit the information of its largest institutional investor obtained via its central position, then the firm's market valuation and post-acquisition performance should be better if the betweenness centrality of its largest institutional investor is larger, and the largest institutional investors will increase their holdings of the firm.

4.1. Market Valuation: Acquirer Announcement Returns

If the market is efficient, changes in the market value of an acquisition can be used to indicate whether the deal creates or destroys value (Andrade et al., 2001; Devos et al., 2009). To this end, we use the market model of Brown and Warner (1985) to calculate the firm's cumulative abnormal return of 3 day [*CAR (-1, 1)*], 5 days [*CAR (-2, 2)*], and 7 days [*CAR (-3, 3)*] around the acquisition announcement date. We estimate the market model using market return as the benchmark and data over the 90-day period ending 60 days before the announcement date. The unit of observation in this analysis is at the deal level.

Then, we estimate multiple regressions of the acquirer's announcement return on *Betweenness* while controlling for other acquirer and deal characteristics (Jiang et al., 2019; Chen et al., 2021). The results are displayed in Panel A of Table 13. From Columns 1 to 3, the coefficients of *Betweenness* are positive and significant at the 5% level.

4.2. Long-term: Acquirer Return on Assets

Next, we examine the effect of the betweenness centrality of a firm's largest MF on the long-term performance of the acquirer after acquisition. We use the acquirer's return on assets in years *t+1*, *t+2*, and *t+3* as proxy of the long-term performance of the acquirer after acquisition. The results are displayed in Panel B of Table 13. From Columns 1 to 3, the coefficients of *Betweenness* are positive and significant at least at the 5% level.

4.3. Post-deal Changes in Institutional Investors Shareholding

Then, we investigate the effects of cross-province acquisitions in terms of changes in MFs' shareholdings. If a firm obtains better post-acquisition performance through the information of its largest MF, then the MF increases the weight of the firm in its investment portfolio. To this end, we examine the effect of the betweenness centrality of a firm's largest MF on its investment decisions. The results are displayed in Panel C of Table 13. In Column 1, the dependent variable is *OwnershipDum*, defined as the dummy variable of whether MFs increase their holdings. In Column 2, the dependent variable is *ΔOwnership*, defined as the proportion of MFs that increase their holdings. The coefficients of *Betweenness* are positive and significant at the 1% level in both columns.

The results in Table 13 show that firms exploit the information of their largest MF obtained from the central position to engage in cross-province acquisitions; therefore, the firms' market valuation and long-term acquisition performances are better, and their largest MFs will increase their holding of firms when the betweenness centrality of their largest MF is larger.

[Insert Table 13 about here]

5. Concluding Remarks

In this paper, we focus on the ongoing debate about institutional investors in China and their impact on the Chinese listed firms they hold. We contribute to a previously unexplored area in the literature by empirically examining the effect of the centrality of MFs in the holding network of each listed firm on cross-province acquisitions in China by alleviating information asymmetry. Using a large sample of Chinese public listed firms during 2010–2019, we find a positive association between the blockholder centrality of MF and both the likelihood and the value of cross-province acquisitions in China by the listed firms they hold.

Our main results are robust after controlling for potential endogeneity, by using the bailout in 2015 as an exogenous shock to the blockholder's network. The positive relationship between a blockholder's centrality of MF and the cross-province acquisitions by the listed firms it holds is mainly driven by information asymmetry alleviation. We further show that our baseline results are mainly driven by the subsample of central blockholders who have non-zero visits to the listed firms it holds or the subsample of cross-province acquisitions in which the target firms are in remote

rather than neighboring provinces or when the number of high-speed railways between the acquirer's province and target's province is below the median. Our baseline results are also mainly driven by the subsample of cross-province acquisitions wherein the central blockholder MF has a Morningstar risk rating below the median or a Sharpe ratio above the median. We find no such effect in the counterpart subsamples. In addition, we show that the blockholder centrality improves the market valuation and post-acquisition performance of cross-province acquisitions. Our findings survive a battery of robustness tests.

While the literature assumes that institutional investors in China act independently and deems them ineffective advisers (e.g., Jiang et al., 2010; Jiang and Kim, 2015; Jiang et al., 2020). Our results support the notion that a MF with the largest blockholder centrality increases the value of the listed firms it owns by alleviating information asymmetry among cross-province acquisitions, and provide evidence to the advisory role of the blockholder network for listed firms. This is one step towards opening the "black box" of the advisory role of mutual funds in the decision-making of their holding companies, i.e., cross-province acquisitions.

These findings enrich our understanding of the Chinese equity market, which is the second largest in the world, and shed light on how external monitoring mechanisms interact with a firm's internal governance to mitigate information asymmetry. One possible caveat is that, due to data availability, we cannot control for the characteristics of the target firms, as most of them are private firms.

References

Agarwal, V., Mullally, K. A., Tang, Y., Yang, B., 2015. Mandatory portfolio disclosure, stock liquidity, and mutual fund performance. *Journal of Finance*, 70(6), 2733–2776.

Ahern, K. R., Daminelli, D., Fracassi, C., 2015. Lost in translation? The effect of cultural values on mergers around the world. *Journal of Financial Economics*, 117(1), 165–189.

Andrade, G., Mitchell, M., Stafford, E., 2001. New evidence and perspectives on mergers. *Journal of Economic Perspectives*, 15(2), 103–120.

Andriosopoulos, D., Yang, S., 2015. The impact of institutional investors on mergers and acquisitions in the United Kingdom. *Journal of Banking & Finance*, 50, 547–561.

Bajo, E., Croci, E., Marinelli, N., 2020. Institutional investor networks and firm value. *Journal of Business Research*, 112, 65–80.

Boot, A. W., Greenbaum, S. I., Thakor, A. V., 1993. Reputation and discretion in financial contracting. *American Economic Review*, 83(5), 1165–1183.

Brooks, C., Chen, Z., Zeng, Y., 2018. Institutional cross-ownership and corporate strategy: The case of mergers and acquisitions. *Journal of Corporate Finance*, 48, 187–216.

Brown, S. J., Warner, J. B., 1985. Using daily stock returns: The case of event studies. *Journal of Financial Economics*, 14(1), 3–31.

Buchuk, D., Larrain, B., Prem, M., Urzúa Infante, F., 2020. How do internal capital markets work? Evidence from the great recession. *Review of Finance*, 24(4), 847–889.

Butler, A. W., 2008. Distance still matters: Evidence from municipal bond underwriting. *Review of Financial Studies*, 21(2), 763–784.

Butler, A. W., Gurun, U. G., 2012. Educational networks, mutual fund voting patterns, and CEO compensation. *Review of Financial Studies*, 25(8), 2533–2562.

Chakrabarti, A., Mitchell, W., 2013. The persistent effect of geographic distance in acquisition target selection. *Organization Science*, 24(6), 1805–1826.

Chen, D., Gao, H., Ma, Y., 2021. Human capital-driven acquisition: Evidence from the inevitable disclosure doctrine. *Management Science,* 67(8), 4643–4664.

Chen, X., Harford, J., Li, K., 2007. Monitoring: Which institutions matter? Journal of Financial Economics, 86(2), 279–305.

Cheng, M., Jin, L., Li, Z., Lin, B., 2022. The effectiveness of government stock purchase during market crash: Evidence from China. *Pacific-Basin Finance Journal*, 71, 101706.

Cheng, Q., Du, F., Wang, B. Y., Wang, X., 2019. Do corporate site visits impact stock prices? *Contemporary Accounting Research*, 36(1), 359–388.

Chi, Y., Li, X., 2019. Beauties of the emperor: An investigation of a Chinese government bailout. *Journal of Financial Markets*, 44, 42−70.

Cohen, L., Frazzini, A., & Malloy, C. 2008. The small world of investing: Board connections and mutual fund returns. Journal of Political Economy, 116(5), 951−979.

Cornaggia, J., Li, J. Y., 2019. The value of access to finance: Evidence from M&As. *Journal of Financial Economics*, 131(1), 232−250.

Costello, A. M., 2013. Mitigating incentive conflicts in inter-firm relationships: Evidence from long-term

supply contracts. *Journal of Accounting and Economics*, 56(1), 19–39.

Crane, A. D., Koch, A., Michenaud, S., 2019. Institutional investor cliques and governance. *Journal of Financial Economics*, 133(1), 175–197

Devos, E., Kadapakkam, P. R., Krishnamurthy, S., 2009. How do mergers create value? A comparison of taxes, market power, and efficiency improvements as explanations for synergies. *Review of Financial Studies*, 22(3), 1179–1211.

Edmans, A., Holderness, C. G., 2017. Blockholders: A survey of theory and evidence. *Handbook of the Economics of Corporate Governance*, 1, 541–636.

El-Khatib, R., Fogel, K., Jandik, T., 2015. CEO network centrality and merger performance. *Journal of Financial Economics,* 116(2), 349–382.

Foroughi, P., 2018. Hedge fund activists' network and information flows. Available at SSRN: http://dx.doi.org/10.2139/ssrn.2875369.

Freeman, L. C., 1977. A set of measures of centrality based on betweenness. *Sociometry*, 35−41.

Han, B., Yang, L., 2013. Social networks, information acquisition, and asset prices. *Management Science*, 59(6), 1444–1457.

He, Y. E., and Li, T. 2022. Social networks and hedge fund activism. Review of Finance, 26(5), 1267–1308.

Hollander, S., Verriest, A., 2016. Bridging the gap: the design of bank loan contracts and distance. *Journal of Financial Economics*, 119(2), 399–419.

Hong, H., Kubik, J. D., Stein, J. C., 2005. Thy neighbor's portfolio: Word-of-mouth effects in the holdings and trades of money managers. *Journal of Finance*, 60(6): 2801–2824.

Houston, J. F., Lee, J., Suntheim, F., 2018. Social networks in the global banking sector. *Journal of Accounting and Economics*, 65(2-3), 237–269.

Humphery-Jenner, M., Sautner, Z., Suchard, J. A., 2017. Cross-border mergers and acquisitions: The role of private equity firms. *Strategic Management Journal*, 38(8), 1688–1700.

Hwang, C. Y., Titman, S., Wang, Y., 2018. Is it who you know or what you know? Evidence from IPO allocations and mutual Fund performance. *Journal of Financial and Quantitative Analysis*, 53(6): 2491−2523.

Jiang, F., Jiang, Z., Kim, K. A., 2020. Capital markets, financial institutions, and corporate finance in China. *Journal of Corporate Finance*, 63, 101309.

Jiang, F., Kim, K. A., 2015. Corporate governance in China: A modern perspective. *Journal of Corporate Finance,* 32(3), 190–216.

Jiang, F., Qian, Y., Yonker, S. E., 2019. Hometown biased acquisitions. *Journal of Financial and Quantitative Analysis*, 54(5), 2017–2051.

Jiang, G., Lee, C. M. C., Yue, H., 2010. Tunneling through intercorporate loans: The China experience. *Journal of Financial Economics*, 98(1), 1–20.

Jiang, H., 2010. Institutional investors, intangible information, and the book-to-market effect. *Journal of Financial Economics,* 96(1), 98–126.

Jiang, X., Yuan, Q., 2018. Institutional investors' corporate site visits and corporate innovation. *Journal of Corporate Finance*, 48, 148–168.

Lancaster, T., 2000. The incidental parameter problem since 1948. *Journal of Econometrics*, 95(2), 391–413.

Levine, R., Lin, C., Wang, Z., 2020. Bank networks and acquisitions. *Management Science*, 66(11), 5216–5241.

Li, K., Liu, T., Wu, J., 2018. Vote avoidance and shareholder voting in mergers and acquisitions. *Review of Financial Studies*, 31(8), 3176–3211.

Lin, Y., 2017. Travel costs and urban specialization patterns: Evidence from China's high speed railway system. *Journal of Urban Economics*, 98, 98−123.

Masulis, R. W., Wang, C., Xie, F., 2020. Employee-manager alliances and shareholder returns from acquisitions. *Journal of Financial and Quantitative Analysis*, 55(2), 473−516.

Newman, M. E., 2005. A measure of betweenness centrality based on random walks. *Social Networks*, 27(1), 39−54.

O'Brien, P. C., Tan, H., 2015. Geographic proximity and analyst coverage decisions: Evidence from IPOs. *Journal of Accounting and Economics*, 59(1), 41–59.

Petersen, M. A., 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22(1), 435–480.

Poncet, S., 2003. Measuring Chinese domestic and international integration. *China Economic Review*, 14(1), 1−21.

Poncet, S., 2005. A fragmented China: Measure and determinants of Chinese domestic market disintegration. *Review of International Economics*, 13(3), 409−430.

Pool, V. K., Stoffman, N., Yonker, S. E., 2012. No place like home: Familiarity in mutual fund manager portfolio choice. *Review of Financial Studies*, 25(8), 2563–2599.

Pool, V. K., Stoffman, N., Yonker, S. E., 2015. The people in your neighborhood: Social interactions and mutual fund portfolios. *Journal of Finance*, 70(6), 2679–2732.

Ragozzino, R., Reuer, J. J., 2011. Geographic distance and corporate acquisitions: signals from IPO firms. *Strategic Management Journal*, 32(8), 876–894.

Rossi, A. G., Blake, D., Timmermann, A., Tonks, I., Wermers, R., 2018. Network centrality and delegated investment performance. *Journal of Financial Economics*, 128(1), 183–206.

Song, Z., Storesletten, K., Zilibotti, F., 2011. Growing Like China. *American Economic Review*, 101(1), 196–233.

Stulz, R. M., Walkling, R. A., Song, M. H., 1990. The distribution of target ownership and the division of gains in successful takeovers. *Journal of Finance*, 45(3), 817−833.

Sufi, A., 2007. Information asymmetry and financing arrangements: Evidence from syndicated loans. *Journal of Finance*, 62(2), 629–668.

Tian, X., 2011. The causes and consequences of venture capital stage financing. *Journal of Financial Economics*, 101(1), 132–159.

Wu, X., Wan, H., Skolnik, R., 2020. Institutional Investors and Blockholder Tunneling in China: The Impact of Firm Characteristics and Institutional Investor Centrality. *International Review of Accounting, Banking & Finance*, 12(2), 35–55.

Zhang, L., Zhang, H., 2021. Can high speed railway curb tunneling? Evidence from the independent

directors' monitoring effect in China. *Pacific-Basin Finance Journal*, 67, 101559.

Zhu, A. 2018. Social connections and information production: Evidence from mutual fund portfolios and performance. Available at SSRN 2831746.

Table 1: Summary Statistics of the Variables Used in This Study

The sample consists of 222,115 firm-province-year paired observations of Chinese listed firms from 2010 to 2019. All continuous variables are winsorized at the 1% and 99% levels to mitigate the effect of outliers. The definitions of the variables are listed in Table A1.

Panel A: Firm-Province-Year Observations								
	N	Mean	SD	Min	Q1	Median	Q3	Max
Betweenness	222,115	0.0011	0.0023	0.0000	0.0001	0.0004	0.0011	0.0342
CrossMerge	222,115	0.0061	0.0781	0.0000	0.0000	0.0000	0.0000	1.0000
CMergeV	222,115	0.1480	1.6713	0.0000	0.0000	0.0000	0.0000	25.1020
Size	222,115	22.5913	1.3508	19.0751	21.6225	22.4086	23.3773	28.6365
Lev	222,115	0.4354	0.1968	0.0209	0.2805	0.4339	0.5857	0.9870
SaleGrowth	222,115	0.3926	5.5805	-0.9744	0.0145	0.1420	0.3117	363.0683
ExReturn	222,115	0.0843	0.4583	-1.1765	-0.1893	-0.0082	0.2414	5.6016
FixedAsset	222,115	0.2160	0.1531	0.0002	0.0980	0.1835	0.3026	0.8758
ROA	222,115	-0.0041	0.0865	-5.0123	-0.0140	-0.0006	0.0110	0.8036
R&D	222,115	0.0219	0.0233	0.0000	0.0070	0.0175	0.0291	0.5818
Tobin's Q	222,115	2.2543	1.6019	0.7110	1.3119	1.7891	2.6257	31.4002
CapitalEx	222,115	0.0509	0.0473	0.0000	0.0178	0.0369	0.0690	0.6419
Visit	214,148	0.4971	0.5000	0.0000	0.0000	0.0000	1.0000	1.0000
Panel B: Deal Observations								
	N	Mean	SD	Min	Q1	Median	Q3	Max
ROA	3,146	0.0390	0.0591	-0.6936	0.0175	0.0384	0.0653	0.2964
CAR1	3,162	0.0003	0.0058	-0.0770	0.0000	0.0000	0.0000	0.1291
CAR2	3,162	0.0004	0.0069	-0.0905	0.0000	0.0000	0.0000	0.0980
CAR3	3,162	0.0005	0.0079	-0.1231	0.0000	0.0000	0.0000	0.1146
Panel C: Mutual Fund Observations								
	N	Mean	SD	Min	Q1	Median	Q3	Max
OwnershipDum	1,189	0.8932	0.3090	0.0000	1.0000	1.0000	1.0000	1.0000
△Ownership	1,189	3.9182	3.1476	-4.9000	1.6300	3.9700	6.1700	11.1200

Table 2: Effect of the Firm's Largest Mutual Fund Centrality on Cross-province Acquisitions
This table reports how the centrality of a firm's largest mutual fund affects the firm's cross-province acquisitions. The dependent variable of panel A, *CrossMerge*, is a dummy variable that equals one if the firm has cross-province acquisitions in year *t* and zero otherwise. The dependent variable of panel B, *CMergeV*, is the value of the cross-province acquisitions in year *t*. *Betweenness* represents the betweenness centrality of the largest mutual fund of the firm in year *t*. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: *CrossMerge*				
	Dependent Variable: $CrossMerge_t$			
	(1)	(2)	(3)	(4)
Betweenness	0.2472***	0.2416***	0.2370***	0.2253**
	(2.7711)	(2.7281)	(2.6500)	(2.2496)
Size	0.0013**	0.0014**	0.0011	0.0016**
	(2.0229)	(2.1202)	(1.5219)	(2.0155)
Lev	0.0010	0.0006	0.0004	0.0022
	(0.4293)	(0.2408)	(0.1550)	(0.8038)
SaleGrowth	-0.0000***	-0.0000***	-0.0000***	-0.0001***
	(-5.3692)	(-2.7863)	(-2.8047)	(-4.8333)
ExReturn	0.0018***	0.0018***	0.0017***	0.0017***
	(4.0439)	(4.0598)	(3.6988)	(3.6645)
FixedAsset	-0.0082**	-0.0082**	-0.0084**	-0.0115***
	(-2.5349)	(-2.4790)	(-2.5370)	(-2.9990)
ROA	0.0010	0.0006	-0.0002	0.0008
	(0.5738)	(0.4051)	(-0.1178)	(0.4830)
R&D	-0.0523***	-0.0493**	-0.0457**	-0.0375*
	(-2.8077)	(-2.5783)	(-2.3766)	(-1.9260)
Tobin's Q	0.0003	0.0003	0.0002	0.0002
	(1.5875)	(1.6147)	(0.8231)	(0.9684)
CapitalEx	-0.0089	-0.0085	-0.0081	-0.0083
	(-1.5342)	(-1.4315)	(-1.4474)	(-1.2699)
Constant	-0.0223	-0.0243	-0.0157	-0.0281
	(-1.4880)	(-1.5872)	(-0.9868)	(-1.5715)
Year fixed effect	Yes	Yes	No	Yes
Industry fixed effect	No	Yes	No	Yes
Industry × Year fixed effect	No	No	Yes	No
MF fixed effect	No	No	No	Yes
Firm × Province paired fixed effect	Yes	Yes	Yes	Yes
N	222,115	222,115	222,115	222,115
R-squared	0.269	0.269	0.270	0.272
Panel B: *CMergeV*				
	Dependent Variable: $CMergeV_t$			
	(1)	(2)	(3)	(4)
Betweenness	4.6364**	4.5943**	4.6400**	4.2418**
	(2.5500)	(2.5390)	(2.5281)	(2.0986)
Size	-0.0061	-0.0014	-0.0124	0.0019
	(-0.3986)	(-0.0926)	(-0.7849)	(0.1088)
Lev	0.0676	0.0546	0.0529	0.0713
	(1.3172)	(1.0594)	(1.0148)	(1.1925)
SaleGrowth	-0.0005	-0.0004	-0.0005	-0.0007
	(-1.3737)	(-0.9852)	(-1.3040)	(-1.0247)
ExReturn	0.0418***	0.0416***	0.0413***	0.0388***
	(4.4999)	(4.4790)	(4.2685)	(3.9348)
FixedAsset	-0.0948	-0.0938	-0.0819	-0.1699**
	(-1.3842)	(-1.3605)	(-1.1703)	(-2.1343)
ROA	0.0261	0.0191	0.0040	0.0184
	(0.7187)	(0.5466)	(0.1158)	(0.4975)
R&D	-0.6249	-0.5573	-0.5093	-0.5044
	(-1.3764)	(-1.1319)	(-1.0829)	(-0.8613)
Tobin's Q	0.0068	0.0073	0.0034	0.0053
	(1.5214)	(1.5971)	(0.7747)	(1.0005)
CapitalEx	-0.2556**	-0.2411**	-0.2388**	-0.2187*
	(-2.2625)	(-2.0930)	(-2.1323)	(-1.7787)
Constant	0.2784	0.1751	0.4283	0.1121
	(0.8058)	(0.5050)	(1.1997)	(0.2808)

Year fixed effect	Yes	Yes	No	Yes
Industry fixed effect	No	Yes	No	Yes
Industry × Year fixed effect	No	No	Yes	No
MF fixed effect	No	No	No	Yes
Firm × Province paired fixed effect	Yes	Yes	Yes	Yes
N	222,115	222,115	222,115	222,115
R-squared	0.290	0.290	0.291	0.293

Table 3: Quasi-natural Experiment Approach

This table uses the bailout in 2015 as a quasi-natural experiment to examine the impact of the bailout on cross-province acquisitions. *Treat* equals one if the betweenness centrality of firm *i*'s largest MF increases in 2015 and zero otherwise. *Post* equals one if the firm year observation is from 2015 to 2017 and zero from 2012 to 2014. The dependent variables in columns (1) and (2) are *CrossMerge* and *CMergeV*. All regressions control for Industry, Year, Institutional, and Firm × Province paired fixed effects. We report t-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable:	$CrossMerge_t$	$CMergeV_t$
	(1)	(2)
Treat × *Post*	0.0022**	0.0304*
	(2.4215)	(1.6906)
Size	0.0015*	0.0012
	(1.9298)	(0.0692)
Lev	0.0022	0.0706
	(0.7926)	(1.1816)
SaleGrowth	-0.0001***	-0.0008
	(-4.7597)	(-1.0495)
ExReturn	0.0018***	0.0396***
	(3.7534)	(4.0050)
FixedAsset	-0.0116***	-0.1720**
	(-3.0245)	(-2.1596)
ROA	0.0009	0.0192
	(0.5111)	(0.5175)
R&D	-0.0375*	-0.5033
	(-1.9119)	(-0.8501)
Tobin's Q	0.0002	0.0051
	(0.9084)	(0.9609)
CapitalEx	-0.0084	-0.2197*
	(-1.2914)	(-1.7856)
Constant	-0.0269	0.1260
	(-1.5006)	(0.3152)
Year fixed effect	Yes	Yes
Industry fixed effect	Yes	Yes
MF fixed effect	Yes	Yes
Firm × Province paired fixed effect	Yes	Yes
N	222,115	222,115
R-squared	0.272	0.293

Table 4: Placebo Test

This table reports the baseline results using a fictitious network of mutual funds. Specifically, we use index funds as mutual funds of the company, re-estimate the network centrality of the largest index fund investors of the company from 2010 to 2019, and investigate its impact on the company's cross-province acquisitions. The dependent variable of the first data column is *CrossMerge*, and the dependent variable of the second data column is *CMergeV*. *Betweenness* is the betweenness centrality of the largest mutual fund (index fund) of the firm in year *t*. All regressions control for Industry, Year, Institutional, and Firm × Province paired fixed effects. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable:	$CrossMerge_t$	$CMergeV_t$
	(1)	(2)
Betweenness (index fund)	-0.0004	-0.1555
	(-0.0035)	(-0.0903)
Size	-0.0026	-0.0399
	(-1.4416)	(-1.1555)
Lev	0.0030	-0.0351
	(0.3972)	(-0.2530)
SaleGrowth	-0.0001***	-0.0012***
	(-5.1952)	(-5.0489)
ExReturn	0.0033***	0.0616***
	(3.4157)	(3.3519)
FixedAsset	-0.0138	-0.2669*
	(-1.6260)	(-1.7876)
ROA	-0.0001	-0.0010
	(-0.0390)	(-0.0139)
R&D	-0.1076**	-1.5359
	(-2.0032)	(-1.5812)
Tobin's Q	0.0001	0.0052
	(0.2650)	(0.6086)
CapitalEx	-0.0011	-0.1849
	(-0.0592)	(-0.5460)
Constant	0.0741*	1.1914
	(1.7250)	(1.4718)
Year fixed effect	Yes	Yes
Industry fixed effect	Yes	Yes
MF fixed effect	Yes	Yes
Firm × Province paired fixed effect	Yes	Yes
N	68,727	68,727
R-squared	0.326	0.321

Table 5: Alternative Measures of Network Centrality

This table rules out the alternative explanation of the impact of the mutual fund network on a firm's cross-province acquisitions. The dependent variable of Panel A is *CrossMerge*. In Columns 1, 2, 3, and 4 of Panel A, we respectively control for the influence of the fund geographic network (*GABetweenness*), the fund alumni network (*AlBetweenness*), the fund job network (*JobBetweenness*), and all three types of network simultaneously. The dependent variable of Panel B is *CMergeV*. *Betweenness* is the betweenness centrality of the largest mutual fund of the firm in year *t*. All regressions control for Industry, Year, Institutional, and Firm × Province paired fixed effects. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: *CrossMerge*				
	Dependent Variable: $CrossMerge_t$			
	(1) Geographic Network	(2) Alumni Network	(3) Job Network	(4) Other Network
Betweenness	0.2088**	0.2170**	0.2349**	0.2022*
	(1.9853)	(2.1157)	(2.2888)	(1.8788)
GNBetweenness	-10.7959			-33.9342
	(-0.1372)			(-0.4032)
AlBetweenness		0.0043*		0.0039
		(1.8553)		(1.6232)
JobBetweenness			-0.2302	0.4320
			(-0.1619)	(0.2998)
Size	0.0018**	0.0015*	0.0015*	0.0017**
	(2.2704)	(1.8562)	(1.8507)	(2.0863)
Lev	0.0025	0.0029	0.0028	0.0032
	(0.9026)	(1.0160)	(0.9833)	(1.1222)
SaleGrowth	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(-4.8118)	(-3.2836)	(-3.3265)	(-3.1638)
ExReturn	0.0018***	0.0019***	0.0019***	0.0020***
	(3.8629)	(3.8786)	(3.8892)	(4.0156)
FixedAsset	-0.0115***	-0.0116***	-0.0120***	-0.0118***
	(-2.9534)	(-2.9259)	(-3.0256)	(-2.9162)
ROA	0.0010	0.0010	0.0010	0.0011
	(0.5457)	(0.5525)	(0.5677)	(0.6218)
R&D	-0.0413**	-0.0371**	-0.0409**	-0.0413**
	(-2.0281)	(-1.9866)	(-2.1181)	(-2.1624)
Tobin's Q	0.0002	0.0002	0.0002	0.0002
	(0.8325)	(0.6998)	(0.7657)	(0.6733)
CapitalEx	-0.0084	-0.0097	-0.0093	-0.0092
	(-1.2695)	(-1.4415)	(-1.3883)	(-1.3642)
Constant	-0.0335*	-0.0266	-0.0256	-0.0314*
	(-1.8303)	(-1.4745)	(-1.4086)	(-1.7023)
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
MF fixed effect	Yes	Yes	Yes	Yes
Firm × Province paired fixed effect	Yes	Yes	Yes	Yes
N	215,295	210,583	212,536	204,817
R-squared	0.275	0.277	0.276	0.280
Panel B: *CMergeV*				
	Dependent Variable: $CMergeV_t$			
	(1) Geographic Network	(2) Alumni Network	(3) Job Network	(4) Other Network
Betweenness	3.9414*	4.3015**	4.5514**	4.1141*
	(1.8390)	(2.0792)	(2.2030)	(1.8744)
GNBetweenness	-558.0760			-601.2748
	(-0.3440)			(-0.3491)
AlBetweenness		0.0181		0.0101
		(0.3727)		(0.2027)
JobBetweenness			-1.2735	6.6322
			(-0.0427)	(0.2201)
Size	0.0071	0.0020	0.0031	0.0062
	(0.3966)	(0.1092)	(0.1695)	(0.3294)
Lev	0.0776	0.0849	0.0821	0.0901
	(1.2976)	(1.3644)	(1.3318)	(1.4447)
SaleGrowth	-0.0008	-0.0013***	-0.0013***	-0.0013***

	(-1.1183)	(-3.3022)	(-3.3150)	(-3.5021)
ExReturn	0.0414***	0.0418***	0.0408***	0.0443***
	(4.1076)	(4.0717)	(4.0098)	(4.2304)
FixedAsset	-0.1666**	-0.1848**	-0.1799**	-0.1799**
	(-2.0376)	(-2.2254)	(-2.1836)	(-2.1164)
ROA	0.0078	0.0278	0.0283	0.0169
	(0.2284)	(0.7119)	(0.7256)	(0.4766)
R&D	-0.5328	-0.5346	-0.6234	-0.5691
	(-0.8856)	(-1.0094)	(-1.1327)	(-1.0564)
Tobin's Q	0.0046	0.0044	0.0040	0.0040
	(0.8391)	(0.7927)	(0.7354)	(0.7117)
CapitalEx	-0.2122*	-0.2507**	-0.2431*	-0.2338*
	(-1.7079)	(-1.9876)	(-1.9343)	(-1.8384)
Constant	-0.0048	0.1083	0.0887	0.0141
	(-0.0118)	(0.2599)	(0.2112)	(0.0331)
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
MF fixed effect	Yes	Yes	Yes	Yes
Firm × Province paired fixed effect	Yes	Yes	Yes	Yes
N	215,295	210,583	212,536	204,817
R-squared	0.296	0.298	0.297	0.301

Table 6: Other Robustness Tests

This table tests the robustness of the impact of the mutual fund network on the firm's cross-province acquisitions. First, we replace our baseline model with Probit or Tobit models (the first column). Second, we restrict our attention to the subsample of equity funds to construct the network of mutual funds (the second column). Third, we restrict our attention to the subsample of funds with below-average fund sizes (the third column). Fourth, we restrict our attention to the subsample of funds with at least a 5% equity stake (the fourth column). Fifth, we further control for the influence of fund age, fund size, and fund investment style (the fifth column). Sixth, *Betweenness* and all control variables are lagged by one year (the sixth column). Seventh, we replace our baseline model with the firm-year level sample (the seventh column). The dependent variable of Panel A is *CrossMerge*, and the dependent variable of Panel B is *CMergeV*. *Betweenness* is the betweenness centrality of the largest mutual fund of the firm in year *t*. All regressions control for Industry, Year, Institutional, and Firm × Province paired fixed effects. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: *CrossMerge*

	Dependent Variable: $CrossMerge_t$						
	(1) Probit	(2) Equity Funds Only	(3) Small Funds Only	(4) At Least 5% Stake	(5) Adding Fund Level Controls	(6) Lagged Model	(7) Firm-year level
Betweenness	12.7681***	0.3010**	0.2800**	0.1148***	0.2302**	0.2045***	3.1562*
	(3.6330)	(2.1044)	(2.2286)	(3.2080)	(2.2959)	(2.6726)	(1.8184)
Size	0.0088	0.0002	0.0020*	-0.0034	0.0015*	-0.0006	0.0267***
	(0.7343)	(0.0767)	(1.8414)	(-0.8828)	(1.8771)	(-0.7491)	(2.7154)
Lev	0.0119	-0.0009	-0.0006	0.0176*	0.0022	-0.0065**	-0.0004
	(0.1742)	(-0.1229)	(-0.1508)	(1.6573)	(0.7861)	(-2.0693)	(-0.0097)
SaleGrowth	-0.0027*	0.0016	-0.0001***	0.0022*	-0.0001***	0.0000	-0.0000
	(-1.8196)	(1.3978)	(-8.7166)	(1.6856)	(-4.5279)	(0.6118)	(-0.1653)
ExReturn	0.1033***	0.0035*	0.0014**	0.0033	0.0017***	-0.0000	0.0267***
	(5.3658)	(1.8843)	(2.1106)	(1.2803)	(3.5870)	(-0.0586)	(3.5634)
FixedAsset	-0.6280***	-0.0153	-0.0111**	-0.0168	-0.0110***	-0.0031	-0.1020*
	(-6.3610)	(-1.6142)	(-2.1570)	(-1.0821)	(-2.8598)	(-0.7430)	(-1.9091)
ROA	0.0461	-0.0183*	-0.0011	-0.0309***	0.0008	0.0021	0.0576
	(0.3834)	(-1.8350)	(-0.7411)	(-2.9765)	(0.4670)	(0.5071)	(1.2244)
R&D	-1.1672**	-0.0050	-0.0340**	-0.1648	-0.0371*	-0.0174	-0.5829**
	(-2.0373)	(-0.1055)	(-1.9991)	(-1.5052)	(-1.9095)	(-1.0099)	(-2.0119)
Tobin's Q	-0.0023	-0.0008	0.0005	-0.0027**	0.0002	0.0004	0.0014
	(-0.3286)	(-0.9760)	(1.4432)	(-2.0232)	(0.8969)	(1.5107)	(1.2428)
CapitalEx	0.6667***	-0.0191	-0.0081	-0.0070	-0.0079	0.0032	-0.0939
	(2.9811)	(-1.0354)	(-0.8914)	(-0.2784)	(-1.2148)	(0.5374)	(-1.0973)
FundAge					-0.0001		
					(-0.8388)		
FundSize					0.0004**		
					(2.4547)		

FundStyle					0.0000		
					(0.5158)		
Constant	-3.0980***	0.0076	-0.0370	0.0910	-0.0336*	0.0217	-0.4826**
	(-9.0697)	(0.1339)	(-1.5092)	(1.0369)	(-1.8653)	(1.1775)	(-2.2042)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	No
MF fixed effect	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	No	No	No	No	No	No	Yes
Firm × Province paired fixed effect	No	Yes	Yes	Yes	Yes	Yes	No
N	221,681	35,526	145,669	16,554	220,689	163,591	12,539
(Pseudo) *R*-squared	0.015	0.434	0.320	0.478	0.272	0.281	0.391

Panel B: *CMergeV*

	Dependent Variable: $CMergeV_t$						
	(1) Probit	(2) Equity Funds Only	(3) Small Funds Only	(4) At Least 5% Stake	(5) Adding Fund Level Controls	(6) Lagged Model	(7) Firm-year level
Betweenness	4.8373***	7.1611**	6.2164**	2.1870***	4.3093**	3.2295**	81.5884**
	(2.7722)	(2.4458)	(2.5280)	(3.1332)	(2.1250)	(2.0485)	(2.0082)
Size	-0.0079*	-0.0533	0.0216	-0.1157	-0.0022	-0.0180	0.3748
	(-1.8068)	(-1.0190)	(0.8907)	(-1.5137)	(-0.1265)	(-0.9807)	(1.4514)
Lev	0.0284	0.0019	0.0194	0.3325	0.0823	-0.1554**	0.5443
	(1.0464)	(0.0115)	(0.2535)	(1.4817)	(1.3736)	(-2.4521)	(0.5108)
SaleGrowth	-0.0002	0.0321	-0.0027***	0.0516*	-0.0007	0.0002	0.0000
	(-0.5229)	(1.2988)	(-8.9596)	(1.7470)	(-1.0399)	(0.2235)	(1.0608)
ExReturn	0.0521***	0.0778**	0.0349***	0.0352	0.0382***	-0.0025	0.7940***
	(5.4460)	(2.0063)	(2.6033)	(0.6929)	(3.8744)	(-0.2441)	(4.0498)
FixedAsset	-0.2002***	-0.1448	-0.1328	-0.0649	-0.1606**	-0.0295	-2.4513*
	(-5.8610)	(-0.6180)	(-1.2565)	(-0.1816)	(-2.0148)	(-0.3430)	(-1.8584)
ROA	0.0100	-0.3778*	-0.0221	-0.5233**	0.0048	-0.0052	1.2068
	(0.4369)	(-1.7967)	(-0.6664)	(-2.3190)	(0.1402)	(-0.0636)	(1.0290)
R&D	-0.5733**	0.0548	-0.1988	-3.9884*	-0.4894	-0.0281	-6.7504
	(-2.4610)	(0.0502)	(-0.3865)	(-1.7894)	(-0.8362)	(-0.0792)	(-0.7053)
Tobin's Q	-0.0022	-0.0176	0.0117	-0.0432	0.0047	0.0044	0.0258
	(-0.6134)	(-1.0625)	(1.6371)	(-1.5701)	(0.8794)	(0.8935)	(0.9757)
CapitalEx	0.1655*	-0.2856	-0.2168	0.2927	-0.2111*	0.0744	-3.2226
	(1.8701)	(-0.6642)	(-1.2476)	(0.5219)	(-1.7273)	(0.5730)	(-1.5065)
FundAge					-0.0019		
					(-1.2867)		
FundSize					0.0085***		
					(2.6202)		

FundStyle					0.0012		
					(0.9030)		
Constant	0.2821***	1.4090	-0.3470	2.8085	0.0307	0.5942	-5.5750
	(2.6271)	(1.1835)	(-0.6299)	(1.6403)	(0.0762)	(1.4466)	(-0.9679)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	No
MF fixed effect	No	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	No	No	No	No	No	No	Yes
Firm × Province paired fixed effect	No	Yes	Yes	Yes	Yes	Yes	No
N	222,115	35,526	145,669	16,554	220,689	163,591	12,539
(Pseudo) *R*-squared	0.001	0.450	0.335	0.472	0.291	0.302	0.436

Table 7: Effect of the Firm's Largest Mutual Fund Centrality on Mutual Fund Visits

This table presents the results of a direct test of the channel of corporate site visits of mutual fund managers. The variable *Visit* is a dummy variable that equals one if the mutual fund with the largest centrality visits the firm in year *t* and zero otherwise. Panel A examines the impact of mutual fund centrality on investor visits. According to the value of the dummy variable (*Visit)*, we split the sample into two groups. In panel B, the dependent variable of the first and second columns is *CrossMerge*; the dependent variable of the third and fourth columns is *CMergeV*. All regressions control for Industry, Year, Institutional, and Firm × Province paired fixed effects. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: *Visit*		
	Dependent Variable: $Visit_t$	
Betweenness	7.1768**	(2.2662)
Size	0.0521**	(2.4666)
Lev	-0.0633	(-0.9680)
SaleGrowth	-0.0005	(-1.2988)
ExReturn	0.0177*	(1.6864)
FixedAsset	0.1114	(1.1304)
ROA	0.1299**	(2.0067)
R&D	-0.0195	(-0.0327)
Tobin's Q	-0.0023	(-0.4367)
CapitalEx	0.3017*	(1.8299)
Constant	-0.6940	(-1.4443)
Industry fixed effect	Yes	
Year fixed effect	Yes	
MF fixed effect	Yes	
Firm × Province paired fixed effect	Yes	
N	214,148	
R-squared	0.799	

Panel B				
Dependent Variable:	$CrossMerge_t$		$CMergeV_t$	
	(1) *Visit* = 1	(2) *Visit* = 0	(3) *Visit* = 1	(4) *Visit* = 0
Betweenness	0.4941**	0.1266	8.0390*	3.6889
	(1.9783)	(0.3732)	(1.6821)	(0.5828)
Size	0.0026*	-0.0004	0.0181	-0.0443
	(1.7089)	(-0.3086)	(0.5800)	(-1.6415)
Lev	0.0110**	-0.0025	0.2406**	-0.0226
	(2.2286)	(-0.6961)	(2.4715)	(-0.2556)
SaleGrowth	0.0001	-0.0001***	0.0051***	-0.0016***
	(1.1755)	(-4.1280)	(6.1454)	(-3.1542)
ExReturn	0.0016**	0.0024***	0.0188	0.0620***
	(2.2095)	(3.3754)	(1.2768)	(4.1929)
FixedAsset	-0.0220***	0.0006	-0.3354**	-0.0135
	(-3.4428)	(0.1263)	(-2.4571)	(-0.1216)
ROA	-0.0045	0.0090	-0.0776	0.1073
	(-1.2633)	(1.5565)	(-1.0525)	(0.8535)
R&D	-0.0791	-0.0240	-1.7827*	-0.8779
	(-1.6260)	(-0.8028)	(-1.9402)	(-1.2646)
Tobin's Q	0.0000	0.0000	0.0072	-0.0035
	(0.0146)	(0.1198)	(0.9437)	(-0.4251)
CapitalEx	-0.0023	-0.0066	-0.1051	-0.1321
	(-0.2359)	(-0.5737)	(-0.5853)	(-0.5707)
Constant	-0.0482	0.0146	-0.2477	1.1839*
	(-1.4302)	(0.5692)	(-0.3523)	(1.9494)
Industry fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
MF fixed effect	Yes	Yes	Yes	Yes
Firm × Province paired fixed effect	Yes	Yes	Yes	Yes
N	101,215	99,851	101,215	99,851
R-squared	0.300	0.294	0.327	0.308

Table 8: Cross-sectional Variation: Geographical Position

This table reports the results of tests on whether the effect of a firm's largest mutual fund centrality on the firm's cross-province acquisitions varies with a location between firms. The variable *Neighbor* is a dummy variable that equals one if the pairing province is adjacent to the province where the firm is located and zero otherwise. According to the value of *Neighbor*, we split the sample into two groups by whether the pairing province is adjacent or not adjacent to the firm's province. The dependent variable of the first and second columns is *CrossMerge*; the dependent variable of the third and fourth columns is *CMergeV*. All regressions control for Industry, Year, Institutional, and Firm × Province paired fixed effects. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable:	$CrossMerge_t$		$CMergeV_t$	
	(1) *Neighbor* = 0	(2) *Neighbor* = 1	(3) *Neighbor* = 0	(4) *Neighbor* = 1
Betweenness	0.2548**	0.0742	4.6986**	1.8999
	(2.3764)	(0.2598)	(2.1723)	(0.3011)
Size	0.0021***	-0.0014	0.0152	-0.0674
	(2.6207)	(-0.5396)	(0.8218)	(-1.2588)
Lev	0.0009	0.0093	0.0533	0.1643
	(0.3236)	(1.0381)	(0.8720)	(0.8046)
SaleGrowth	-0.0000	-0.0003***	0.0004	-0.0075***
	(-1.3224)	(-4.4025)	(0.5433)	(-4.0090)
ExReturn	0.0014***	0.0034**	0.0318***	0.0734**
	(2.8966)	(2.3118)	(3.1349)	(2.2303)
FixedAsset	-0.0101**	-0.0186*	-0.1818**	-0.1169
	(-2.4301)	(-1.8808)	(-2.0771)	(-0.4902)
ROA	-0.0002	0.0065	-0.0048	0.1424
	(-0.1374)	(1.1011)	(-0.1376)	(0.9785)
R&D	-0.0200	-0.1320*	-0.1911	-2.2413*
	(-1.1328)	(-1.9423)	(-0.3141)	(-1.8345)
Tobin's Q	0.0003	-0.0000	0.0041	0.0126
	(1.2530)	(-0.0228)	(0.7667)	(0.7807)
CapitalEx	-0.0086	-0.0065	-0.2589**	0.0036
	(-1.2682)	(-0.3502)	(-2.0161)	(0.0095)
Constant	-0.0414**	0.0427	-0.1944	1.7172
	(-2.2352)	(0.7596)	(-0.4651)	(1.4406)
Industry fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
MF fixed effect	Yes	Yes	Yes	Yes
Firm × Province paired fixed effect	Yes	Yes	Yes	Yes
N	187,305	34,808	187,305	34,808
R-squared	0.271	0.289	0.292	0.309

Table 9: Cross-sectional Variation: Number of High-speed Rails

This table reports the results of tests on whether the effect of the firm's largest mutual fund centrality on the firm's cross-province acquisitions varies with the number of high-speed railways between the provinces. According to the median number of high-speed railways between provinces, we split the sample into two groups depending on whether the number of high-speed railways is lower (*LowTrain* = 1) or higher than the median (*LowTrain* = 0). The dependent variable of the first and second columns is *CrossMerge*; the dependent variable of the third and fourth columns is *CMergeV*. All regressions control for Industry, Year, Institutional and Firm × Province paired fixed effects. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable:	$CrossMerge_t$		$CMergeV_t$	
	(1) *LowTrain* = 1	(2) *LowTrain* = 0	(3) *LowTrain* = 1	(4) *LowTrain* = 0
Betweenness	0.3382**	0.1209	6.1547*	2.5159
	(2.2045)	(0.9972)	(1.8568)	(1.0102)
Size	0.0005	0.0027***	-0.0196	0.0251
	(0.3706)	(3.0843)	(-0.6833)	(1.2172)
Lev	0.0027	0.0013	0.1345	-0.0010
	(0.6047)	(0.4152)	(1.4182)	(-0.0145)
SaleGrowth	-0.0001	-0.0001***	0.0001	-0.0013***
	(-1.5042)	(-3.3235)	(0.0626)	(-4.8450)
ExReturn	0.0024***	0.0010*	0.0544***	0.0241*
	(3.2992)	(1.7557)	(3.4824)	(1.8225)
FixedAsset	-0.0130**	-0.0096**	-0.2348*	-0.1000
	(-2.1010)	(-2.4538)	(-1.8167)	(-1.0791)
ROA	0.0023	-0.0003	-0.0026	0.0366
	(0.6667)	(-0.1550)	(-0.0408)	(0.7944)
R&D	-0.0465	-0.0328**	-0.2061	-0.7470**
	(-1.3267)	(-2.0597)	(-0.1835)	(-2.0348)
Tobin's Q	0.0001	0.0004	0.0034	0.0074
	(0.3517)	(1.3174)	(0.4321)	(1.1275)
CapitalEx	-0.0093	-0.0064	-0.3561*	-0.0773
	(-0.8828)	(-0.9290)	(-1.7156)	(-0.5782)
Constant	-0.0009	-0.0554***	0.6304	-0.4413
	(-0.0295)	(-2.8207)	(0.9665)	(-0.9582)
Industry fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
MF fixed effect	Yes	Yes	Yes	Yes
Firm × Province paired fixed effect	Yes	Yes	Yes	Yes
N	111,226	110,889	111,226	110,889
R-squared	0.282	0.259	0.305	0.275

Table 10: Cross-sectional Variation: State Ownership

This table reports the results of tests on whether the effect of the firm's largest mutual fund centrality on a firm's cross-province acquisitions varies with the nature of the firm's ownership. We split the sample into state-owned (*SOE* = 1) and non-state-owned enterprises (*SOE* = 0). The dependent variable of the first and second columns is *CrossMerge*; the dependent variable of the third and fourth columns is *CmergeV*. All regressions control for Industry, Year, Institutional, and Firm × Province paired fixed effects. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable:	$CrossMerge_t$		$CMergeV_t$	
	(1) *SOE* = 0	(2) *SOE* = 1	(3) *SOE* = 0	(4) *SOE* = 1
Betweenness	0.2102*	0.2685	3.8092*	4.9777
	(1.8212)	(1.3235)	(1.6593)	(1.1508)
Size	0.0021**	0.0007	0.0157	-0.0436
	(2.3554)	(0.3952)	(0.7685)	(-1.3784)
Lev	0.0040	-0.0067	0.1219*	-0.1134
	(1.2286)	(-1.3292)	(1.7426)	(-1.0614)
SaleGrowth	-0.0001***	-0.0011**	-0.0007	-0.0293**
	(-4.5859)	(-2.0067)	(-0.9180)	(-2.5402)
ExReturn	0.0018***	0.0012	0.0419***	0.0233
	(3.2581)	(1.3842)	(3.6712)	(1.2382)
FixedAsset	-0.0100**	-0.0130*	-0.1649*	-0.0991
	(-2.2524)	(-1.7559)	(-1.7648)	(-0.6803)
ROA	-0.0001	0.0087	0.0022	0.1110
	(-0.0707)	(1.1236)	(0.0593)	(0.6691)
R&D	-0.0300	-0.0882**	-0.2999	-1.0085
	(-1.4927)	(-1.9856)	(-0.4751)	(-1.2580)
Tobin's Q	0.0001	0.0005	0.0019	0.0185*
	(0.5303)	(0.9986)	(0.3261)	(1.7647)
CapitalEx	-0.0087	-0.0041	-0.2508*	-0.0526
	(-1.2036)	(-0.3112)	(-1.8387)	(-0.1799)
Constant	-0.0398**	-0.0041	-0.2061	1.1993
	(-1.9928)	(-0.0981)	(-0.4473)	(1.6170)
Industry fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
MF fixed effect	Yes	Yes	Yes	Yes
Firm × Province paired fixed effect	Yes	Yes	Yes	Yes
N	172,887	47,988	172,887	47,988
R-squared	0.290	0.223	0.311	0.228

Table 11: Cross-sectional Variation: Morningstar Risk Rating

This table reports the results of tests on whether the effect of the centrality of a firm's largest mutual fund on the firm's cross-province acquisitions varies with its Morningstar risk rating. First, we split the sample into two groups of firms with Morningstar risk ratings higher or lower than the median. Next, we group the samples according to the Morningstar risk rating. The grouping variable is *RiskVal3Yr*, defined as the risk coefficient rating of the fund in the past three years. The higher the rating, the higher the risk of the fund. The variable *LowRate* is a dummy variable that equals one if the fund rating is lower than the median and zero otherwise. The dependent variable of the first and second columns is *CrossMerge*; the dependent variable of the third and fourth columns is *CMergeV*. All regressions control for Industry, Year, Institutional, and Firm × Province paired fixed effects. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable:	$CrossMerge_t$		$CMergeV_t$	
	(1) *LowRate* = 1	(2) *LowRate* = 0	(3) *LowRate* = 1	(4) *LowRate* = 0
Betweenness	0.4351**	0.1449	7.7573**	3.0851
	(2.3931)	(0.8564)	(1.9649)	(0.9054)
Size	0.0025	0.0072***	-0.0002	0.0774
	(1.0767)	(2.9860)	(-0.0051)	(1.4840)
Lev	0.0091	0.0085	0.2279*	0.0936
	(1.4326)	(0.9338)	(1.6673)	(0.5305)
SaleGrowth	-0.0004	-0.0000	0.0019	-0.0005**
	(-0.3528)	(-1.0780)	(0.0673)	(-2.3543)
ExReturn	0.0026**	0.0025***	0.0555**	0.0554***
	(2.3604)	(2.6330)	(2.3195)	(3.0013)
FixedAsset	-0.0184**	-0.0020	-0.2827*	0.0997
	(-2.5408)	(-0.2324)	(-1.8813)	(0.4627)
ROA	0.0004	0.0120	0.1237	0.3251
	(0.0349)	(1.1682)	(0.5223)	(1.3798)
R&D	-0.0725	-0.0592	-2.4622**	-1.9314
	(-1.2280)	(-0.8467)	(-2.2086)	(-1.2905)
Tobin's Q	-0.0003	0.0003	0.0028	-0.0002
	(-0.6857)	(0.6895)	(0.2970)	(-0.0221)
CapitalEx	0.0035	-0.0022	0.0137	-0.0538
	(0.2325)	(-0.1718)	(0.0464)	(-0.2031)
Constant	-0.0476	-0.1600***	0.1533	-1.6312
	(-0.9197)	(-2.9668)	(0.1501)	(-1.3841)
Industry fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
MF fixed effect	Yes	Yes	Yes	Yes
Firm × Province paired fixed effect	Yes	Yes	Yes	Yes
N	57,195	48,608	57,195	48,608
R-squared	0.423	0.438	0.438	0.447

Table 12: Cross-sectional Variation: Sharpe Ratio

This table reports the results of tests on whether the effect of a firm's largest mutual fund centrality on the firm's cross-province acquisitions varies with its Sharpe ratio. We split the sample into two groups of firms with a Sharpe ratio higher or lower than the median. The grouping variable is *SharpeRnk*, which is defined as the Sharpe rate ranking of similar funds. The variable *HighEva* is a dummy variable that equals one if the Sharpe ratio is higher than the median and zero otherwise. The dependent variable of the first and second columns is *CrossMerge*; the dependent variable of the third and fourth columns is *CMergeV*. All regressions control for Industry, Year, Institutional, and Firm × Province paired fixed effects. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variable:	$CrossMerge_t$		$CMergeV_t$	
	(1) *HighEva* = 1	(2) *HighEva* = 0	(3) *HighEva* = 1	(4) *HighEva* = 0
Betweenness	0.2368**	-0.4741	5.0876**	2.2708
	(2.0415)	(-1.0799)	(2.1046)	(0.2842)
Size	0.0029*	0.0038*	0.0606**	-0.0235
	(1.8720)	(1.7404)	(2.1291)	(-0.5570)
Lev	0.0033	-0.0003	0.0032	0.0658
	(0.6216)	(-0.0518)	(0.0286)	(0.4659)
SaleGrowth	0.0000	-0.0002	0.0000	-0.0110
	(0.2782)	(-0.8358)	(0.0948)	(-1.2291)
ExReturn	0.0027***	0.0004	0.0576***	0.0079
	(3.8573)	(0.3647)	(3.8995)	(0.3866)
FixedAsset	-0.0077	-0.0197**	0.0145	-0.3640**
	(-1.2923)	(-2.3419)	(0.1101)	(-2.0967)
ROA	-0.0042	0.0046	-0.1242	0.0519
	(-0.6366)	(1.2179)	(-0.8598)	(0.7721)
R&D	-0.0364**	-0.1148**	-0.1319	-3.0591***
	(-2.2110)	(-2.1913)	(-0.2642)	(-2.8657)
Tobin's Q	0.0006	-0.0002	0.0128*	0.0094
	(1.6244)	(-0.3758)	(1.6840)	(1.0130)
CapitalEx	-0.0066	-0.0071	-0.0516	-0.0006
	(-0.6605)	(-0.4954)	(-0.2405)	(-0.0023)
Constant	-0.0592*	-0.0717	-1.2772**	0.7931
	(-1.7571)	(-1.4408)	(-2.0084)	(0.8232)
Industry fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
MF fixed effect	Yes	Yes	Yes	Yes
Firm × Province paired fixed effect	Yes	Yes	Yes	Yes
N	83,359	80,073	83,359	80,073
R-squared	0.370	0.412	0.386	0.440

Table 13: Effect of the Firm's Largest Mutual Fund Centrality on Market Reaction and Post-acquisition Performance

This table reports the results of tests to determine how the centrality of a firm's largest mutual fund affects firm performance. The dependent variable of panel A is the cumulative abnormal return (*CAR*), specifically the *CAR* from -1 to 1 day after cross-province acquisitions, from -2 to 2 days after cross-province acquisitions, and from -3 to 3 days after cross-province acquisitions in the first, second, and third columns, respectively. The dependent variable of panel B is the return on assets (*ROA*), specifically the *ROA* of the *t+1* period, the *t+2* period, and the *t+3* period in the first, second, and third columns, respectively. The dependent variable of panel C is the change in mutual funds' shareholding. In the first column, the dependent variable is *OwnershipDum*, which is defined as the dummy variable indicating whether the investors increase their holdings; in the second column, it is *△Ownership*, which is defined as the proportion of mutual funds that increase their holdings. *Betweenness* is the betweenness centrality of the largest mutual fund of the firm in year *t*. We report *t*-statistics in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: *CAR*			
	(1) *CAR1*	(2) *CAR2*	(3) *CAR3*
Betweenness	0.1103*	0.1701**	0.1360*
	(1.8501)	(2.1372)	(1.7648)
BM	0.0011	0.0023	-0.0000
	(0.8684)	(1.6199)	(-0.0012)
Age	-0.0009**	-0.0015***	-0.0012**
	(-2.4117)	(-2.8947)	(-2.4496)
Cash	0.0013	-0.0001	0.0003
	(0.7954)	(-0.0826)	(0.2340)
DealValue	0.0000	0.0000	0.0000
	(1.3206)	(0.3071)	(0.6798)
StockDeal	-0.0006***	-0.0002	-0.0002
	(-2.7908)	(-0.6859)	(-0.3644)
CashDeal	-0.0003	-0.0001	-0.0001
	(-1.1915)	(-0.4562)	(-0.2971)
Other controls	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
N	3,162	3,162	3,162
R-squared	0.067	0.063	0.055
Panel B: *ROA*			
	(1) ROA_{t+1}	(2) ROA_{t+2}	(3) ROA_{t+3}
Betweenness	1.2392*	3.6240***	6.2161**
	(1.6404)	(3.9696)	(2.3580)
BM	-0.0389***	-0.0409**	0.0070
	(-2.5801)	(-2.0306)	(0.1783)
Age	0.0003	0.0049	-0.0059
	(0.0522)	(0.6770)	(-0.4610)
Cash	0.1225***	0.1147***	0.0571
	(5.7026)	(4.6984)	(1.3698)
DealValue	0.0000	-0.0005	-0.0000
	(0.0485)	(-1.4221)	(-0.0225)
StockDeal	0.0058	0.0030	-0.0391
	(1.0390)	(0.2929)	(-0.7115)
CashDeal	0.0018	0.0108**	0.0070
	(0.4328)	(1.9959)	(0.6653)
Other controls	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
N	2,727	2,240	1,012
R-squared	0.163	0.135	0.078
Panel C: *Institutional Ownership*			
	(1) $OwnershipDum_t$		(2) $\triangle Ownership_t$
Betweenness	7.6619***		0.8510***
	(2.8795)		(2.8971)
BM	-0.0573		-0.0272***
	(-0.5259)		(-2.8559)
Age	0.0060		-0.0046

	(0.1829)	(-1.3216)
Cash	0.1267	0.0218*
	(1.1555)	(1.7888)
DealValue	-0.0013	0.0000
	(-0.7835)	(0.0951)
StockDeal	0.0036	0.0003
	(0.0685)	(0.0723)
CashDeal	-0.0044	-0.0015
	(-0.2071)	(-0.6811)
Other controls	Yes	Yes
Year fixed effect	Yes	Yes
Industry fixed effect	Yes	Yes
N	1,189	1,189
R-squared	0.076	0.146

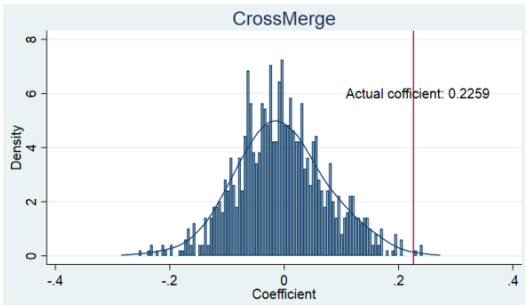

Figure 1a

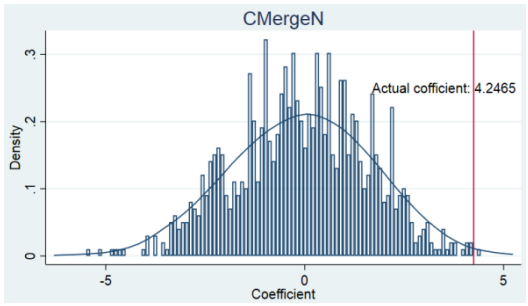

Figure 1b

Figure 1: Placebo Test. Histogram of the estimated coefficients obtained after randomly matching companies with the largest mutual funds. The virtual company's largest mutual fund centrality is then used to examine its impact on cross-province acquisitions, and the estimated coefficient is recorded. We repeat this process at least 1,000 times. Figure 1a shows the distribution of coefficient estimates when the dependent variable is *CrossMerge*. Figure 1b shows the distribution of coefficient estimates when the dependent variable is *CMergeV*.

Appendix

Table A1: Variables Definitions

Variables	Definitions	Source
Betweenness	The betweenness centrality of the largest blockholder (mutual fund) of the firm. *Betweenness* measures how often an individual lies on the shortest path between any other two members of the network; it indicates how much control an individual might have on the flow of information.	CSMAR, RESSET
CrossMerge	A dummy variable that equals one if the firm *i* acquires at least one firm in province *r* during year *t* and zero otherwise	CSMAR
CMergeV	The total value of the firm *i*'s cross-province acquisitions in province *r* during year *t*	CSMAR
Size	The natural logarithm of total assets of the firm	CSMAR
Lev	The ratio of total debt to total assets	CSMAR
SaleGrowth	Percent increase of sales from the previous year	CSMAR
ExReturn	Difference between a firm's annual return and the annual return of the market value-weighted market index	CSMAR
FixedAsset	The ratio of fixed assets to total assets	CSMAR
ROA	The net income over book value of total assets	CSMAR
R&D	The ratio of R&D expenditure to total assets	CSMAR
Tobin's Q	Book value of total assets minus book value of equity plus the market value of equity, divided by book value of total assets	CSMAR
CapitalEx	The ratio of capital expenditures to total assets	CSMAR
GNBetweenness	The betweenness centrality of the geographic network of the firm's largest blockholder. If the management companies of two funds are located in the same city, there is a connection between the two funds, thus forming a geographical network	CSMAR
AlBetweenness	The betweenness centrality of the alumni network of the firm's largest blockholder. If the fund managers of the two funds are alumni from the same university, there is a connection between the two funds, thus forming an alumni network	CSMAR
JobBetweenness	The betweenness centrality of the job network of the firm's largest blockholder. If the fund managers of the two funds are colleagues, there is a connection between the two funds, thus forming a job network	CSMAR
Visit	A dummy variable that equals one if the largest blockholder of the firm visits the firm in year t and zero otherwise	CNRDS
CAR1	The cumulative abnormal return (CAR) from -1 to 1 day around cross-province acquisitions	CSMAR
CAR2	The cumulative abnormal return (CAR) from -2 to 2 days around cross-province acquisitions	CSMAR
CAR3	The cumulative abnormal return (CAR) from -3 to 3 days around cross-province acquisitions	CSMAR
OwnershipDum	The dummy variable that equals one if the firm's largest shareholder and mutual fund increase shareholding in year *t* and zero otherwise	CSMAR
△Ownership	The proportion of the firm's largest shareholder and mutual fund increase shareholding	CSMAR
BM	Total Assets / (Total Assets - Book Equity + Market Value of Equity)	CSMAR
Age	The natural logarithm of the number of years the firm has been established	CSMAR
Cash	The ratio of cash and cash equivalent holdings to total assets	CSMAR
DealValue	The natural logarithm of deal value	CSMAR
StockDeal	Dummy variable equal to 1 for deals paid for 100% by stock	CSMAR
CashDeal	Dummy variable equal to 1 for deals paid for 100% by cash	CSMAR