On the Importance of CFOs: Liquidity Management, Connections to Bankers, and the Market Value of Cash

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ABSTRACT: Prior research suggests that managers may obtain credit on favorable terms from bankers with whom they have a personal connection, but the empirical evidence on the extent to which these connections affect how firms manage cash is limited. We present evidence that firms whose CFOs have connections to bankers exploit these connections, and the associated easier access to credit, by holding less precautionary cash. CFO connections are significantly more important than CEO connections in this context, reflecting the preeminent importance of CFOs among C-level executives in both cash management and negotiating access to corporate finance. Firms reduce the proportion of assets held in cash by seven percentage points in the two years following exogenous turnovers that lead to the appointment of CFOs with banking connections. Investors recognize the value of CFO–banker connections and consequently assign a lower stock market valuation to cash holdings of firms with these connections.

1. INTRODUCTION

Cash management is essential to an organization's success and solvency, and is one of the key roles of a firm's top executives. The importance of cash management is underscored by the fact that by 2011, the average publically traded U.S. firm held about one-fifth of its assets in cash, a ratio that had grown steadily over the previous three decades (Bates, Kahle, and Stulz, 2009; Pinkowitz, Stulz, and Williamson, 2016; He and Wintoki 2016). However, holding cash involves trading off the benefit of ready access to liquidity against the cost of holding an asset that earns low returns. Easy access to bank financing and credit lines is a potential way to reduce the need to hold large cash balances (Kashyap, Rajan, and Stein, 2002; Sufi, 2009), but often require extensive and credible information sharing between the firm and the bank. CFOs' intimate knowledge of their firms' financial details makes them especially well placed to be explicit and tacit sources of information (Geiger and North, 2006; Beck and Mauldin, 2014). Although prior research suggests that managers may obtain credit for their firms on favorable terms from bankers with whom they have a personal connection (Engelberg, Gao, and Parsons, 2012; Karolyi, 2018), there is limited empirical research on the extent to which firms exploit these connections to manage their cash holdings and reduce the need to hold precautionary cash. In this paper, we examine whether or not, and how, CFO connections to bankers affect cash management.

In a frictionless world, firms do not need to hold cash beyond that required for immediate operating costs because they can raise capital whenever needed. In practice however, various frictions especially information asymmetry between firms and outside providers of capital, make external capital costly to acquire (Leland and Pyle, 1977; Stiglitz and Weiss, 1981). Firms can potentially reduce this information asymmetry by providing full and complete disclosure of their business operations. However, unfiltered and completely transparent reporting is usually neither

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optimal nor feasible. Although investors and creditors may be more willing to offer cheaper financing when information asymmetry is low, the detailed disclosure of all aspects of firm operations may help rival firms gain a competitive advantage. Indeed, in many cases, especially in firms with new and groundbreaking technology, even a full disclosure of a firm's opportunity set may be too complex for outside investors to assess or understand.

This information asymmetry and the fact that firms cannot perfectly predict all their future liquidity needs means that they must hold precautionary cash (Opler, Pinkowitz, Stulz, and Williamson, 1999). However, holding cash is expensive because firms earn little to no returns on their liquid assets. In addition, liquid assets can increase the agency costs of managerial discretion. Managers can use the retained liquidity to pursue their own agenda at shareholders' expense. Furthermore, holding too much cash may also intensify the substitution problem by increasing the value of the firm's debt at the cost of reduced equity values (Faulkender and Wang, 2006). As such, firms with better access to external financing prefer to keep less cash on hand (Almeida, Campello, and Weisbach, 2004). Firms often use bank financing (e.g., credit lines) as a substitute for internal cash as it reduces or eliminates the need to hold precautionary cash (Kashyap, Rajan, and Stein, 2002; Sufi, 2009). However, banks face the same information asymmetry issues as other potential investors when making lending decisions. Therefore, firms that are less transparent generally have more difficulty in obtaining bank financing (Graham, Li, and Qiu, 2008), and thus are more likely to hold precautionary cash.

Our study posits that the social and professional connections between Chief Financial Officers (CFOs) and bankers can reduce the information asymmetry between firms and their potential lenders and, by extension, reduce the need to hold precautionary cash. A growing literature on executive social networks suggests that firm-specific private information diffuses to

various economic agents through social and professional networks. For example, Engelberg, Gao, and Parsons (2012) and Karolyi (2018) find that firms with executives or directors who are personally or socially connected with bankers from their lending banks enjoy lower-cost bank loans. Cohen, Frazzini, and Malloy (2008) show that mutual fund managers can acquire valuable information from firm insiders who were college classmates. Larcker, So, and Wang (2013) show that firms with directors who are more central in their networks tend to earn superior risk-adjusted returns. Akbas, Meschke, and Wintoki (2016) report that director networks provide a channel through which value-related information diffuses to various market participants. These findings raise the possibility that executives with connections to bankers can reduce their firm's information asymmetry by making tacit information available to potential lenders. Consequently, these firms will have easier access to bank financing and thus require less precautionary liquidity. We thus predict that firms with CFOs who have banking connections will hold less cash than those firms with CFOs who lack such connections.

Why do we focus on CFOs, and anchor our predictions specifically around CFO connections, rather than that of the CEO or other executives? CFOs are the C-level executives with financial expertise tasked with both interacting with potential providers of finance and effectively communicating information about the firm's financial health to these financiers. CEOs may also possess financial expertise, but even if they do (which is not always the case), they may not have the time for day-to-day financial management since they also need to coordinate other aspects of managing the firm (e.g., strategy, marketing, operations, etc.). As a result, CFOs are usually responsible for ensuring compliance with financial regulations (e.g., Sarbanes–Oxley Act), overseeing the preparation of financial statements (e.g., annual reports, 10-Ks, etc.), and providing financial data for firm decision-making. In addition to serving as the firm's controller, CFOs are

also their firm's ultimate treasurer; they actively participate in raising capital for firm operations and investments and are often solely responsible for managing the firm's cash balance and short-term liquidity needs. Given CFOs' direct role in managing corporate finance, we focus on how their professional and social networks affect the firm's liquidity management and predict that their banking connections will be more important than those of the CEO or other executives.

We test our predictions in a sample of 2,397 firms from 2000 to 2013 and find evidence to support our hypotheses. Using a baseline model that controls for a variety of other potential determinants of cash holdings, we find that firms that have CFOs with connections to the banking industry hold, on average, 13.3% less cash than firms without such CFOs. Additional analysis suggests that the reduction in cash holdings increases with the number of CFO connections to the banking industry. We then compare the effect of CFO–banker connections on firm cash holding behavior to that of CEO–banker and director–banker connections. As we predict, we find that, while CFO–banker connections reduce firm cash holdings, CEO–banker and director–banker connections do not, especially after we control for CFO–banker connections. These findings confirm that, among firm executives, CFOs' connections to bankers have the most influence on the firm's cash policies and reflect the preeminent importance of CFOs among C-level executives in both cash management and negotiating access to corporate finance.

The potential endogeneity of firm cash holding behavior and the characteristics of the CFO that a firm chooses raises the possibility of several alternative explanations for these findings. For example, one potential alternative explanation for our findings is reverse causality. Firms may pursue a strategy of low cash holdings and simultaneously (or subsequently) initiate their CFOs' connections to the banking industry. However, most CFO–banker connections that we observe in our study were formed many years in the past, especially through common college experience or

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prior employment. Thus, these connections significantly predate the CFO's appointment to his or her current position by many years, and sometimes, decades. Indeed, we find that the negative association between CFO–banker connections and firm cash holdings holds even when we explicitly restrict CFO–banker connections to those formed three, five, or ten years prior to the current period. Because it is highly unlikely that firms desiring to hold less liquidity would have planned to have their CFOs connected with bankers up to ten years in the past, these findings indicate that our results are not due to reverse causality.

Several additional tests also suggest that our results are not due to the potential endogeneity of cash holdings and CFO–banker connections stemming from omitted variables. In one such test, we examine changes in cash holdings around additions of CFO–banker connections due to exogenous CFO turnovers, and find that firms hold significantly less cash after these exogenous turnovers. Firms that experience exogenous turnovers leading to the appointment of a CFO with banking connections reduce the proportion of assets held in cash by 7.4 percentage points in the two years following the arrival of this connected CFO, relative to otherwise similar firms that did not experience such CFO turnovers.

Further analyses show that the influence of CFO–banker connections on cash holding behavior is driven by the reduction in information asymmetry engendered by these connections, rather than firms believing that they can obtain sweetheart deals from connected banks. We find, for example, that the negative association between CFO–banker connections and cash holding is stronger in firms with higher information asymmetry (smaller firms), or in periods when general credit conditions are tighter (during the financial crisis). We also find that it is the *specific* connections between CFOs and bankers and *not* CFO connections *in general* that affect cash

holdings. We find, for example, that CFO connections to software or pharmaceutical firms (two other large industries in the Compustat universe) have no effect on cash holding.

CFO connections are, in general, observable by market participants through public sources such as those used to assemble the data we use in this study. If CFO–banker connections reduce firms' needs for holding precautionary cash, then a straightforward extension of our findings is that, all else equal, capital markets should assign a lower value to cash held by firms with CFOs who have connections to bankers. We find evidence to support this prediction. Using Faulkender and Wang's (2006) cash valuation model, augmented with measures of CFO–banker connections, we show that the value of an additional dollar of cash is 45.66 cents less valuable in firms with CFO–banker relationships, when compared to firms without such relationships.

The underlying assumption throughout our analysis is that private information flows specifically through CFO networks in a manner that reduces information asymmetry between firms and potential investors or creditors. As we have noted, we base this assumption on a growing literature that continues to assemble evidence that executive and director networks facilitate information transmission, even though the actual transmission mechanism through executive networks is often largely unobservable. However, prior research offers scant direct evidence that CFO networks, in particular, provide an economically important conduit for information diffusion beyond those of the CEO or other directors. As such, in additional analyses, we investigate the broader importance of CFO connections in reducing information asymmetry in a different context. We test CFO connections to financial analysts as another specific channel of information transmission between CFOs and market participants and find that firms whose CFOs are connected to financial analysts have more accurate earnings forecasts. Taken together with our prior findings,

this finding supports the economic significance of CFO connections and their importance in reducing information asymmetry between firms and capital markets in general.

We believe that our paper makes at least three novel contributions to the literature on executives, networks and cash holdings. First, we break new ground in the understanding of the importance of CFOs compared to other top executives. Prior work in finance and accounting that examine executives' effects on corporate policy almost universally focus on CEOs. CEOs are the highest-ranked executives in their firms, but their lack of discipline-specific expertise and limited attention require CEOs to work with other executives. Therefore, non-CEO executives might be more influential on some specific corporate policies than CEOs. While a number of recent studies show that CFO compensation structures can affect firm policies (Jiang, Petroni, and Wang, 2010; Kim, Li, and Zhang, 2011), the literature has been largely silent on other channels through which CFOs exert influence. We show that CFO–banker connections have more influence in helping reduce firms' needs for precautionary cash than other executives and directors. Second, we contribute to the growing broader literature on the importance of executive networks. The consensus of prior works showing that executives channel private information to their connections is that CEOs' networks may dominate other executives' networks in this information transmission process. Our findings challenge the universality of this conventional wisdom and show that CFOs' networks can be as influential on firm policies as those of CEOs, and may be even more so when it comes to policies that rely heavily on CFOs' expertise. Finally, we present new evidence that executive networks have significant influence on firms' capital structure decisions and are valued by equity holders. Equity holders recognize the value of CFO–banker connections and impute a lower market value to cash held by firms with such CFOs.

2. RELATED LITERATURE AND HYPOTHESES DEVELOPMENT

While transparent and full disclosure potentially reduce the cost of external financing, firms may be reluctant to disclose all information on the nature of their assets, operations, and investment opportunities. Because they operate in competitive markets, they seek to protect the proprietary information and technology with which they maintain a competitive advantage and create value. In many cases, even if managers were to provide comprehensive disclosure of the firm's opportunity set, investors may question the credibility of such disclosures or have difficulty understanding and assessing these disclosures. As a result, information asymmetry exists between insiders and outsiders.

However, firms operate in a risky and uncertain environment, and they can rarely precisely predict the emergence of all future investment opportunities or threats. Consequently, liquidity management is essential to their success. Exogenous changes in technology, business processes, demographics, cultural tastes, and the emergence of new competitors mean that managers cannot predict all the future positive net present value (NPV) projects. When presented with an opportunity to invest in positive NPV projects, managers want the capability (i.e., liquidity) to act. Firms must also have sufficient liquidity to cover future expected and unexpected costs. In a perfect world without market frictions, managers do not need to worry about liquidity needs because they can always raise adequate capital to fund their investments or obligations when required. However, in the real-world market with frictions arising from information asymmetry, economic theory suggests that external funds are not always available to firms, even if they plan to use the raised funds for positive NPV projects (Leland and Pyle, 1977; Stiglitz and Weiss, 1981). Consequently, firms must hold precautionary cash for future use (Opler, Pinkowitz, Stulz, and Williamson, 1999; Han and Qiu, 2007). Unfortunately, holding cash can be expensive because firms earn little to no

returns on liquid assets. In addition, high cash holdings introduce potential agency costs. Discretionary cash reduces managerial discipline, and market participants may worry that managers will waste or misuse the cash holdings. Thus, firms with better access to external financing have strong incentives to hold less cash (Almeida, Campello, and Weisbach, 2004).

As particularly efficient providers of liquidity, banks are important sources of external financing for firms, and bank financing can be a good substitute for internal cash (Kashyap, Rajan, and Stein, 2002; Sufi, 2009). Because banks face the same information asymmetry issues, firms with greater information asymmetry to banks have greater difficulty obtaining bank financing (Graham, Li, and Qiu, 2008). One way to reduce information asymmetry between banks and firms is to form bank relationships, defined as the ties established through repeated borrowing–lending transactions. Prior research finds that bank relationships reduce barriers to bank financing because banks accumulate soft information about borrowers' creditworthiness through past lending activities and are better able to evaluate the borrowers' credit riskiness (Petersen and Rajan, 1994; Berger and Udell, 1995).

Repeated borrowing allows firms to establish a positive borrowing history, which increases their access to bank financing. Firms without lengthy borrowing histories or needing to borrow from new banks do not have this privilege. Because transparency is the core issue to bank financing availability, firms can reduce barriers to bank financing by establishing other valid channels for banks to acquire firm-specific private information or to assure the credibility of public information.

Corporate executives and directors possess material information about their entities' intrinsic values and the potential of their firms' projects. Therefore, corporate insiders are important channels through which outside investors can obtain firm private information. As we note in the Introduction, a new and growing literature examines executive networks and finds that

social and professional networks provide an economically important mechanism for the transmission of private or otherwise tacit information. For example, Engelberg, Gao, and Parsons, (2012) and Karolyi (2018) find intriguing evidence suggesting that firms receive better credit terms from banks with whom their executives share personal, social or professional connections.[1] Executive networks allow tacit or implicit information about the firm to diffuse from executives to potential providers of financing. These networks also provide a mechanism for verifying the credibility of information. Firms with managers who have connections with bankers can provide private information to help banks assess their creditworthiness. These firms are therefore more likely to secure easier access to bank financings. Because firms with greater access to external financing tend to hold less cash, we state our first hypothesis as follows:

H1: Firms with managers and directors with bank relationships tend to hold less cash.

Although prior research shows that executive and director networks provide economically significant conduits for information transmission, the literature does not identify which particular executives' connections are the most important in any particular situation. We propose that the nature of an executive's role within the company helps determine the circumstances in which that

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[1] A number of other papers study the importance of executive social networks in other specific situations. Cohen, Frazzini, and Malloy (2008) show that mutual fund managers perform better when trading stocks of firms at which their friends (i.e., classmates from the same university) serve as directors. Engelberg, Gao, and Parsons (2012), studying social networks between firm directors and persons working at the banks from which they borrow, show that firm-specific information can be transmitted to creditors through this specific channel, leading to better credit terms for these firms. Akbas, Meschke, and Wintoki (2016) show that information also diffuses to informed traders (short sellers, option traders, and institutional investors) through directors' professional and social networks. Shue (2013) and Fracassi (2017) show that firms connected through their executive social networks have similar executive compensation and acquisition activities. Larcker, So, and Wang (2013) show that firms with directors who are more central in their networks tend to earn superior risk-adjusted returns. Chuluun, Prevost, andPuthenpurackal (2014) show that better connected firms are associated with lower bond yields. Kinnan and Townsend (2012) show how and when kinship and financial networks can facilitate access to financings, thus smoothing consumption. El-Khatib, Fogel, and Jandik (2015) find that executive social networks, while potentially bringing in valuable information, can also hurt the firm by empowering these executives. In addition to these studies, other papers show that social ties with firm executives increase outsiders' chance of being appointed as directors on the firms' boards (e.g., Fracassi and Tate, 2012; Berger, Kick, Koetter, and Schaeck, 2013). Furthermore, such social networks among firm executives and their board directors can reduce boards' monitoring effectiveness (e.g., Hwang and Kim, 2009; Fracassi and Tate, 2012; Nguyen, 2012; Schmidt, 2015).

executive's connections are most influential. CEOs are the highest ranked executives in their firms and are commonly considered to have (and be the source of) the most value-relevant private information. While this is undoubtedly true, it is important to note that the CEO manages the firm in conjunction with a team of other senior executives (Aggarwal and Samwick, 2003). These other executives often have technical or discipline-specific expertise (e.g., in marketing, finance, or information systems) and thus may exert a more significant effect on policies related to their expertise. As the firm's financial controller and treasurer, CFOs are the C-level executives with primary responsibility for ensuring the firm's short- and long-term financial health (Graham and Harvey, 2001; Chava and Purnanandam, 2010). Because CEOs are not necessarily financial experts and are often not involved in the day-to-day details of the firm's financing decisions, they commonly rely on the CFO to manage the firm's liquidity and financing needs. Consequently, CFOs can have significant latitude with respect to financial decision-making. Indeed, some evidence suggests that CFOs are more important than CEOs in determining firm policy that falls specifically within the scope of the CFO's responsibility (e.g., financial reporting). For example, Jiang, Petroni, and Wang (2010) find that firms with larger CFO incentive pay have higher levels of earnings management, and that this effect is stronger for CFOs than for CEOs. Kim, Li, and Zhang (2011) report that the sensitivity of CFO option portfolio value to stock price is significantly and positively associated with the firm's future stock price crash risk, and this relation does not exist for CEOs. Wang, Shin, and Francis (2012) show that purchases by CFOs of their own firm's stocks are more profitable than purchases by their CEOs. Taken together with the fact that CFOs are specifically responsible for firm financing, we predict that in the potential information transmission from the firm to external constituents who provide credit (such as banks), the CFO's own network may be as or more important than that of CEOs.

> **H2**: CFO networks with bankers lead to lower cash holdings, and this relation is stronger for CFOs than for other managers and directors.

3. DATA

3.1 Data Sources and Summary Statistics

Our primary data source for determining executive connections is the BoardEx database. From BoardEx, we determine the universities, companies, social organizations, and charities with which executives are currently or have been previously associated. We note a connection between two individuals if both of them were associated with the same organization at the same time in the past. The sample period is from 2000 to 2013. We exclude utility and financial firms from our sample due to their unique regulatory structures.

We match our sample firms from BoardEx to the firms covered by Compustat to obtain relevant accounting information and the firm's S&P credit rating. Using data from Compustat, we define a firm's cash holding as the proportion of total assets that are in the form of cash and short-term investments (i.e., CHE/TA). We identify publicly traded firms as those that appear in CRSP and obtain their return data. From I\B\E\S, we obtain financial analyst forecasts, actual earnings, announcement dates of forecasts, and announcement dates of actual earnings. The appendix provides definition of all variables used in this study.

Table 1 reports the summary statistics for the key variables. We winsorize all variables at the 1% and 99% levels to eliminate the potential effects of outliers.[2] As we obtain data from various sources, not all variables have the same number of valid observations. In particular, BoardEx covers both public and private firms, so variables calculated using only this data set cover

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[2] Our results and conclusions are similar without winsorizing.

more firms than the other databases. Because we consider only firms with valid S&P bond ratings to define junk, this variable does not cover firms without rated bonds.

3.2 Identifying Executive Connections and Network Size for CFOs and Other Executives

Following the literature, we define CFO (and other executives and directors) social network size as the number of connections within the BoardEx universe. We define a CFO as having a connection to the banking industry if the CFO shares a social or professional tie with an individual who works at a bank, which is defined as such by the Fama–French 48 industry categorizations. Specifically, a connection exists if the CFO and the banker both (i) previously served, or are still serving, on the board of another company, (ii) attended the same university at the same time in the past, or (iii) currently belong to, or at the same time in the past belonged to, the same club or organization. To reduce the possibility that executives specifically seek out connections to bankers to obtain current financing, we require the relationship to have been in existence for at least a year.[3] We define connections to bankers for the CEO and other directors in a similar fashion.

For use in further analysis, we follow a similar approach in identifying CFO connections to financial analysts. Because no data are available to identify an analyst's financial institution, we cannot define these connections in the most precise manner. Instead, we define a CFO as connected to a financial analyst if the CFO shares professional or social connections with a person from financial institutions classified as business credit institutions, financial services, security and commodity brokers, or investment offices as defined by the Fama–French 48 industry categorizations. Once again, we define connections to financial analysts for the CEO and other directors in a similar fashion.

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[3] In robustness tests, we require the connection to have been in existence for three, five, or ten years, and find that the inference throughout the paper is unchanged.

4. CFO–BANKER CONNECTIONS AND FIRM CASH HOLDINGS

4.1 Regression Analysis

We start the analysis by examining the relation between CFO (and other executive) connections with bankers and firm cash holdings using the following model:

$$Cash\ Held_{i,t} = \alpha + \beta \times Executive\ Connection_{i,t} + \Gamma'Controls + \epsilon_{i,t}, \tag{1}$$

where *Cash Held* is the proportion of total assets in the form of cash and short-term investments (i.e., CHE/TA). *Executive Connection* is either a binary variable that equals one if the executive is connected to a banker, and zero otherwise; or the natural logarithm of the number of the executive's connections with bankers. The control variables are firm characteristics that the literature has found to be associated with cash holdings (Opler, Pinkowitz, Stulz, and Williamson, 1999; Bates, Kahle, and Stulz, 2009). We also include industry and year fixed effects and control for the presence of bankers on the board, which represents a direct connection to the banking industry that can influence cash-holding behavior.

We present the results from estimating equation (1) in Table 2. Column (1) creates a baseline by examining whether any executive (CEO or CFO) or director connections to bankers affect cash holdings. The estimated coefficient on *Executive and Director Bank Connected* is significantly negative (–0.00731, *t*-statistic = –1.828). This finding supports H1 – firms whose executives have connections to bankers hold less cash than firms whose executives lack those connections. In column (2), we specifically test the effect of CFO connection to bankers on firms' cash holdings. The findings are consistent with the prediction that firms with CFOs connected to bankers hold less cash; the estimated coefficient on *CFO Bank Connected* is significantly negative (–0.0173, *t* = –2.100). Columns (3) and (4), respectively, show that, in comparison, CEO–banker

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connections have no significant effect on cash holdings by themselves or when included in the same regression with CFO–banker connections.

While the first four models in Table 2 identify bank relationship using a binary variable that equals 1 if any connections exist, and zero otherwise, the next four models (columns 5–8) use the natural logarithm of the number of connections an executive shares with bankers, including CFO bank connection size, CEO bank connection size, and director bank connection size. Consistent with findings from the first four columns, the number of the CFO–banker connections significantly reduces firm cash holdings. In contrast, the number of the CEO and other board connections with bankers has no significant impact on firm cash holdings. Taken together, the results in Table 2 support our hypothesis (H2) that firms with CFO–banker connections hold less cash, and the CFO–banker connections are more important to the firm's cash holding behavior than that of the CEO and other directors.

To understand the economic significance of CFO–banker connections on firm cash holdings, we use the results from column (2) of Table 2 to evaluate the marginal effects and note that having a CFO with banker connections reduces cash holding as a proportion of assets by 1.73 percentage points. Given that the median sample firm holds 13% of its assets in cash, this result suggests that the typical sample firm with a CFO with banker connections hold 13.3% (1.73/13) less cash than a firm without CFO–banker connections. Thus, the negative effect of CFO–banker connections on cash holdings is both statistically significant and economically meaningful.

4.2 Firm Cash Holdings around Exogenous Additions of CFO–Banker Connections

The regression analyses in section 4.1 suggest that firms with CFO–banker connections tend to hold less cash. However, unobservable factors may affect both the choice of the CFO and firm

cash holding behavior. In this section, we address this endogeneity concern using a subsample of exogenous changes in CFO–banker connections.

Cohen, Frazzini, and Malloy (2008) suggest that manager changes provide a powerful identification strategy for examining the effect of manager characteristics on policies of interest. Following this idea, we study firm cash holdings around CFO turnover events that add CFO–banker connections. However, not all CFO turnover events are exogenous, so using all turnover events may not be sufficient to address the endogeneity concern if unobservable firm characteristics affect CFO changes. To deal with this issue, we manually search news around these CFO turnover events and classify each turnover as exogenous or endogenous following the process outlined by Fee, Hadlock, and Pierce (2013). In particular, we classify a CFO turnover as exogenous if the outgoing CFO leaves due to: (i) sudden death, (ii) natural retirement (defined as retiring at age 63 or older), (iii) immediately taking another job as a CFO or higher-ranked executive (e.g., CEO), or (iv) other convincing reasons. In the latter two cases, we further search for news around those CFO turnovers to ensure that there are no indications of forced turnovers.[4]

Following this procedure, we identify 101 exogenous CFO turnovers that lead to additions of CFO–banker connections. We refer to these firms that experience exogenous turnover events as *treatment* firms. Because these CFO turnovers are exogenous, changes in cash holdings within treatment firms are more likely to be associated with the banker connections that the incoming CFO brings. We compare changes in cash holdings in *treatment* firms with changes in a sample *control* firms selected based on a propensity-score matching algorithm. We require the control

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[4] We use Google to search these turnover events to obtain the maximum amount of information. The information used comes from various sources including but not limited to, company press releases, LinkedIn, outgoing CFO's personal websites, Bloomberg, and other news outlets. To assess the possibility of forced turnovers, we perform searches including the key words in Fee, Hadlock, and Pierce (2013), for example, "oust," "force," and "remove." To be conservative, we classify all CFO turnovers where we could not find enough information to make an informed categorization as endogenous.

firm to come from the same Fama–French 48 industry as the treatment firm, and we let intuition guide our choice of the covariates we use in the PSM algorithm. We thus include factors that may be related to having a CFO with banker connections as PSM covariates. These include the following variables: an indicator variable for whether or not there is a banker on the board; growth opportunities (as measured by the market-to-book ratio); firm size; leverage; capital expenditure; the standard deviation of cash flows in the past five years (CF_Std); a loss indicator for whether or not the firm has negative net income (loss); and an indicator variable for whether or not the firm has debt with an S&P rating (rating).

Table 3 (Panel A) and Figure 1 summarize the results of the comparison of changes in cash holdings around exogenous CFO turnovers between treatment and control subsamples. We track changes in cash holdings (as a proportion to total assets) from the year before the new CFO with banking connections arrives, to two years after. As shown, cash holdings in treatment firms significantly decrease with the employment of a CFO with banker connections. Firms in the treatment group decrease cash holdings by approximately 5.8 percentage points from year –1 to year 2 (a *t*-test of this decrease has a *t*-statistic of –2.20, significant at the 5% level). In contrast, cash holdings in control firms increase slightly over the same period although this increase is insignificantly different from zero. A *t*-test of the difference-in-differences between the two groups two years after the arrival of the connected CFO in the treatment group (7.4 percentage points) is significant at the 5% level. These findings support those from the regression analysis and suggest that CFO–banker connections lead to significantly lower cash holdings.

In the prior analyses summarized in Panel A of Table 3 and in Figure 1, we excluded all CFO turnovers without sufficient information to classify them as either exogenous or endogenous. This choice is conservative because it means we may have inadvertently excluded some exogenous

CFO turnovers from our analysis. In Figure 2 and Panel B of Table 3, we summarize the results from replicating the analysis using the sample of CFO turnovers that we classified as either explicitly exogenous or undetermined (this sample has 137 observations, which is slightly larger than that used in Figure 1 or Panel A of Table 3). We find a similar pattern as documented in Panel A of Table 3 and Figure 1: firms with additions of CFO–banker connections (treatment firms) experience a significant decrease in cash holdings, and firms without additions of CFO–bank connections (control firms) do not have significant changes in cash holdings. The difference-in-differences for cash holdings after two years between treatment and control firms is statistically significant at the 5% level.

4.3 Cash Holdings in Firms with CFO–Banker Connections and in Matched Control Firms

To complement the evaluation of changes in cash holdings around CFO changes, and to further mitigate concerns that our results are due to the endogeneity of cash holding and CFO–banker connections, we compare the *level* of cash holdings in firms whose CFOs have banker connections (treatment firms) to a sample of matched control firms. We select the control firms, which are otherwise similar to the treatment firms but lack CFO–banker connections, using the nearest-neighbor matching algorithm of Abadie, Drukker, Herr and Imbens (2004) with the control variables from equation (1) and Table 2 as matching covariates.[5] We then test whether CFO–banker connections are associated with lower cash holdings by examining the average treatment effect on treated (ATT). Table 4 presents these results.

The first three rows in Table 4 display results from matching without requiring the matched control firms to come from the same year and same industry as the treatment firms. The results

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[5] In unreported analyses, we perform covariate balance tests to confirm that our treatment and control groups are similar on the matching covariates.

show that ATTs are all negative and statistically significant, regardless of the number of matched control firms for each treatment firm. For example, using one-to-one matching, a firm with connected CFOs hold about 1.72 percentage points (out of total assets) less cash than if the firm does not have a bank-connected CFO. This finding is almost identical to that obtained from the regression analysis in Table 2. This difference is statistically significant at the 1% level.

Because firm cash holdings may vary by year and industry, matching without accounting for year and industry can lead to results based on poorly matched samples. Therefore, Table 4 also presents results for similar nearest-neighbor matched firms controlling for same year and industry, based on the Fama–French 48 industry classifications. The results are similar to those without controlling for year and industry fixed effects and provide further evidence that CFOs' connections to banks reduce firm cash holding.

4.4 Reverse Causality and the Vintage of CFO–Banker Connections

In our analyses thus far, we require a CFO–banker connection to have lasted at least one year prior to the fiscal year in which we measure cash holding and other control variables for the connection to be valid. We impose this restriction to address the concern that CFOs seek banking connections just before pursuing bank financing or credit lines that allows their firms to hold less cash. This possibility means that causality may run in reverse from cash holdings to connections. However, as we noted in the Introduction, we do not think this is the case; most of the connections we observe were formed years in the past based on the education or employment history of the CFO.

Nevertheless, restricting connections to those that are only at least a year old may not fully address the possibility that our results arise from reverse causality. We thus perform a set of robustness tests using a longer relationship establishment window. Specifically, we require CFO banker connections to be three, five, or ten years old prior to the year of interest. We present the

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results for these alternative definitions in Table 5. As shown, the coefficient estimates on the key variable, *CFO Bank Connected* and *CFO Bank Connection Size*, are negative and statistically significant in all specifications. Thus, regardless of what restrictions we impose on the age of CFO–banker connections (or other executives' banker connections), the negative association between CFO–banker connections and cash holdings persists. We also observe that, consistent with the baseline results in Table 2, banking relationships for other executives and directors still cannot explain firm cash holdings. CFO-banker connections are paramount in explaining firm cash holding behavior.

5. MECHANISMS, ALTERNATIVE EXPLANATIONS, AND ROBUSTNESS TESTS

5.1 CFO–Banker Social Networks as an Information Channel

Our inference thus far is that CFO–banker connections reduce the need to hold precautionary cash by providing a channel to potential lenders that reduces information asymmetry between the firm and these lenders. An implication of this information channel hypothesis is that CFO–banker connections should be more important in firms that are inherently more opaque. In contrast, CFO–banker connections should be less beneficial to firms that are inherently more transparent and thus easier for creditors to analyze. Because smaller firms tend to be more opaque, we predict a more pronounced negative relation between CFO–banker networks and cash holdings in smaller firms.

We test this hypothesis by adding an interaction term between the binary variable *CFO Bank Connected* and firm size to equation (1), and predict that the estimated coefficient on this interaction term will be positive. We present the results of this analysis in Table 6. Column 1 shows that the estimated coefficient on *CFO Bank Connected* is –0.0870 ($t = –2.760$) and on *CFO Bank Connected × Firm Size* is 0.0112 ($t = 2.494$). This finding indicates that, although the negative

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effect of CFO–banker connections on firm cash holdings remains significant, the effect is less (more) important for larger (smaller) firms. In column (3), we replicate the analysis using the number of CFO connections (*CFO Bank Connection Size*) rather than the binary variable (*CFO Bank Connected)* and find similar results.

Larger firms have greater access to nonbank borrowing markets and are thus less likely to rely on bank financing (Leary, 2009). Therefore, our results showing that CFO–banker connections are more important for smaller firms may simply reflect the fact that connections to bankers are more important for firms that borrow from banks, not necessarily prove its role as an information channel. To address this issue, we perform another set of tests in which we employ an exogenous shock to bank lending that led to reductions in bank loan availability. A severe contraction in credit made banks more conservative in extending loans after the 2008 financial crisis, which meant that only firms that were more transparent to banks retained easier access to bank lending. This suggests that CFO–banker connections will have become more important in the post-financial crisis period.

We test this hypothesis by adding an interaction term between the binary variable and *Crisis*, a dummy variable that equals 1 for years after 2008, and zero otherwise, to equation (1). Firms with stronger needs for bank loans possibly may have replaced their CFO with one who had banker connections in the post-crisis era. We mitigate this self-selection problem by carrying out this particular analysis using a subsample of firms that did not change CFOs during the post-crisis era.[6] We present the results in column (2) of Table 6. The coefficient estimates on *CFO Bank Connected* and the interaction term *CFO Bank Connected × Crisis* are –0.0187 ($t = –1.843$) and –0.0261 ($t = –2.015$), respectively. These results continue to show that CFO–banker connections have a negative association with cash holdings, but this effect is stronger after the financial crisis.

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[6] We find similar results when we include firms that changed their CFOs in the post-crisis period.

This finding supports the notion that CFO–banker connections are more important when information asymmetry is of greater concern to bank lenders. In column (4), we replicate the analysis using the number of CFO connections (*CFO Bank Connection Size*) rather than the binary variable *CFO Bank Connected* and find similar results.

5.2 CFO–Banker Connections and Sweetheart Deals

The previous results show that CFO–banker relationships lead to less cash holdings, especially when soft information on borrowing firms is harder to acquire or more important to banks. However, an alternative explanation for our results may be that CFOs with banker connections anticipate that they can negotiate sweetheart deals with bankers when they need cash, as opposed to these connections being a channel for the dissemination of value-relevant private information. In other words, it is possible that CFO–banker connections reduce the need for firms to hold cash simply because the CFO has banker friends willing to supply credit regardless of the quality of the firm. In the information channel case, borrowing firms benefit by being able to secure additional financing and banks benefit by gaining potential businesses. In sharp contrast, in the sweetheart deals case, banks might suffer loss from lending to poor quality firms.

We examine this possibility by looking at the effect of CFO–banker connections on firm cash holdings in firms with and without junk bonds. Firms with bonds rated below BBB– by Standard and Poor's (i.e., junk bonds) are more likely to default on their loans and thus have greater difficulty obtaining credit financing and pay higher costs for external capital. Therefore, if CFO–banker connections' impact on cash holdings arises simply from the possibility of sweetheart deals, it should be more pronounced for firms with junk bonds. We directly test this possibility using a subsample of firms with valid Standard & Poor's bond ratings. We divide the sample into firms with and without junk bonds and then estimate the cash holding regression specified in equation

(1) for both groups separately. We present the results in Table 7. Columns (1) and (2) report the results for the subsample of firms with and without junk bonds, respectively. The results show that the negative relation between cash holdings and CFO–banker connections holds only for the non-junk bond firms. Firms with junk bonds, who we expect to have greater needs for sweetheart deals, do not have easier access to bank loans even if their CFOs have banker connections. These findings provide strong evidence against the alternative sweetheart deal hypothesis. Tests based on the number of banker connections in Columns (4) and (5) provide similar results.

The results discussed in the preceding paragraph indicate that CFO–banker connections do not help reduce cash holdings among firms whose bonds are rated below investment grade. However, the quality of firms with junk bonds vary greatly, and some healthy firms' bonds are rated junk because rating agencies do not have access to quality information. If CFO–banker connections provide a valid conduit for information diffusion, high-quality firms with low ratings and CFO–banker connections should be able to reduce cash holdings. We test this possibility by adding an interaction term between CFO–banker connection and return on assets (ROA) to column (2) of Table 7, where we use the subsample of firms with junk bonds and use firm performance (ROA) as a proxy for firm quality. Column (3) shows the coefficient estimate on this interaction term is –0.187 ($t = -2.161$). Using the number of CFO banker connections (column 6) produces similar results. These findings indicate that, among firms with junk bonds, those that are higher quality hold less cash when they can convey information about their true quality to bankers through CFO–banker networks. This evidence further supports the notion that the negative relation between CFO–banker connections and cash holdings is due to the information channel, not sweetheart deals.

5.3 CFO–Banker Relationship — A Firm Location Effect?

Firms located in large cities are, by virtue of their location, geographically closer to more banks, especially large banks with several employees. These firms' geographical locations increase their CFOs' opportunities to connect with bankers through either professional activities (e.g., sitting on another firm's board) or social activities (e.g., memberships at the same charities or non-profits). In addition, mere proximity to a large number of banks may mean financing is more readily obtainable even if executives are not personally connected to bankers. Thus, an alternative explanation for our results is that they simply reflect a firm location effect, in which firms located in larger cities that are financial centers tend to hold less cash.

We address this issue by directly controlling for firm geographical location in estimating equation (1). We present the results in Table 8. Columns (1) and (4) include a dummy variable, *FC*, that equals 1 if the firm is located in a financial center (i.e., Boston, New York City, Chicago, or San Francisco), as defined in Bushee, Gerakos, and Lee (2014), and zero otherwise. We also include an interaction term between our measures of CFO–banker relationships and the financial center dummy to capture any differences in CFO–banker relationship's effects on firm cash holding for firms located in and outside financial centers. The results show that CFO–banker relationships significantly reduce cash holdings, even after controlling for financial center fixed effects. Furthermore, the statistically insignificant coefficient estimates on the interaction terms indicate that the effects are not dependent on firm location.

In columns (2) and (5) of Table 8, we include metropolitan statistical areas fixed effects, while in columns (3) and (6) we include state fixed effects. The main findings are consistent with previous results. The negative relation between CFO–banker networks and firm cash holding is robust to controlling for the firm location effect even after including various location fixed effects.

5.4 Placebo Tests: CFO Connections to Other Industries Outside Banking

Up to this point, we have focused almost exclusively on CFO connections to people in the banking industry. We argue that these connections, in particular, reduce information asymmetry, and by extension, cash holdings. However, one could make the argument that it is not CFO–banker connections, but CFO connections in general, that matter. In other words, well-connected CFOs, regardless of which industry to which the CFOs are connected, are negatively associated with firm cash holdings.

To examine this alternative explanation, we perform two sets of placebo tests. We define executive connections to two other non-financial industries, following a similar identification procedure as previously described for identifying CFO–banker connections in Section 3.2. Specifically, we identify connections to the software and drugs industries respectively (where the industry is as specified by the Fama–French 48 industry classification). We select these two industries because they are the second and the third largest industries in our sample. We then estimate the effect of CFOs' connections to these industries have on firm cash holdings. We present the results of this analysis in Table 9. The results show that, unlike CFO–banker connections, CFO connections to either the software or the drugs industry are unrelated to cash holdings. This result reinforces our conjecture that it is precisely the connections of CFOs to important providers of firm financing that affects firm cash-holding behavior and not just CFO connections in general.

6. CFO–BANKER NETWORKS AND THE MARKET VALUE OF CASH HOLDINGS

As we note in the Introduction, CFO connections are observable by market participants. Given the cost of holding precautionary cash (low returns, higher agency costs), a straightforward implication of our analysis thus far is that capital markets should place a lower marginal value on

cash held by firms with CFOs connected to bankers. In other words, we expect market participants to impute a lower value to an additional dollar of cash held by firms with CFO–banker connections than those without, after controlling for expected uses of cash.

We use and extend Faulkender and Wang's (2006) model to assess the value (to shareholders) of cash holdings. The model requires regressing excess stock returns ($r_t - R_t$) on changes in cash holding (ΔC_t) and a vector of control variables (ΔX_t) that are correlated with changes in cash but may also affect stock returns, as follows:

$$r_t - R_t = \alpha + \beta \times \Delta C_t + \varphi \times CFOBankConnected + \gamma \times CFOBankConnected \times \Delta C_t + \Gamma'\Delta X_t + \epsilon_{i,t} \ (2)$$

We augment Faulkender and Wang's (2006) model with two additional variables to investigate whether an extra dollar of cash is less valuable in firms with bank-connected CFOs. The first, *CFO Bank Connected*, is a dummy variable that equals one if a firm's CFO is connected with bankers, and zero otherwise, and the second is the interaction of *CFO Bank Connected*$_t$ and ΔC_t. This interaction represents our main variable of interest and we predict that γ will be negative.

We present the results of our analysis in Table 10. In column (1), we directly follow Faulkender and Wang (2006) by regressing the excess returns, calculated as the difference between fiscal year returns of the stock and the returns of the matched Fama–French size and book-to-market portfolios (FF25 portfolio) for the same time period, on our explanatory variables. The coefficient estimate on the interaction term between *CFO Bank Connected*$_t$ and ΔC_t is –0.470 ($t = $ –2.985). This significantly negative coefficient suggests that an additional dollar held by firms with banker-connected CFOs is less valuable than for similar firms without such CFOs. This finding is consistent with our argument that firms with CFO–banker relationships have fewer precautionary needs for cash, so cash held by these firms tend to be valued less by shareholders. Economically, the results in column (1) suggest that an extra dollar of cash in a firm with banker-

connected CFOs is worth 45.66 cents (0.0134 – 0.470) less to shareholders than an extra dollar in a firm without such CFOs.

In the regression in column (1) of Table 10, our use of excess returns as the dependent variable is essentially an adjustment of raw returns using a benchmark portfolio to address unobservable heterogeneity in the return generating process. Gormley and Matsa (2014) point out that simply adjusting only the dependent or only the independent variable, but not both, when accounting for unobservable heterogeneity may yield inconsistent estimates. They propose using fixed effects directly to account for unobserved heterogeneity. As such, in column (2), we run the same regression as in column (1) but using raw return as the dependent variable and using benchmark portfolio-fiscal year fixed effects. Our results are similar to that in column (1); coefficient estimate on the interaction term between *CFO Bank Connected$_t$* and *ΔC_t* is –0.510 ($t =$ –3.120). In column (3), we include industry fixed effects as well calendar year fixed effects and find that our inference remains unchanged. Taken together, the results in Table 10 show that investors recognize the value of CFO–banker connections and, accordingly, assign a lower stock market valuation to cash holdings of firms with these connections.

7. CFO–FINANCIAL ANALYST CONNECTIONS AND ANALYST ACCURACY

Our analysis and inference throughout the paper thus far are predicated on the idea that CFO connections to bankers provide an information channel through which tacit information flows from companies to potential creditors. While, prior studies document the possibility that executives act as information conduits to external constituents, these studies tend to focus on CEOs or directors in general; the extent to which CFOs are an economically important source of implicit or tacit information remains an open question. In this section, we explore the role of CFO connections to

equity analysts in the accuracy of analysts' forecasts. We perform this analysis for two reasons. First, it provides us an opportunity to further examine the economic importance of CFO connections as an information channel. Second, having established that CFO connections are important to credit market participants (and by extension, cash management within the firm), we examine to what extent CFO connections matter to equity market participants in at least one observable context.

Hope (2003) and Liang and Riedl (2014) find that analyst earnings forecasts are more accurate when they have access to material information on the firms they cover. If CFO connections to financial analysts act as an information conduit to these analysts, then we expect analysts' forecasts of firms with extensive CFO–analyst connections to be more accurate. We thus directly estimate the association between CFO–analysts connection and analyst forecast error.

We follow Liang and Riedl (2014) and define the forecast error for firm i at time t as the absolute value of the difference between mean earnings forecasts from all analysts and the actual reported earnings, standardized by mean earnings forecasts:

$$Forecast\ error_{i,t} = \left| \frac{Mean\ earnings\ forecast_{i,t} - Actual\ earnings_{i,t}}{Mean\ earnings\ forecasts\ _{i,t}} \right|, \quad (3)$$

where

$$Mean\ earnings\ forecast_{i,t} = \frac{\sum_{j=1}^{n_{i,t}} Forecast_{j,i,t}}{n_{i,t}}. \quad (4)$$

Forecast$_{j,i,t}$ represents the last earnings forecast from analyst j for firm i for the period ending at time t. $n_{i,t}$ is the total number of financial analysts who cover firm i for the period ending at time t. In our analysis, we include several control variables that prior literature suggests may be determinants of analyst forecast error. The appendix provides detailed definitions of our control variables.

We present the result of the analysis in Table 11. In column (1), the coefficient estimate for *CFO Analyst Connected* is –0.0699 (t = –2.151), where *CFO Analyst Connected* is a binary variable that equals one if the firm's CFO is connected to financial analysts, and zero otherwise. This result indicates that, holding all else constant, financial analyst forecasts tend to be more accurate for firms with CFOs connected to analysts. Based on these estimates, and given that the average forecast error in our sample is 0.31, a CFO connection to financial analysts reduces the average earnings forecast error by 22.55%, which is both statistically and economically significant. We find similar results in column (3) of Table 11 when we use the number of analyst connections. In columns (2) and (4), we include CEO–analysts connections and other director-analysts connections. We find that CFO–analyst connections continue to be negatively associated with analyst forecast errors.

8. CONCLUSION

In this paper, we examine how CFOs' connections to individuals in the banking industry affect firm cash holdings. Cash represents a significant part of a firm's assets; in our sample, the typical firm holds 13% of its assets in cash. Holding cash is costly for firms, because most firms earn less than their cost of capital from their cash holdings and high levels of retained liquidity may induce wasteful spending on the part of managers. However, information asymmetry and the fact that firms cannot perfectly predict future liquidity needs mean that they must hold precautionary cash.

Easier access to bank financing reduces firms' needs for precautionary cash. We focus on executive networks in the banking industry because these networks offer a channel by which individual firms can reduce information asymmetry between them and potential lenders. We focus on CFOs in particular because they are the financial experts on the executive team. Furthermore,

liquidity management falls within the scope of CFOs' particular area of expertise. These features of CFOs suggest that cash management is one area where CFOs' social and professional networks in the banking industry may be particularly important. Therefore, our key conjecture is that firms with CFOs connected to bankers will hold less cash, and that the CFOs' connection to bankers will be more important than that of other executives and directors.

Across a broad range of empirical choices, we find evidence to support our conjecture. Firms that have CFOs with connections to the banking industry hold significantly less cash than firms without such CFOs. In the two years following exogenous turnover that leads to the arrival of a CFO with banking connections, firms experiencing such turnover reduce their cash holdings significantly, when compared to firms not experiencing such turnover. The negative association between CFO-banker connections and firm cash holdings appears, as we suggest, due to the reduction in information asymmetry engendered by these connections. The negative association is stronger in opaque firms, and when credit is constrained, and private information becomes more important to banks. We also find that while CFO–banker connections lead to less cash holdings, CEO and other directors' connections in the banking industry do not have such an impact. Finally, we observe that, it is not just CFO connections in general, but CFO connections in the banking industry in particular. We find no association between CFO connection to other industries, and firm cash holdings.

We believe our work has at least three broader implications for academics, investors, the business press and, indeed, for future research. First, our findings clearly indicate the centrality of the CFO and the CFO's social and professional human capital to corporate financial policy. As we note in the Introduction, much of the focus in research and the press has been on the CEO (or other directors). Our findings clearly suggest that the role of the CFO may be underappreciated. This

lack of appreciation for the expertise and social of capital of the CFO may indeed extend to other members of the executive team. Future work may seek to understand how other executives' own expertise (e.g., in marketing, supply chain etc.) makes their social and professional networks as or more important than that of the CEO.

Second, our work suggests that social and professional networks may serve essentially as a form of insurance against future uncertainty. CFO–banker connections increase availability of bank financing due to reduced information asymmetry. Therefore, firms with CFOs who do not have banking connections essentially need to insure themselves against uncertain future liquidity needs in a way that firms with CFO–banker connections do not. Finally, our work dovetails with prior work (e.g., Larcker, So, and Wang, 2013) that find higher performance in firms with well-connected directors and executives. Our results suggest that one of the potential mechanisms by which connections ultimately improve performance may be by lowering the long-term costs of external financing and reducing the "deadweight" cost of holding precautionary cash.

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Table 1 – Summary Statistics

This table shows the summary statistics for the variables used in this study. Variable definitions are documented in the appendix. All data are winsorized at the 1% and 99% levels.

Variable	N	Mean	Std	Q1	Q2	Q3
Acquisition Costs	15282	0.026	0.063	0	0	0.016
Banker on Board	15863	0.118	0.323	0	0	0
Board Friendliness	15863	0.129	0.231	0	0	0.2
Capital Expenditures	15831	0.052	0.060	0.016	0.032	0.063
Cash	15857	0.220	0.233	0.041	0.133	0.326
CEO Analyst Connected	27157	0.038	0.191	0	0	0
CEO Analyst Connection Size	27157	0.058	0.323	0	0	0
CEO Bank Connected	15863	0.080	0.272	0	0	0
CEO Bank Connection Size	15863	0.922	4.287	0	0	0
CEO Network Size	20136	5.720	1.130	4.949	5.832	6.572
CF	15859	0.030	0.228	0.014	0.081	0.134
CF std	14718	0.142	1.657	0.028	0.049	0.089
CFO Analyst Connected	27157	0.025	0.157	0	0	0
CFO Analyst Connection Size	27157	0.035	0.239	0	0	0
CFO Bank Connected	15863	0.093	0.290	0	0	0
CFO Bank Connection Size	15863	1.147	5.160	0	0	0
CFO Network Size	13563	5.717	1.123	4.905	5.886	6.624
Director Analyst Connected	27157	0.291	0.454	0	0	1
Director Analyst Connection Size	27157	0.687	1.234	0	0	1.099
Director Bank Connected	15863	0.355	0.479	0	0	1
Director Bank Connection Size	15863	12.006	29.807	0	0	6
Director Network Size	27035	8.285	0.889	7.752	8.324	8.836
Dividend	15859	0.335	0.472	0	0	1
EPS change	24939	0.113	0.833	-0.14	0.11	0.37
Equity	15575	0.069	0.180	0.0011	0.0065	0.0269
Executive and Director Bank Connected	15863	0.459	0.498	0	0	1
Executive and Director Bank Connection Size	15863	14.389	31.254	0	0	13
FC	14587	0.240	0.427	0	0	0
Firm Size	15863	4701.819	25472.180	123.661	559.008	2116.508
Forecast Error	27128	0.314	0.966	0.019	0.056	0.171
Horizon	27157	117.993	44.487	90.727	114.750	140.500
Junk	5267	0.504	0.500	0	1	1
Leverage	15810	0.662	5.819	0.293	0.476	0.649
Loss	15859	0.337	0.473	0	0	1
MB	14988	4.367	23.326	1.405	2.270	3.845
Num Analysts	27157	2.204	0.785	1.609	2.197	2.773
NYSE	27157	0.196	0.397	0	0	0
Rating	15859	0.332	0.471	0	0	1
R&D	15492	0.323	1.558	0	0.0065	0.0922
Revenue std	14718	0.196	0.310	0.070	0.126	0.226
Tangible	15858	0.479	0.374	0.179	0.378	0.701
Tax	15856	0.188	0.408	0	0.278	0.370

Table 2 – CFO–Banker Relationship and Cash Holdings
This table documents results for the analysis of CFO–banker relationships and firm cash holdings. Variable definitions are available in the appendix. The dependent variable is *(cash and other short-term investments/total assets)*. Industries are defined based on the Fama–French 48 industry classifications. *t*-statistics, based robust standard errors clustered at the firm level, are reported in parentheses. ***, **, and * represent the 1%, 5%, and 10% level of significance, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Executive and Director Bank Connected	-0.00731*							
	(-1.828)							
CFO Bank Connected		-0.0173**		-0.0173**				
		(-2.100)		(-2.095)				
CEO Bank Connected			-0.00155	-0.000787				
			(-0.164)	(-0.0832)				
Director Bank Connected				-0.00640*				
				(-1.851)				
Executive and Director Bank Connection Size					-0.00270**			
					(-2.271)			
CFO Bank Connection Size						-0.00720**		-0.00714**
						(-2.227)		(-2.206)
CEO Bank Connection Size							-0.00248	-0.00231
							(-0.661)	(-0.615)
Director Bank Connection Size								-0.00167
								(-1.563)

Table 2 (cont.)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Banker on Board	-0.0135**	-0.0132**	-0.0137**	-0.0130**	-0.0132**	-0.0132**	-0.0137**	-0.0129**
	(-2.226)	(-2.182)	(-2.249)	(-2.153)	(-2.178)	(-2.181)	(-2.252)	(-2.136)
Board Friendliness	0.000380	0.000225	-0.000184	0.000695	0.000420	4.71e-06	4.96e-05	0.000533
	(0.0305)	(0.0181)	(-0.0147)	(0.0557)	(0.0337)	(0.000379)	(0.00398)	(0.0427)
MB	0.000465***	0.000465***	0.000466***	0.000465***	0.000466***	0.000465***	0.000466***	0.000465***
	(3.099)	(3.086)	(3.085)	(3.098)	(3.095)	(3.086)	(3.084)	(3.091)
Firm Size	-0.00679***	-0.00675***	-0.00680***	-0.00675***	-0.00675***	-0.00673***	-0.00680***	-0.00673***
	(-2.961)	(-2.945)	(-2.961)	(-2.943)	(-2.944)	(-2.935)	(-2.963)	(-2.935)
CF	-0.00155	-0.000803	-0.00146	-0.00111	-0.00180	-0.000979	-0.00162	-0.00135
	(-0.0709)	(-0.0368)	(-0.0666)	(-0.0507)	(-0.0822)	(-0.0448)	(-0.0739)	(-0.0619)
Leverage	-0.240***	-0.240***	-0.240***	-0.240***	-0.240***	-0.240***	-0.240***	-0.240***
	(-15.21)	(-15.22)	(-15.22)	(-15.19)	(-15.19)	(-15.21)	(-15.23)	(-15.18)
Capital Expenditures	-0.153***	-0.152***	-0.154***	-0.152***	-0.153***	-0.151***	-0.154***	-0.151***
	(-3.505)	(-3.468)	(-3.532)	(-3.457)	(-3.495)	(-3.450)	(-3.539)	(-3.448)
R&D	0.0227***	0.0228***	0.0228***	0.0227***	0.0227***	0.0228***	0.0228***	0.0227***
	(9.716)	(9.700)	(9.721)	(9.680)	(9.715)	(9.717)	(9.733)	(9.707)
CF std	0.00252	0.00254	0.00255	0.00252	0.00254	0.00255	0.00255	0.00254
	(0.534)	(0.541)	(0.543)	(0.535)	(0.538)	(0.543)	(0.542)	(0.540)
Equity	0.281***	0.280***	0.280***	0.282***	0.281***	0.280***	0.280***	0.281***
	(14.53)	(14.48)	(14.44)	(14.54)	(14.52)	(14.47)	(14.44)	(14.51)
Tax	-0.0156***	-0.0154***	-0.0156***	-0.0154***	-0.0156***	-0.0154***	-0.0156***	-0.0155***
	(-4.237)	(-4.179)	(-4.226)	(-4.197)	(-4.240)	(-4.209)	(-4.234)	(-4.224)
Tangible	-0.110***	-0.110***	-0.110***	-0.110***	-0.110***	-0.110***	-0.110***	-0.110***
	(-10.80)	(-10.77)	(-10.81)	(-10.77)	(-10.81)	(-10.79)	(-10.80)	(-10.79)
Dividend	-0.00969	-0.00939	-0.00953	-0.00961	-0.00945	-0.00926	-0.00939	-0.00920
	(-1.588)	(-1.539)	(-1.559)	(-1.573)	(-1.545)	(-1.515)	(-1.534)	(-1.502)
Acquisition Costs	-0.482***	-0.483***	-0.482***	-0.483***	-0.482***	-0.483***	-0.482***	-0.483***
	(-21.55)	(-21.57)	(-21.53)	(-21.54)	(-21.55)	(-21.58)	(-21.55)	(-21.56)
Loss	0.0244***	0.0242***	0.0241***	0.0245***	0.0244***	0.0241***	0.0241***	0.0243***
	(4.696)	(4.652)	(4.630)	(4.709)	(4.692)	(4.626)	(4.628)	(4.671)
Rating	-0.0138*	-0.0142*	-0.0137*	-0.0141*	-0.0138*	-0.0140*	-0.0137*	-0.0141*
	(-1.841)	(-1.882)	(-1.823)	(-1.879)	(-1.840)	(-1.864)	(-1.828)	(-1.869)
Constant	0.397***	0.391***	0.391***	0.397***	0.399***	0.391***	0.392***	0.397***
	(14.63)	(14.52)	(14.53)	(14.65)	(14.76)	(14.48)	(14.55)	(14.61)
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Observations	12,890	12,890	12,890	12,890	12,890	12,890	12,890	12,890
Adjusted R^2	0.531	0.531	0.531	0.531	0.531	0.531	0.531	0.531

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Table 3 – Cash Holdings after Exogenous Additions of CFO-banker Connections

This table reports the difference-in-differences (DID) analysis of cash holdings after exogenous additions of CFO-banker connections. Treatment firms are the ones that experience exogenous additions of CFO–banker connections in year 0 (as defined in Section 4.2); control firms are the ones that do not experience such additions and are matched to the treatment firms based on a propensity-score matching (PSM) algorithm. Panel A is for CFO turnovers that we classify as exogenous (i.e., the sample in Figure 1); Panel B further includes cases where we do not have enough information to classify as endogenous (i.e., the sample in Figure 2). The first two rows in Panels A and B represent changes in cash holdings in relative to the beginning of year – 1 (i.e. year before turnover). The third row reports the difference in these changes; the associated p-value from t-tests are documented in parentheses. ***, **, and * represent the 1%, 5%, and 10% level of significance, respectively.

Panel A

	Year	0	1	2
Changes in Cash Holdings in Treatment Firms		-1.83%	-2.39%	-5.80%
Changes in Cash Holdings in Control Firms		2.66%	2.98%	1.60%
Difference in Changes in Cash Holdings		-4.50%	-5.37%*	-7.40%**
		(0.119)	(0.089)	(0.047)

Panel B

	Year	0	1	2
Changes in Cash Holdings in Treatment Firms		-2.90%	-3.39%	-5.40%
Changes in Cash Holdings in Control Firms		1.23%	1.66%	0.64%
Difference in Changes in Cash Holdings		-4.12%*	-5.06%*	-6.04%**
		(0.098)	(0.069)	(0.049)

Table 4 – Matched Sample Test
This table documents results from the matching sample test using the nearest-neighbor matching method. ATT is the average treatment effects on treated. Industries are defined based on the Fama–French 48 industry classifications. Each firm with a CFO–banking connection (i.e., treatment firm) is matched to one (or more) otherwise similar firm(s) that does (do) not have CFO–banking connections (i.e., control firms), using the non-connection firm characteristics employed in the regression reported in Table 2.

Matching Method	ATT	Z-statistics	P>|z|
Without Fixed Effects			
1-to-1 Match	-0.0171917	-3.01	0.003
1-to-2 Match	-0.0192275	-3.74	0.000
1-to-3 Match	-0.176667	-3.67	0.000
With Year Fixed Effects			
1-to-1 Match	-0.134728	-2.32	0.020
1-to-2 Match	-0.0196723	-3.80	0.000
1-to-3 Match	-0.0174526	-3.52	0.000
With Year and Industry Fixed Effects			
1-to-1 Match	-0.0271752	-4.56	0.000
1-to-2 Match	-0.0240952	-4.69	0.000
1-to-3 Match	-0.0235803	-4.79	0.000

Table 5 – Different Relationship Establishment Windows
This table documents results for the analysis of CFO–banker relationships and cash holdings using different relationship establishment windows. Columns (1) and (4) use a 3-year window, columns (2) and (5) use a 5-year window, and columns (3) and (6) use a 10-year window. Variable definitions are available in the appendix. The dependent variable is *(cash and other short-term investments/total assets)*. Industries are defined based on the Fama–French 48 industry classifications. *t*-statistics, based robust standard errors clustered on the firm level, are reported in parentheses. ***, **, and * represent the 1%, 5%, and 10% level of significance, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
CFO Bank Connected	-0.0171**	-0.0169**	-0.0176**			
	(-2.042)	(-1.971)	(-1.972)			
CEO Bank Connected	-0.000558	0.000692	4.02e-05			
	(-0.0576)	(0.0688)	(0.00377)			
Director Bank Connected	-0.00755**	-0.00730**	-0.00745**			
	(-2.172)	(-2.088)	(-2.092)			
CFO Bank Connection Size				-0.00713**	-0.00713**	-0.00714**
				(-2.204)	(-2.204)	(-2.205)
CEO Bank Connection Size				-0.00231	-0.00231	-0.00230
				(-0.615)	(-0.615)	(-0.614)
Director Bank Connection Size				-0.00179*	-0.00178	-0.00162
				(-1.651)	(-1.607)	(-1.414)
Banker on Board	-0.0131**	-0.0131**	-0.0131**	-0.0129**	-0.0129**	-0.0130**
	(-2.164)	(-2.164)	(-2.158)	(-2.136)	(-2.138)	(-2.146)
Board Friendliness	0.000578	0.000340	-9.27e-06	0.000538	0.000511	0.000437
	(0.0464)	(0.0273)	(-0.000744)	(0.0431)	(0.0410)	(0.0350)
MB	0.000465***	0.000465***	0.000465***	0.000465***	0.000465***	0.000465***
	(3.101)	(3.100)	(3.102)	(3.091)	(3.091)	(3.090)
Firm Size	-0.00674***	-0.00674***	-0.00675***	-0.00673***	-0.00674***	-0.00674***
	(-2.942)	(-2.941)	(-2.947)	(-2.937)	(-2.939)	(-2.942)
CF	-0.00126	-0.00108	-0.00118	-0.00135	-0.00134	-0.00132
	(-0.0574)	(-0.0494)	(-0.0541)	(-0.0619)	(-0.0612)	(-0.0603)
Leverage	-0.240***	-0.240***	-0.240***	-0.240***	-0.240***	-0.240***
	(-15.18)	(-15.18)	(-15.18)	(-15.18)	(-15.18)	(-15.19)
Capital Expenditures	-0.152***	-0.152***	-0.152***	-0.151***	-0.151***	-0.151***
	(-3.459)	(-3.457)	(-3.452)	(-3.449)	(-3.449)	(-3.447)
R&D	0.0227***	0.0227***	0.0228***	0.0227***	0.0227***	0.0227***
	(9.678)	(9.683)	(9.694)	(9.706)	(9.707)	(9.710)
CF std	0.00252	0.00252	0.00253	0.00254	0.00254	0.00254
	(0.535)	(0.536)	(0.537)	(0.540)	(0.540)	(0.540)
Equity	0.282***	0.282***	0.282***	0.281***	0.281***	0.281***
	(14.55)	(14.55)	(14.54)	(14.51)	(14.51)	(14.50)
Tax	-0.0155***	-0.0154***	-0.0155***	-0.0155***	-0.0155***	-0.0155***
	(-4.214)	(-4.208)	(-4.217)	(-4.227)	(-4.227)	(-4.223)
Tangible	-0.110***	-0.110***	-0.110***	-0.110***	-0.110***	-0.110***
	(-10.77)	(-10.77)	(-10.77)	(-10.79)	(-10.79)	(-10.79)
Dividend	-0.00964	-0.00964	-0.00964	-0.00920	-0.00921	-0.00919
	(-1.578)	(-1.578)	(-1.579)	(-1.503)	(-1.503)	(-1.501)
Acquisition Costs	-0.483***	-0.483***	-0.483***	-0.483***	-0.483***	-0.483***
	(-21.53)	(-21.54)	(-21.55)	(-21.56)	(-21.56)	(-21.56)
Loss	0.0245***	0.0245***	0.0244***	0.0243***	0.0243***	0.0243***
	(4.714)	(4.721)	(4.702)	(4.673)	(4.670)	(4.666)
Rating	-0.0141*	-0.0141*	-0.0142*	-0.0141*	-0.0141*	-0.0141*
	(-1.877)	(-1.876)	(-1.883)	(-1.869)	(-1.870)	(-1.872)
Constant	0.398***	0.397***	0.398***	0.397***	0.397***	0.396***
	(14.69)	(14.67)	(14.66)	(14.62)	(14.61)	(14.58)
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	12,890	12,890	12,890	12,890	12,890	12,890
Adjusted R^2	0.531	0.531	0.531	0.531	0.531	0.531

Table 6 – CFO–Banker Relationship as Information Channel

This table documents results for the analysis of CFO–banker relationships as information channel. Variable definitions are available in the appendix. The dependent variable is *(cash and other short-term investments/total assets)*. Industries are defined based on the Fama–French 48 industry classifications. *t*-statistics, based robust standard errors clustered at the firm level, are reported in parentheses. ***, **, and * represent the 1%, 5%, and 10% level of significance, respectively.

VARIABLES	(1)	(2)	(3)	(4)
CFO Bank Connected	-0.0870***	-0.0187*		
	(-2.760)	(-1.843)		
CFO Bank Connected × Firm Size	0.0112**			
	(2.494)			
CFO Bank Connected × Crisis		-0.0261**		
		(-2.015)		
CEO Bank Connected	-0.000859			
	(-0.0913)			
Director Bank Connected	-0.00633*			
	(-1.835)			
CFO Bank Connection Size			-0.0264**	-0.00709*
			(-2.441)	(-1.798)
CFO Bank Connection Size × Firm Size			0.00295**	
			(2.053)	
CFO Bank Connection Size × Crisis				-0.0154***
				(-2.987)
CEO Bank Connection Size			-0.00239	-0.00244
			(-0.638)	(-0.531)
Director Bank Connection Size			-0.00167	-0.00130
			(-1.563)	(-1.058)
Crisis		0.0315***		0.0224***
		(8.981)		(6.584)
Banker on Board	-0.0133**	-0.0170***	-0.0134**	-0.0170***
	(-2.209)	(-2.665)	(-2.213)	(-2.650)
Board Friendliness	0.00103	-0.0153	0.000581	-0.0156
	(0.0826)	(-1.140)	(0.0466)	(-1.171)
MB	0.000464***	0.000608***	0.000464***	0.000609***
	(3.102)	(3.186)	(3.094)	(3.197)
Firm Size	-0.00767***	-0.00678**	-0.00730***	-0.00672**
	(-3.256)	(-2.311)	(-3.114)	(-2.287)
CF	-0.000243	-0.00925	-0.000366	-0.00983
	(-0.0112)	(-0.292)	(-0.0168)	(-0.308)
Leverage	-0.241***	-0.249***	-0.240***	-0.250***
	(-15.26)	(-13.66)	(-15.22)	(-13.76)
Capital Expenditures	-0.150***	-0.184***	-0.150***	-0.181***
	(-3.416)	(-2.982)	(-3.416)	(-2.882)
R&D	0.0227***	0.0237***	0.0227***	0.0237***
	(9.666)	(8.029)	(9.686)	(7.986)
CF std	0.00248	0.00148	0.00253	0.00151
	(0.530)	(0.388)	(0.538)	(0.396)
Equity	0.281***	0.270***	0.281***	0.269***
	(14.59)	(11.56)	(14.51)	(11.51)
Tax	-0.0155***	-0.0163***	-0.0156***	-0.0166***
	(-4.224)	(-4.130)	(-4.259)	(-4.224)
Tangible	-0.110***	-0.109***	-0.110***	-0.109***
	(-10.80)	(-10.08)	(-10.81)	(-10.10)
Dividend	-0.00968	-0.0118*	-0.00925	-0.0113
	(-1.589)	(-1.661)	(-1.512)	(-1.568)
Acquisition Costs	-0.483***	-0.493***	-0.483***	-0.494***
	(-21.51)	(-18.28)	(-21.53)	(-18.46)
Loss	0.0246***	0.0241***	0.0244***	0.0238***
	(4.731)	(3.227)	(4.699)	(3.190)
Rating	-0.0134*	-0.0129	-0.0137*	-0.0128
	(-1.781)	(-1.491)	(-1.819)	(-1.468)
Constant	0.404***	0.422***	0.401***	0.421***
	(14.69)	(13.14)	(14.60)	(13.09)
Year Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
Observations	12,890	9,528	12,890	9,528
Adjusted R^2	0.532	0.536	0.532	0.536

Table 7 – CFO–Banker Relationship as Sweetheart Deals

This table documents results for the analysis of whether CFO–banker relationships lead to sweetheart deals. Variable definitions are available in the appendix. The dependent variable is *(cash and other short-term investments/total assets)*. Columns (1) and (4) include only firms without junk bonds, and columns (2), (3), (5), and (6) include only firms with junk bonds. Industries are defined based on the Fama–French 48 industry classifications. *t*-statistics, based robust standard errors clustered at the firm level, are reported in parentheses. ***, **, and * represent the 1%, 5%, and 10% level of significance, respectively.

VARIABLES	(1) Non-junk	(2) Junk	(3) Junk	(4) Non-junk	(5) Junk	(6) Junk
CFO Bank Connected	-0.0182**	-0.00228	-0.00322			
	(-2.056)	(-0.143)	(-0.217)			
CFO Bank Connected × ROA			-0.187**			
			(-2.161)			
CEO Bank Connected	0.00590	0.0203	0.0206			
	(0.748)	(1.123)	(1.139)			
Director Bank Connected	-0.00530	-0.00101	-0.000219			
	(-1.405)	(-0.176)	(-0.0385)			
CFO Bank Connection Size				-0.00694**	0.000141	-0.000218
				(-2.228)	(0.0224)	(-0.0389)
CFO Bank Connection Size × ROA						-0.0766**
						(-2.477)
CEO Bank Connection Size				0.00340	0.00480	0.00508
				(1.291)	(0.580)	(0.615)
Director Bank Connection Size				-0.00165	-0.000556	-0.000366
				(-1.543)	(-0.261)	(-0.173)
ROA			0.0198			0.0220
			(0.701)			(0.793)
Banker on Board	-0.0100*	-0.0187**	-0.0185**	-0.00934	-0.0189**	-0.0189**
	(-1.764)	(-2.041)	(-2.031)	(-1.649)	(-2.043)	(-2.048)
Board Friendliness	-0.0338**	-0.0115	-0.0110	-0.0354**	-0.0116	-0.0109
	(-2.382)	(-0.774)	(-0.743)	(-2.503)	(-0.778)	(-0.737)
MB	0.000465	0.000134*	0.000133*	0.000456	0.000133*	0.000133*
	(1.151)	(1.709)	(1.696)	(1.134)	(1.706)	(1.693)
Firm Size	-0.00188	0.000624	0.000812	-0.00198	0.000660	0.000800
	(-0.566)	(0.143)	(0.186)	(-0.597)	(0.150)	(0.182)
CF	0.282***	0.121**	0.119**	0.281***	0.122**	0.118*
	(6.069)	(1.976)	(1.996)	(6.042)	(1.969)	(1.959)
Leverage	-0.0898***	-0.0930***	-0.0900***	-0.0891***	-0.0927***	-0.0890***
	(-3.085)	(-3.043)	(-2.976)	(-3.061)	(-3.033)	(-2.940)
Capital Expenditures	-0.416***	-0.207**	-0.207**	-0.419***	-0.208**	-0.209**
	(-4.629)	(-2.208)	(-2.215)	(-4.670)	(-2.219)	(-2.230)
R&D	0.492***	0.0461***	0.0461***	0.493***	0.0461***	0.0460***
	(3.128)	(5.584)	(5.726)	(3.134)	(5.591)	(5.721)
CF std	0.426***	0.675***	0.671***	0.424***	0.678***	0.667***
	(3.989)	(5.265)	(5.330)	(3.987)	(5.273)	(5.272)
Equity	0.269***	0.179***	0.178***	0.271***	0.178***	0.178***
	(2.600)	(2.758)	(2.732)	(2.606)	(2.742)	(2.724)
Tax	-0.00830	-0.00261	-0.00241	-0.00819	-0.00253	-0.00233
	(-1.302)	(-0.653)	(-0.597)	(-1.280)	(-0.632)	(-0.575)
Tangible	-0.0315***	-0.0459**	-0.0457**	-0.0308***	-0.0454**	-0.0457***
	(-2.731)	(-2.560)	(-2.580)	(-2.680)	(-2.564)	(-2.601)
Dividend	0.00602	-0.00538	-0.00550	0.00596	-0.00548	-0.00564
	(0.597)	(-0.710)	(-0.723)	(0.590)	(-0.723)	(-0.740)
Acquisition Costs	-0.265***	-0.268***	-0.268***	-0.265***	-0.265***	-0.266***
	(-7.293)	(-8.922)	(-8.962)	(-7.277)	(-8.960)	(-8.994)
Loss	0.00131	0.0134**	0.0134*	0.00119	0.0133**	0.0137*
	(0.167)	(2.084)	(1.871)	(0.152)	(2.075)	(1.922)
Constant	0.157***	0.148**	0.144**	0.158***	0.150**	0.146**
	(3.773)	(2.152)	(2.085)	(3.830)	(2.172)	(2.109)
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	2,149	2,149	2,149	2,149	2,149	2,149
Adjusted R^2	0.502	0.390	0.392	0.502	0.389	0.392

Table 8 – CFO–Banker Relationship and Firm Cash Holdings: A Firm Location Effect?

This table documents analyses similar to those in Table 2, but with additional controls for firm locations. We control for financial centers fixed effects in columns (1) and (4); MSA fixed effects in columns (2) and (5); and state fixed effects in columns (3) and (6). Variable definitions are available in the appendix. The dependent variable is *(cash and other short-term investments/total assets)*. Industries are defined based on the Fama–French 48 industry classifications. *t*-statistics, based robust standard errors clustered at the firm level, are reported in parentheses. ***, **, and * represent the 1%, 5%, and 10% level of significance, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
CFO Bank Connected	-0.0262***	-0.0164**	-0.0211**			
	(-2.884)	(-1.982)	(-2.550)			
CFO Bank Connected × FC	0.0303					
	(1.401)					
CEO Bank Connected	-0.00304	-0.00485	-0.00876			
	(-0.312)	(-0.509)	(-0.911)			
Director Bank Connected	-0.00731**	-0.00728**	-0.00644*			
	(-2.025)	(-2.081)	(-1.812)			
CFO Bank Connection Size				-0.00971***	-0.00621**	-0.00852***
				(-2.593)	(-1.965)	(-2.686)
CFO Bank Connection Size × FC				0.00724		
				(0.920)		
CEO Bank Connection Size				-0.00304	-0.00621**	-0.00852***
				(-0.790)	(-1.965)	(-2.686)
Director Bank Connection Size				-0.00201*	-0.00621**	-0.00852***
				(-1.802)	(-1.965)	(-2.686)
FC	0.0261***			0.0275***		
	(3.040)			(3.231)		
Banker on Board	-0.0141**	-0.00439	-0.00983	-0.0142**	-0.00444	-0.00981
	(-2.225)	(-0.705)	(-1.534)	(-2.226)	(-0.710)	(-1.528)
Board Friendliness	0.00355	-0.00516	-5.73e-05	0.00332	-0.00549	-0.000406
	(0.269)	(-0.400)	(-0.00439)	(0.252)	(-0.425)	(-0.0311)
MB	0.000456***	0.000395***	0.000415***	0.000457***	0.000396***	0.000416***
	(3.119)	(2.931)	(3.031)	(3.111)	(2.924)	(3.024)
Firm Size	-0.00668***	-0.0116***	-0.00923***	-0.00665***	-0.0116***	-0.00916***
	(-2.789)	(-5.038)	(-3.990)	(-2.778)	(-5.017)	(-3.955)
CF	-0.00868	0.00464	-0.000944	-0.00899	0.00451	-0.00114
	(-0.378)	(0.217)	(-0.0425)	(-0.391)	(0.210)	(-0.0512)
Leverage	-0.242***	-0.223***	-0.232***	-0.242***	-0.223***	-0.232***
	(-14.86)	(-13.80)	(-14.24)	(-14.81)	(-13.80)	(-14.23)
Capital Expenditures	-0.131***	-0.136***	-0.146***	-0.129***	-0.135***	-0.145***
	(-2.762)	(-2.945)	(-3.073)	(-2.714)	(-2.929)	(-3.063)
R&D	0.0220***	0.0200***	0.0212***	0.0221***	0.0200***	0.0212***
	(9.327)	(8.666)	(8.999)	(9.331)	(8.685)	(9.028)
CF std	0.00150	0.00184	0.00236	0.00151	0.00187	0.00239
	(0.352)	(0.464)	(0.562)	(0.353)	(0.472)	(0.567)
Equity	0.287***	0.270***	0.274***	0.286***	0.269***	0.273***
	(14.79)	(14.57)	(14.26)	(14.71)	(14.53)	(14.22)
Tax	-0.0168***	-0.0133***	-0.0149***	-0.0170***	-0.0133***	-0.0150***
	(-4.327)	(-3.639)	(-4.003)	(-4.390)	(-3.661)	(-4.032)
Tangible	-0.107***	-0.104***	-0.101***	-0.108***	-0.104***	-0.101***
	(-9.751)	(-9.760)	(-9.351)	(-9.761)	(-9.763)	(-9.348)
Dividend	-0.00719	0.00254	-0.000386	-0.00684	0.00285	-2.60e-05
	(-1.136)	(0.370)	(-0.0586)	(-1.079)	(0.414)	(-0.00393)
Acquisition Costs	-0.478***	-0.443***	-0.457***	-0.479***	-0.443***	-0.457***
	(-20.78)	(-19.95)	(-20.24)	(-20.84)	(-19.97)	(-20.29)
Loss	0.0231***	0.0145***	0.0188***	0.0230***	0.0144***	0.0186***
	(4.304)	(2.811)	(3.573)	(4.280)	(2.793)	(3.545)
Rating	-0.0180**	-0.0109	-0.00943	-0.0179**	-0.0108	-0.00926
	(-2.273)	(-1.360)	(-1.191)	(-2.259)	(-1.341)	(-1.170)
Constant	0.398***	0.522***	0.421***	0.398***	0.521***	0.421***
	(13.74)	(8.869)	(9.587)	(13.68)	(8.733)	(9.598)
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
MSA Fixed Effects	NO	YES	NO	NO	YES	NO
State Fixed Effects	NO	NO	YES	NO	NO	YES
Observations	11,907	11,907	11,907	11,907	11,907	11,907
Adjusted R^2	0.538	0.581	0.556	0.538	0.581	0.556

Table 9 – Placebo Tests: CFO Connections to Other Industries besides Banking
This table documents results for two placebo tests. We investigate whether CFO social networks in the software industry affect firm cash holdings and document the results in columns (1) and (2). We investigate whether CFO social networks in the drugs industry affect firm cash holdings and document the results in columns (3) and (4). Variable definitions are available in the appendix. The dependent variable is *(cash and other short-term investments/total assets)*. Industries are defined based on the Fama–French 48 industry classifications. *t*-statistics, based robust standard errors clustered at the firm level, are reported in parentheses. ***, **, and * represent the 1%, 5%, and 10% level of significance, respectively.

VARIABLES	(1)	(2)	(3)	(4)
CFO Software Connected	0.00232			
	(0.420)			
CEO Software Connected	-0.00899			
	(-1.602)			
CFO Software Connection Size		0.00488		
		(1.379)		
CEO Software Connection Size		0.00136		
		(0.411)		
CFO Drugs Connected			-0.000500	
			(-0.0867)	
CEO Drugs Connected			0.00322	
			(0.516)	
CFO Drugs Connection Size				-0.00298
				(-0.829)
CEO Drugs Connection Size				0.00291
				(0.806)
Banker on Board	-0.0173***	-0.0176***	-0.0174***	-0.0177***
	(-2.711)	(-2.749)	(-2.723)	(-2.764)
Board Friendliness	0.00419	0.00282	0.00398	0.00352
	(0.349)	(0.235)	(0.332)	(0.293)
MB	0.000412***	0.000415***	0.000413***	0.000410***
	(3.104)	(3.140)	(3.118)	(3.116)
Firm Size	-0.0133***	-0.0127***	-0.0130***	-0.0130***
	(-4.971)	(-4.692)	(-4.831)	(-4.827)
CF	-0.00708	-0.00699	-0.00705	-0.00587
	(-0.314)	(-0.310)	(-0.313)	(-0.260)
Leverage	-0.236***	-0.237***	-0.236***	-0.236***
	(-14.75)	(-14.74)	(-14.70)	(-14.73)
Capital Expenditures	-0.158***	-0.160***	-0.158***	-0.162***
	(-3.367)	(-3.396)	(-3.345)	(-3.420)
R&D	0.0231***	0.0233***	0.0232***	0.0232***
	(9.852)	(9.853)	(9.830)	(9.893)
CF std	0.000842	0.000851	0.000875	0.000884
	(0.250)	(0.254)	(0.258)	(0.263)
Equity	0.273***	0.276***	0.274***	0.276***
	(13.66)	(13.81)	(13.69)	(13.83)
Tax	-0.0158***	-0.0156***	-0.0159***	-0.0157***
	(-3.912)	(-3.878)	(-3.933)	(-3.893)
Tangible	-0.105***	-0.105***	-0.106***	-0.105***
	(-9.456)	(-9.403)	(-9.467)	(-9.411)
Dividend	-0.00821	-0.00721	-0.00796	-0.00802
	(-1.278)	(-1.113)	(-1.242)	(-1.250)
Acquisition Costs	-0.453***	-0.454***	-0.453***	-0.454***
	(-19.85)	(-19.75)	(-19.81)	(-19.77)
Loss	0.0240***	0.0240***	0.0239***	0.0240***
	(4.187)	(4.194)	(4.184)	(4.202)
Rating	-0.0186**	-0.0180**	-0.0187**	-0.0188**
	(-2.357)	(-2.269)	(-2.364)	(-2.380)
CFO Network Size	0.00668***	0.00222	0.00674***	0.00931**
	(2.675)	(0.515)	(2.701)	(2.389)
CEO Network Size	0.0135***	0.0116***	0.0128***	0.0104**
	(4.673)	(2.728)	(4.443)	(2.526)
Constant	0.315***	0.332***	0.314***	0.313***
	(9.582)	(9.022)	(9.525)	(8.783)
Year Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
Observations	10,566	10,564	10,566	10,564
Adjusted R^2	0.554	0.554	0.553	0.554

Table 10 – CFO–Banker Relationship and Value of Cash Holdings

This table documents the analyses on the effect that CFO–banker relationships have on the value of their firms' cash holdings. ΔX_t represents $(X_t - X_{t-1})$ for variable X. C_t is cash and cash equivalents. *CFO Bank Connected$_t$* is a dummy variable indicating whether a firm's CFO is connected with bankers. E_t is earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits. NA_t is net assets, defined as total assets minus cash and cash equivalents. RD_t is the amount of R&D expenditures. I_t is interest expense. D_t is common dividends paid. L_t is market leverage. NF_t is net financing activities, calculated as total equity issuance minus repurchases plus debt issuance minus debt redemption. All variables except L_t and returns are deflated by the lagged market of value of equity (M_{t-1}). The dependent variable in column (1) is the excess stock return, $r_t - R_t$, where r_t is the stock's return over fiscal year t and R_t is the return over the same period of the corresponding Fama–French 25 portfolio formed based on size and book-to-market to which the stock belongs. The dependent variable in columns (2) and (3) is r_t. Industries are defined based on the Fama–French 48 industry classifications. t-statistics, based robust standard errors clustered at the firm level, are reported in parentheses. ***, **, and * represent the 1%, 5%, and 10% level of significance, respectively.

VARIABLES	(1)	(2)	(3)
ΔC_t	1.506***	1.407***	1.383***
	(8.533)	(8.046)	(7.987)
CFO Bank Connected$_t$	0.0134	0.0273	0.0371*
	(0.627)	(1.268)	(1.703)
CFO Bank Connected$_t$ × ΔC_t	-0.470***	-0.510***	-0.520***
	(-2.985)	(-3.120)	(-3.145)
ΔE_t	0.00622	0.00656	0.00664
	(0.734)	(0.686)	(0.701)
ΔNA_t	0.0279**	0.0289*	0.0279*
	(2.254)	(1.948)	(1.906)
ΔRD_t	-1.511***	-1.162***	-1.166***
	(-3.768)	(-3.255)	(-3.289)
ΔI_t	0.153	0.157	0.173
	(0.851)	(0.831)	(0.904)
ΔD_t	-0.649***	-0.659***	-0.677***
	(-3.345)	(-3.295)	(-3.351)
C_{t-1}	0.115***	0.130***	0.134***
	(3.148)	(3.369)	(3.419)
L_t	-0.433***	-0.209***	-0.302***
	(-14.63)	(-6.225)	(-7.866)
NF_t	-0.0642**	-0.0661**	-0.0650**
	(-2.457)	(-2.182)	(-2.167)
C_{t-1} × ΔC_t	7.67e-05	8.04e-05	7.32e-05
	(0.915)	(0.788)	(0.729)
L_t × ΔC_t	-1.604***	-1.474***	-1.430***
	(-6.099)	(-5.223)	(-5.144)
Constant	0.179***	0.240***	0.673**
	(15.70)	(20.87)	(2.561)
FF25 × Fiscal Year Fixed Effects	NO	YES	YES
Industry Fixed Effects	NO	NO	YES
Calendar Year Fixed Effects	NO	NO	YES
Observations	14,339	14,339	14,220
Adjusted R^2	0.146	0.334	0.342

Table 11 – CFO–Financial Analyst Forecast Connections and Earnings Forecast Accuracy
This table documents the relation between CFO–financial analyst social networks and analyst earnings forecast errors. Panel A shows the baseline results and Panel B presents results with controls for firm location effects. Variable definitions are in the appendix. Industries are defined based on the Fama–French 48 industry classifications. t-statistics, based robust standard errors clustered at the firm level, are reported in parentheses. ***, **, and * represent the 1%, 5%, and 10% level of significance, respectively.

Panel A				
VARIABLES	(1)	(2)	(3)	(4)
CFO Analyst Connected	-0.0699**	-0.0701**		
	(-2.151)	(-2.157)		
CEO Analyst Connected		-0.00602		
		(-0.140)		
Director Analyst Connected		-0.0129		
		(-0.620)		
CFO Analyst Connection Size			-0.0450**	-0.0449**
			(-2.332)	(-2.325)
CEO Analyst Connection Size				-0.00528
				(-0.182)
Director Analyst Connection Size				0.000504
				(0.0670)
Num Analysts	-0.150***	-0.150***	-0.150***	-0.149***
	(-6.122)	(-6.107)	(-6.119)	(-6.087)
Firm Size	0.0404***	0.0404***	0.0405***	0.0404***
	(3.254)	(3.219)	(3.265)	(3.214)
Age	-0.000371	-0.000377	-0.000376	-0.000371
	(-0.491)	(-0.498)	(-0.499)	(-0.489)
MB	-0.000616**	-0.000615**	-0.000615**	-0.000614**
	(-2.029)	(-2.024)	(-2.029)	(-2.030)
Leverage	0.133*	0.134**	0.132*	0.132*
	(1.950)	(1.968)	(1.940)	(1.939)
Revenue std	0.0848*	0.0857*	0.0844*	0.0841*
	(1.657)	(1.673)	(1.651)	(1.653)
EPS change	-0.0965***	-0.0966***	-0.0965***	-0.0965***
	(-5.875)	(-5.882)	(-5.876)	(-5.876)
Horizon	0.00142***	0.00141***	0.00142***	0.00142***
	(4.393)	(4.392)	(4.398)	(4.407)
Loss	0.820***	0.820***	0.820***	0.820***
	(13.53)	(13.50)	(13.53)	(13.51)
NYSE	-0.0578**	-0.0578**	-0.0578**	-0.0577**
	(-2.170)	(-2.166)	(-2.171)	(-2.169)
Constant	0.139	0.149	0.137	0.137
	(0.932)	(1.004)	(0.921)	(0.922)
Year Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
Observations	9,809	9,809	9,809	9,809
Adjusted R^2	0.163	0.162	0.163	0.162

Figure 1 – Change in Cash Holdings around Exogenous CFO–Banker Connection Additions (1)
This figure depicts the changes in cash holdings around additions of CFO–banker connections that are due to exogenous CFO turnovers. Treatment firms are the ones that experience exogenous additions of CFO–banker connections in year 0; control firms are the ones that do not experience such additions and are matched to the treatment firms based on a propensity-score matching (PSM) algorithm.
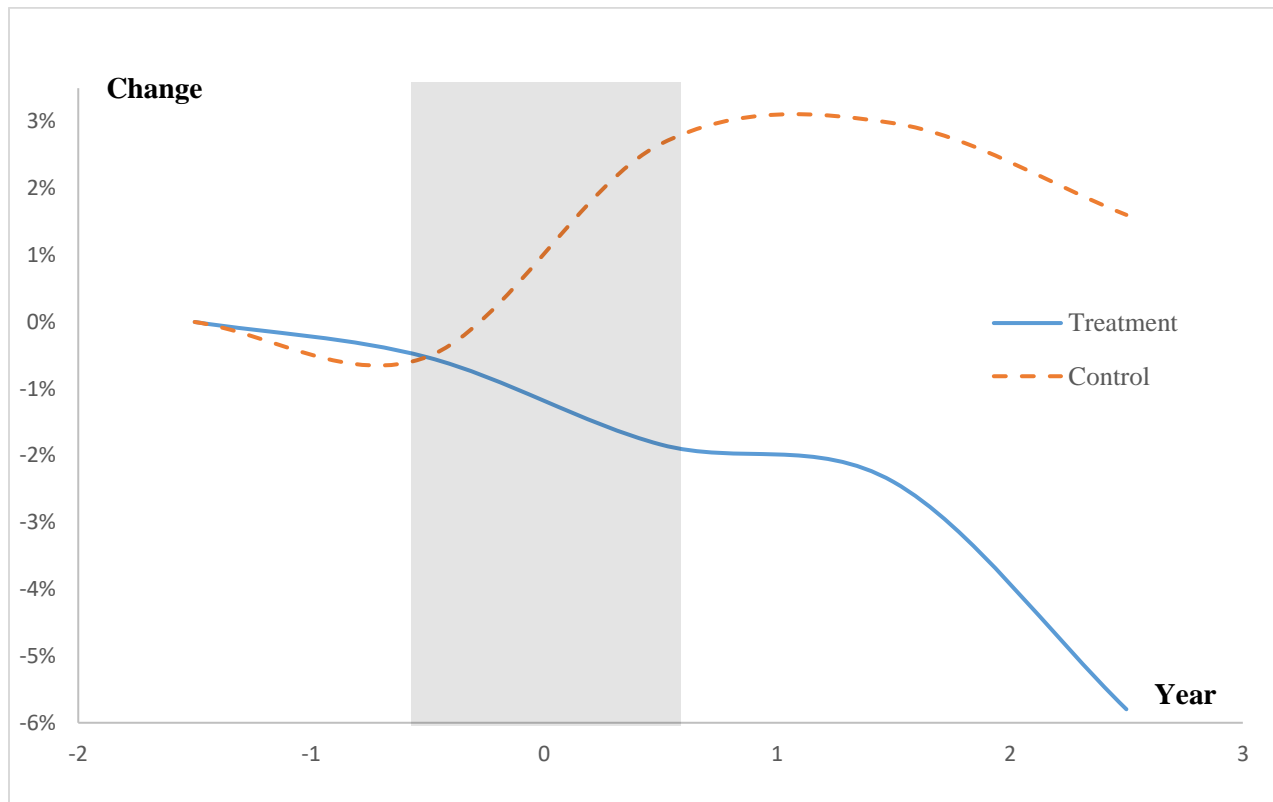
Figure 2 – Change in Cash Holdings around Exogenous CFO–Banker Connection Additions (2)
This figure depicts the changes in cash holdings around additions of CFO–banker connections that are due to CFO turnovers that we classify as exogenous and those that we do not have enough information to classify as endogenous. Treatment firms are the ones that experience these additions of CFO–banker connections in year 0; control firms are the ones that do not experience such additions and are matched to the treatment firms based on a propensity-score matching (PSM) algorithm.
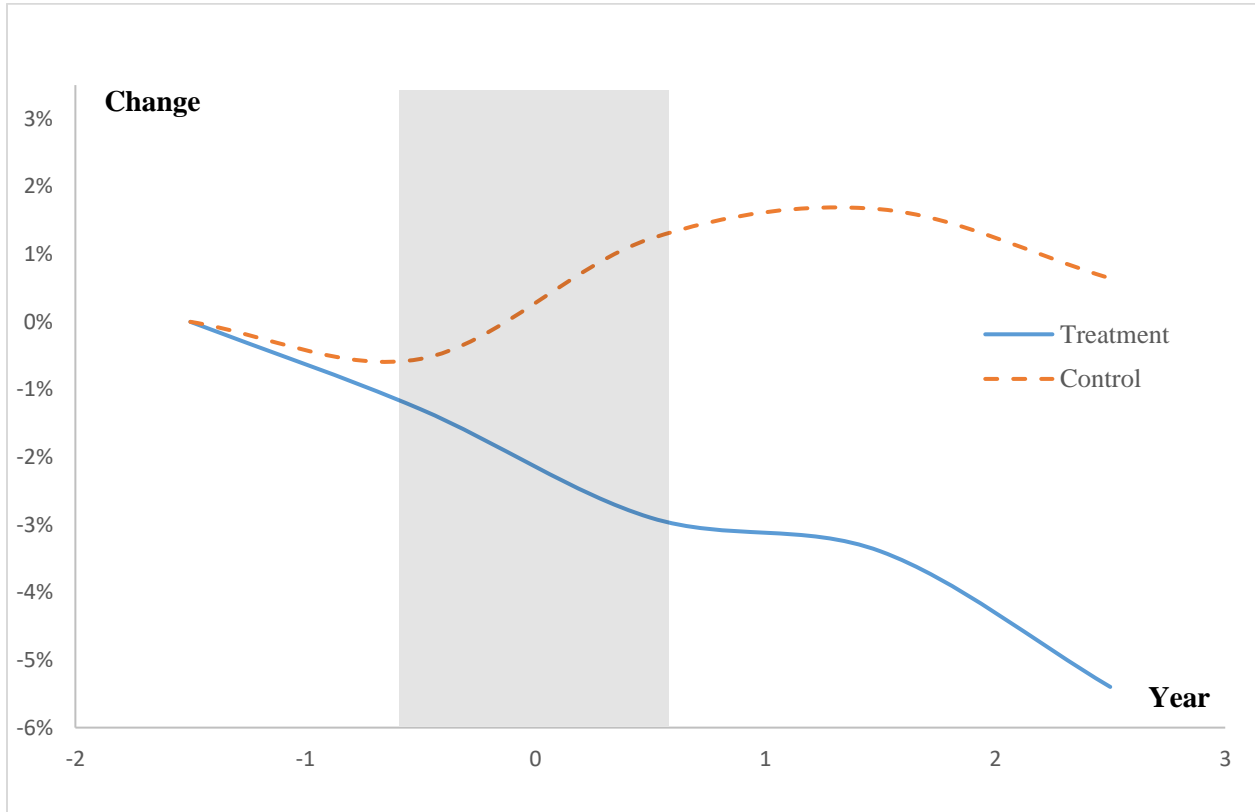
The Appendix – Variable Definitions

Variable	Definition
Acquisition Costs	Acquisition cost (AQC) divided by total assets (TA)
Banker on Board	A dummy variable with value 1 if the firm's board has a banker and with value 0 otherwise
Board Friendliness	The percentage of independent directors who are socially connected with the CEO
Capital Expenditures	Capital expenditures (CAPX) divided by total assets (TA)
Cash	Cash and cash equivalent (CHE) divided by total assets (TA)
CEO Analyst Connected	A dummy variable with value 1 if a firm's CEO is connected with a financial analyst and with value 0 otherwise
CEO Analyst Connection Size	Natural logarithm of the number of analysts connected to the CEO
CEO Bank Connected	A dummy variable with value 1 if a firm's CEO is connected with a banker and with value 0 otherwise
CEO Bank Connection Size	Natural logarithm of the number of bankers connected to the CEO
CEO Duality	A dummy variable with value 1 if a firm's CEO is also the chairman of the board and with value 0 otherwise
CEO Network Size	Natural logarithm of CEO network size
CEO Tenure	Natural logarithm of the years a CEO is in this role
CEO with CFO Experience	A dummy variable with value 1 if the CEO has ever been a CFO and with value 0 otherwise
CF	Cash flow as percentage of total assets
CF std	The standard deviation of cash flows (CF) in the past five years (including the current year)
CFO Analyst Connected	A dummy variable with value 1 if the CFO is connected with a financial analyst and with value 0 otherwise
CFO Analyst Connection Size	Natural logarithm of the number of analysts connected to the CFO
CFO Bank Connected	A dummy variable with value 1 if a firm's CFO is connected with a banker and with value 0 otherwise
CFO Bank Connection Size	Natural logarithm of the number of bankers connected to the CFO
CFO Bank Experience	A dummy variable with value 1 if the CFO has ever worked in the banking industry and with value 0 otherwise
CFO Network Size	Natural logarithm of CFO network size
Director Analyst Connected	A dummy variable with value 1 if any of the firm's directors is connected with a financial analyst and with value 0 otherwise
Director Analyst Connection Size	Natural logarithm of the number of analysts connected to the directors
Director Bank Connected	A dummy variable with value 1 if any of a firm's directors is connected with a banker and with value 0 otherwise
Director Bank Connection Size	Natural logarithm of the number of bankers connected to the directors
Director Network Size	Natural logarithm of network size for all directors
Dividend	A dummy variable with value 1 if the firm pays dividends (DVC > 0) and with value 0 otherwise
EPS change	The difference between actual earnings per share (actual) this year and the previous year
Equity	Sales of common or preferred stock (SSTK) divided by total assets (TA)
Executive and Director Bank Connected	A dummy variable with value 1 if any of a firm's executives and directors is connected with a banker and with value 0 otherwise
Executive and Director Bank Connection Size	Natural logarithm of the number of bankers connected to the executives and directors
FC	A dummy variable with value 1 when the firm locates in a financial center, defined as Boston, Chicago, New York City, or San Francisco, and with value 0 otherwise
Firm Size	Natural logarithm of total assets
Forecast Error	Analyst earnings forecast errors
Horizon	The average days between the announcement of last earnings forecast and actual earnings among analysts (average of (ANNDATS_ACT - ANNDATS))
Junk	A dummy variable with value 1 if the firm's bonds are rated as junk by S&P
Leverage	Leverage
Loss	A dummy variable with value 1 when the firm has a negative net income (NI) and with value 0 otherwise
MB	Market-to-book values
Num Analysts	Natural logarithm of number of analysts covering the firm
NYSE	A dummy variable with value 1 when the firm's stock is traded on NYSE and with value 0 otherwise
Rating	A dummy variable with value 1 when the firm has S&P ratings and with value 0 otherwise
R&D	R&D expenses (XRD) divided by total revenues (REVT)
Revenue std	The standard deviation of total revenues (REVT) in the past five years (including the current year)
Tangible	Total tangible assets (PPEGT) divided by total assets (TA)
Tax	Total income tax (TXT) divided by pretax income (PI)