CFO Social Capital, Liquidity Management, and the Market Value of Cash

Christopher W. Anderson
School of Business
University of Kansas
Lawrence, KS 66045
785-864-7340
cwanderson@ku.edu

M. Babajide Wintoki
School of Business
University of Kansas
Lawrence, KS 66045
785-864-7715
jwintoki@ku.edu

Yaoyi Xi
Fowler College of Business
San Diego State University
San Diego, CA 92182
619-594-4749
yxi@sdsu.edu

March 2024

We thank Geert Bekaert (Editor), an anonymous Associate Editor, and two anonymous referees for their insightful comments and guidance. We would also like to thank Brad Barber, Allen Berger, Lamont Black, George Bittlingmayer, Bob DeYoung, Zongwu Cai, Stephen Haggard, Zhaozhao He, Jiekun Huang, Minjie Huang, Chao Jiang, Paul Koch, Tom Kubick, Mark Leary, Lei Li, Yijun Li, Felix Meschke, Mitchell Petersen, Kevin Tseng, Michael Weisbach, and seminar participants at the University of Kansas, Financial Management Association Annual Conference, the Southern Financial Association Annual Conference and the Australasian Finance and Banking Conference for helpful comments and suggestions.

CFO Social Capital, Liquidity Management, and the Market Value of Cash

ABSTRACT: We find that firms with CFOs who have extensive social connections within the finance industry hold less precautionary cash. CFO connections matter more than CEO connections, reflecting the preeminence of CFOs among C-level executives in 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 CFO turnover and the appointment of a CFO with finance industry connections. The stock market valuation of incremental cash holdings of firms with well-connected CFOs is lower than for other firms, consistent with investor recognition of CFO social capital as an alternative means to address constraints on external capital.

Keywords: CFO, networks, cash management, information asymmetry, value of cash, social capital

JEL Classification: G32, M12, M41

1. Introduction

Cash management is critical to an organization's success and solvency, and it is a key responsibility for corporate executives. By the start of the 2010s, the average publicly 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). Holding cash can be especially valuable to financially constrained firms for which access to external capital may be limited. In this study we investigate if the social connections of corporate executives to executives in financial institutions – especially the connections of a firm's chief financial officer (CFO) – affect the level and valuation of cash holdings.

Three threads from prior literature guide our empirical investigation. The first thread is the literature on the motivation for and valuation of precautionary cash holdings. Absent market imperfections, firms would not hold cash beyond that required for immediate operating needs because they could readily access external capital markets to raise funds for valuable investment projects. Various frictions and information asymmetries between firms and external financiers can, however, make external capital costly to acquire (Leland and Pyle, 1977; Stiglitz and Weiss, 1981). Information asymmetry and uncertainty about future liquidity needs therefore motivate firms to hold cash for precautionary motivations (Opler, Pinkowitz, Stulz, and Williamson, 1999). However, cash earns little to no return, and hoarding excess cash may exacerbate agency costs of managerial opportunism. Consistent with the notion that holding cash has benefits and costs, Faulkender and Wang (2006) find that the inferred value of an incremental dollar of cash is higher among financially constrained firms. Access to bank financing and credit lines is a potential way to reduce the need for large precautionary cash balances. However, obtaining bank credit requires that information be extensively and credibly shared with a firm's bank, and firms that are less

transparent generally have more difficulty in obtaining bank financing (Kashyap, Rajan, and Stein, 2002; Graham, Li, and Qiu, 2008; Sufi, 2009).

A second motivation for our study is the expanding literature on social networks that finds that firm-specific private information diffuses to economic agents through the social and professional networks of corporate executives.[1] Specific to our context, 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. Similarly, Fogel, Jandik, and McCumber (2018) find that a CFO's social network prominence is associated with better financing terms when tapping private debt markets. Javakhadze, Ferris, and French (2016) find that the investment policy of firms with large executive social networks is less constrained by the availability of internal cash. This literature motivates our hypotheses that firms with executives who have extensive social connections to the finance sector experience easier access to capital, therefore hold less cash for precautionary motives, and have incremental cash less highly valued by investors.

[1] A growing literature examines the importance of executive social networks in different corporate contexts. 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. Akbas, Meschke, and Wintoki (2016) show that information 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. Ferris, Javakhadze, and Rajkovic (2017) document that firms with CEOs who have higher social capital display higher levels of risk-seeking behavior. Chuluun, Prevost, and Puthenpurackal (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). The role that peers play in shaping economic behaviors also prevails among fund managers such that their trades tend to be similar when they are socially connected (Pool, Stoffman, and Yonker, 2015), and among analysts such that their performance is related to that of their peers (Do and Zhang, 2020).

A third strand of literature focuses our attention on the social connections of CFOs as opposed to other executives, most notably the CEO. CFOs are responsible for ensuring compliance with financial regulations (e.g., Sarbanes–Oxley Act), overseeing the preparation of financial statements, and providing financial data for firm decision-making. CFOs also serve as their firm's ultimate treasurer, raise capital for firm operations and investments, and manage the firm's cash holdings and short-term liquidity needs.[2] CFOs are also the C-level executives tasked with interacting with providers of capital and communicating firm-specific information to them (Graham and Harvey, 2001; Geiger and North, 2006; Chava and Purnanandam, 2010; Beck and Mauldin, 2014). CFOs appear to possess more value-relevant information than their CEOs, and compensation incentives for CFOs have greater influence on earnings management and stock price volatility than CEO incentives (Wang, Shin, and Francis, 2012; Jiang, Petroni, and Wang, 2010; Kim, Li, and Zhang, 2011). Fogel, Jandik, and McCumber (2018) find that a CFO's social capital in general, as opposed to that of the CEO, helps companies to secure better terms when tapping private debt markets. Consequently, we hypothesize that the social connections of the CFO will be especially important to the level of a firm's cash and its valuation by investors.

We find evidence to support our hypothesis that social connections between CFOs and finance industry executives ease financial constraints and reduce the need to hold cash for precautionary motivations. We employ standard social network methods to identify social connections between corporate executives and the finance sector for a sample of 12,890 firm years from 2000 to 2013. Using a baseline model to control for established determinants of cash holdings, we find that firms with CFOs who have social connections to the finance industry hold, on average,

[2] For example, during the COVID-19 pandemic of 2020 the CFO was often the executive most under direct pressure to manage a company's liquidity needs. See https://www.wsj.com/articles/cfos-under-pressure-to-maintain-liquidity-as-coronavirus-inflicts-economic-damage-11586511000.

13.3% less cash relative to assets than firms without such CFOs. Additional analysis suggests that the reduction in cash holdings increases with the number of CFO connections to the finance industry. In contrast, social connections to the finance industry by the CEO or a firm's directors do not have similar influence on cash holdings, especially after we control for CFO connections. The effects of CFO connections to the finance industry on cash holdings is more pronounced among small firms, firms with less transparent disclosures and greater bid-ask spreads, and following the financial crisis of 2007-2008, circumstances under which information asymmetry may adversely affect access to external finance. Finally, we find that a firm's cash holdings tend to decrease significantly upon the hiring of a CFO with connections to the finance industry following the departure of a prior CFO that lacks such connections. The inverse relation between cash levels and a CFO's social connections to the finance industry is robust to several tests that control for CFOs' overall network size, suggesting that the impact of CFO connections to the finance industry on firm cash holdings is not due to CFOs' general social capital.[3]

Having established that firms with CFO connections to the finance industry hold less cash than do similar firms lacking such connections, we test an additional hypothesis about the value assigned to cash holdings by a firm's equity investors. Faulkender and Wang (2006) find that the value of incremental cash holdings is greater for firms that face financial constraints. If a CFO's connections to the finance industry ease financial constraints, then investors should assign lower value to incremental cash holdings for firms with these connections. We augment Faulkender and Wang's (2006) cash valuation model to include measures of CFO connections to the finance industry and find that the value of an incremental dollar of cash is about 46 cents less valuable in firms with CFO connections to the finance industry compared to similar firms without such

[3] In other words, we find that CFO-finance industry connections, and not CFO overall network size, drive our results.

connections. The attenuating effect of CFO connections to the finance industry on the value of a firm's incremental cash compares in economic magnitude to the positive effects of indicators of financial constraint on cash levels as reported by Faulkender and Wang (2006).

Our finding that connections between CFOs and finance industry executives lead to lower cash holdings is robust to several alternative tests and specifications. For example, our results are robust to restricting CFO connections to the finance industry to those formed several years before the sample year, suggesting that our results are not driven by reverse causality. We also find similar results for carefully matched-pair samples of firms with and without finance-industry-connected CFOs. In addition, we show that our results are not driven merely by CFOs' connections to the firms' current (and immediate future) lenders, which further affirms the hypothesis that our findings are due to CFOs' general connectedness in the finance industry. Lastly, the relation is not attributable to a firm's headquarters location, such as being located in a major financial center city where both access to capital and opportunities for CFO social connections to finance industry executives are greater.

Our investigation makes important contributions to the literatures on corporate executives, social networks, cash management policy, and the valuation of cash by a firm's investors. Foremost, we find that executive social networks have significant influence on a firm's financial structure and valuation. Specifically, social connections between corporate executives and financiers appear to ease financial constraints, reduce the need for precautionary cash, and lower the value of incremental cash holdings in the eyes of investors. In addition, we add to a growing literature on the unique importance of the CFO's role and social capital for corporate financial policy.

2. Data

Our source for determining executive connections is the BoardEx database which has been used in prior research on executive networks (e.g., Cohen, Frazinni, and Malloy, 2008; El-Khatib, Fogel, and Jandik, 2015; Akbas, Meschke, and Wintoki, 2016). The sample period is from 2000 to 2013. The sample of firms whose cash holding we examine are publicly traded firms from Compustat. We exclude utility and financial firms from our analysis of cash holding due to their unique regulatory structures. We match our sample firms from BoardEx to 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 obtain stock return data for publicly traded firms from CRSP. After combining our data sets, our base sample consists of 12,890 firm-years. In Appendix A, we provide definitions of key variables used in this study.

Following the literature, we define a corporate executive's social network size as the number of connections within the BoardEx universe (e.g., Engelberg, Gao, and Parsons, 2012). Our sample firms are publicly traded firms, but the connections we observe for sample firm executives include connections to individuals in non-public firms covered by BoardEx. We define an executive as having a connection to the finance industry if he or she shares a social or professional tie with an individual who works at a bank or lending institution, which we define using the Fama–French 48 industry categorization of banks. Specifically, a connection exists if the executive and the individual from the finance industry 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. We consider an executive's connection to the finance industry to be one that exists

independent of any connection through the executive's current firm. This means, for example, that merely having a banker on the board of the executive's firm does not constitute an executive-banker connection unless the executive and that banker have other social or professional connections. To reduce the possibility that executives specifically seek out connections to the finance industry to obtain current financing, we require the relationship to have been in existence for at least a year. In unreported robustness tests, we require the connection to have been in existence for three, five, or ten years and find that our inferences do not change. In some specifications we limit connections to top-level finance industry executives or to connections that are obviously professional in nature, excluding for instance school ties; these restrictions do not alter our results.

Table I reports summary statistics for our key variables. We winsorize all variables at the 1% and 99% levels to eliminate the potential effects of outliers, although our results are unaffected if we do not. We note that 9.3% of our firm-years (14.8% of firms) have a CFO connection to the finance industry.[4] As we obtain data from various sources, not all variables have the same number of valid observations. Figure A1 displays the percentage of firms with CFO connection to the finance industry over our sample period and shows that the percentage of firms with CFO connections to the finance industry is relatively constant over our sample period.

3. CFO–Finance Industry Connections and Cash Holdings

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

[4] It is almost certainly the case that CFOs have a lot more friends, acquaintances, and social connections in the finance industry than we are capturing in our sample. However, many of these connections are not executives (and are thus not covered by BoardEx). The 9.3% and 14.8% numbers represent a lower bound of total CFO connections in the finance industry. Nevertheless, the connections we capture are likely to be the most influential executives in the finance industry and the focus of our theses. We thank an anonymous referee for pointing this out.

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

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 the finance industry, and zero otherwise) or, alternatively, the natural logarithm of one plus the number of the executive's connections to the finance industry. Our control variables include market-to-book (*MB*), total size of the firm's assets (*Firm Size*), cash flow as a percentage of assets (*CF*), ratio of total liabilities to total assets (*Leverage*), capital expenditure divided by total assets (*Capital Expenditure*), research and development expenditures divided by total revenue (*R&D*), the standard deviation of cash flows in the past five years (*CF Std*), sales of common stock divided by total assets (*Equity*), total income tax divided by pretax income (*Tax*), total book value of tangible assets divided by total assets (*Tangible*), a binary variable that indicates whether or not the firm pays a dividend (*Dividend*), acquisition costs divided by total assets (*Acquisition Costs*), a binary variable that indicates whether or not the firm has a negative net income (*Loss*), and a binary variable that indicates whether or not the firm has an S&P rating (*Rating*). This set of controls constitutes the determinants of cash holding identified in prior research including Opler, Pinkowitz, Stulz, and Williamson (1999), Bates, Kahle, and Stulz (2009), and He and Wintoki (2016). We also control for the presence of bankers on the board (*Banker on Board*), which represents a direct connection to the finance industry that can influence cash-holding behavior, as well as the percentage of independent directors who are socially connected to the CEO (*Board Friendliness*). We include industry and year fixed effects.

We present the results from estimating equation (1) in Table II. Column (1) creates a baseline by examining whether any executive (CEO or CFO) or director connections to the finance industry affect cash holdings. The estimated coefficient on *Executive and Director Finance*

Industry Connected is significantly negative (–0.00731, *t*-statistic = –1.828). This finding indicates that firms whose executives have connections to the finance industry hold less cash than firms whose executives lack those connections. In column (2), we specifically test the effect of CFO connection to the finance industry on firms' cash holdings. The findings are consistent with the prediction that firms with CFOs connected to the finance industry hold less cash; the estimated coefficient on *CFO Finance Industry Connected* is significantly negative (–0.0173, t = –2.100). Columns (3) and (4), respectively, show that, in comparison, CEO–finance industry connections have no significant effect on cash holdings by themselves or when included in the same regression with CFO–finance industry connections.

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

To understand the economic significance of CFO–finance industry connections on firm cash holdings, we use the results from column (2) of Table II to evaluate the marginal effects and note that having a CFO with finance industry 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 who has finance industry connections hold 13.3% (1.73/13) less cash than a firm without CFO–finance industry connections. To put this in perspective, we compare the effect of CFO-finance industry connections on cash holding to the effects of both firm size and market-to-book ratio, which prior research has shown to be consistently negatively and positively associated with cash holdings, respectively. The results in column (2) suggest that moving a firm from the first to third quartile of firm size in our sample reduces cash holding as a proportion of total assets by 1.83 percentage points. A similar move from the first to third quartile of market-to-book ratio in our sample reduces cash holding as a proportion of total assets by 0.10 percentage point. The economic magnitude of CFO-finance industry connections on firm cash holdings is comparable to the effect of size and market-to-book. Thus, the negative effect of CFO–finance industry connections on cash holdings is both statistically significant and economically meaningful.

An examination of the estimated coefficients of the other control variables show that the directions of the coefficients and magnitudes are similar to those from prior work (e.g., those reported in Bates, Kahle, and Stulz, 2009). For example, firms with better investment opportunities (higher *MB*) and more capital expenditures and acquisition costs hold more cash, while firms with higher financial leverage tend to show less cash on their books. Controlling for these determinants of cash holding allows us to assess CFO-finance industry connections' marginal impact on firm cash holdings. We also find that firms that have explicitly identifiable bankers on their board hold less cash, a fact that was observed (in a univariate context) by Kroszner and Strahan (1999). We note that even after controlling for the presence of a banker on the board, we continue to find a significantly negative association between the presence of a CFO-finance industry connection and

firm cash holding, further highlighting the importance of the CFO's own social and professional connections to the finance industry to firm cash management.

4. Changes in Cash Holdings Following CFO Turnover

The findings in the prior section indicate that firms with CFO–finance industry 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 changes in CFO–finance industry connections associated with changes of CFOs.

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 result in an increase in CFO–finance industry connections. However, some CFO turnovers may be related to changes in firm policies for diverse and unobserved reasons. Specifically, a CFO could be forced out precisely because of poor performance and the need for a material change in financial policy. In such cases, using all turnover events might not address the concern that changes in CFO and cash holdings could be related. To address this issue, we manually search news around these CFO turnover events and classify each CFO departure as routine or non-routine following the process outlined by Fee, Hadlock, and Pierce (2013). A routine CFO turnover is not associated with firms' intention to change financial policy, thus making the additions of CFO-finance industry connections due to these changes unrelated to firm characteristics. We classify a CFO turnover as routine 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 not related to performance and financial policy choices. In the latter two cases, we further search for news around those CFO turnovers to

ensure that there are no indications of forced turnovers. We conduct online searches of 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 also identify a sample in which we classify all CFO turnovers where we could not find enough information to make an informed categorization as non-routine.

Following this procedure, we identify 137 routine CFO turnovers that lead to additions of CFO–finance industry connections. We consider these firms that experience routine CFO turnover followed by the appointment of a new CFO with greater finance industry connections as our *treatment* firms. We compare changes in cash holdings in *treatment* firms with changes in a sample of *control* firms selected based on a propensity-score matching algorithm. We require the control 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 finance industry connections as PSM covariates. We include an indicator variable for whether or not there is a banker on the board, market-to-book ratio, firm size, leverage, capital expenditure, the standard deviation of cash flows in the past five years, a loss indicator for whether or not the firm has negative net income, and an indicator variable for whether or not the firm has debt with an S&P rating.

Table III (Panel A) and Figure 1 summarize the results of the comparison of changes in cash holdings around 137 CFO turnovers between treatment and control subsamples. We track changes in cash holdings (as a proportion to total assets) from the year before the arrival of the

new CFO with finance industry connections to two years after. As shown, cash holdings in treatment firms significantly decrease with the appointment of a CFO with finance industry connections. Firms in the treatment group decrease cash holdings by approximately 5.4 percentage points from year –1 to year 2. 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 (6.0 percentage points) is significant at the 5% level. These findings support those from the regression analysis and suggest that CFO–finance industry connections lead to significantly lower cash holdings.[5]

The difference-in-difference analysis discussed in the preceding paragraph has one limitation: it does not allow us to control for other CFO network connections lost or gained in conjunction with the gain of CFO-finance industry connections. To account for this, we conduct our analysis in a regression framework using the same sample as that employed in Panel A of Table III while including the (log of one plus) CFO Network Size as follows:

$$Cash\ Held_{i,t} = \alpha + \beta \times Treat \times Post + \kappa_1 \times Treat + \kappa_2 \times Post + \kappa_3 \times \text{CFO Network Size} + \epsilon_{i,t}, \quad (2)$$

Treat is a binary variable which equals one (zero otherwise) for firms that experience CFO turnover followed by a new CFO with greater finance industry connections, *Post* is a binary

[5] In the analyses summarized in Table III and in Figure 1, we included 36 CFO turnovers where the motivation for the CFO turnover was ambiguous although not seemingly attributed to CFO or firm performance. We replicate the analysis including the sample of 101 CFO turnovers after excluding the 36 CFO turnovers that occurred for ambiguous reasons. We find a similar pattern as documented in Table III and Figure 1. Firms with additions of CFO–finance industry connections (treatment firms) experience a significant decrease in cash holdings, and firms without additions of CFO–finance industry 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 7.4 percent and is statistically significant at the 5% level.

variable which equals one (zero otherwise) for all the years following CFO turnover and β is the difference-in-differences estimate.

We present the results in Panel B of Table III. The results are of a similar magnitude as that reported in Panel A. The coefficient estimate on β indicate that treatment firms (which experience CFO turnovers that increase finance industry connections) reduce their cash holding by 6.7 percentage points ($t = -3.067$) relative to control firms.

We conduct two additional robustness tests of changes in cash holding around executive turnover. First, we note that our analyses reported in Table III and documented in Figure 1 do not consider whether or not a CFO turnover is also accompanied by a CEO turnover. In additional analysis (Internet Appendix Table IA3 Panel A), we find that dropping cases in which a CFO turnover is accompanied by a CEO turnover does not change our inference that CFO-finance industry connections are associated with a significant decrease in firm cash holdings.[6]

Second, we examine changes in cash holdings around CEO turnovers (rather than CFO turnovers). To this effect, we identify 108 firms with CEO turnovers that lead to additions of CEO–finance industry connections. We match these treatment firms with control firms that do not experience the addition of CEO-finance industry connection in a similar process to the one we followed for CFO turnovers above. However, unlike the case for CFO turnover, the difference-in-differences for cash holdings after two years between treatment and control firms is not significantly different from zero (Internet Appendix Table IA3 Panel B). This provides further

[6] A related question that may arise is the following: if firms that appoint a CFO with finance industry connections reduce their cash holding following the arrival of the CFO, what happens to cash holdings if a firm loses its CFO–finance industry connection following the departure of CFO? Unfortunately, we are only able to identify 31 such instances and thus unable to conduct a powerful test. Even within this small sample, we find, as we would predict, that firms that lose their CFO–finance industry connections increase their cash holding by about 1 percentage point, relative to a matched sample of otherwise similar firms following the departure of the CFO. While economically meaningful, the increase falls short of statistical significance at conventional levels, perhaps owing to our small sample.

support for our findings from Section 3 that CFO–finance industry connections are more important to the firm's cash holding behavior than those of the CEO.

5. CFO–Finance Industry Connections and the Value of Cash Holdings

Cash reserves are valuable to firms that face difficulty accessing external capital markets due to financial constraints. Hoarding excess cash, in contrast, can be costly to firms, particularly when investors view excess cash as increasing the potential for value-destroying managerial opportunism. Faulkender and Wang (2006) investigate how the inferred value of cash varies by firm-specific characteristics, such as the level of cash holding, access to capital markets, and cash distribution policies. In particular, Faulkender and Wang (2006) report that the value of an incremental dollar of cash is materially higher for firms that face financial constraints as measured by variables such as payout ratio, firm size, and credit ratings.

An executive's social connections are also observable by market participants, especially institutional investors. If CFO-finance industry connections alleviate financial constraints then investors should place lower value on incremental cash for firms with such connections. To test this hypothesis we extend Faulkender and Wang's (2006) empirical model of the value of cash holdings to investors. 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. In our extension, shown in equation (3) below, we include two additional variables to the specification. The first is *CFO Finance Industry Connected*, an indicator variable that equals one if a firm's CFO is connected with the finance industry, and zero otherwise, and the second is the interaction of *CFO Finance Industry Connected* and ΔC_t. We predict that the coefficient on the interaction term will be negative if CFO–finance industry connections reduce financial constraints, leading investors to assign a lower value to an incremental dollar of cash.

$$r_{i,t} - R_t = \alpha + \beta \times \Delta C_{i,t} + \varphi \times CFO\ Finance\ Industry\ Connected_{i,t}$$
$$+ \gamma \times CFO\ Finance\ Industry\ Connected_{i,t} \times \Delta C_{i,t} + \Gamma' \Delta X_{i,t} + \epsilon_{i,t} \quad (3)$$

We present the results of our analysis in Table IV. 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 Finance Industry Connected*$_t$ and ΔC_t is –0.470 (t = –2.985). This significantly negative coefficient suggests that an additional dollar held by firms with finance industry–connected CFOs is less valuable than for similar firms without such CFOs. This finding is consistent with our argument that firms with CFO–finance industry relationships have fewer precautionary needs for cash, and therefore cash held by these firms tend to be valued less by shareholders. Economically, the results in column (1) suggest that an incremental dollar of cash in a firm with finance industry–connected CFOs is worth 45.7 cents (0.0134 – 0.470) less to shareholders than an incremental dollar in a firm without such CFOs. Furthermore, the effect of CFO–finance industry connections on the value of incremental cash – while opposite in direction – compares in economic magnitude to the effects of indicators of financial constraint as reported by Faulkender and Wang (2006).

In the regression in column (1) of Table IV, 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) observe 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); the coefficient estimate on the interaction term between *CFO Finance Industry Connected*$_t$ and ΔC_t is –0.510 (t = –3.120). In column (3), we include industry fixed effects as well as calendar year fixed effects and find that our inference remains unchanged.

Our analyses above show that investors recognize the value of CFO–finance industry connections and, accordingly, assign a lower stock market valuation to cash holdings of firms with these connections because they have lower precautionary needs for holding cash. Faulkender and Wang (2006) show that the incremental value of cash is lower for financially unconstrained firms compared to financially constrained firms. If CFO–finance industry connections provide a channel for acquiring financing, we should expect that this relationship is more valuable to otherwise financially constrained firms. Accordingly, we predict that the reduction in value of cash will be most significant among the most financially constrained firms with CFO–finance industry connections.

Table V documents our analysis on cash valuation and firms' degree of financial constraint. Particularly, we further augment the Faulkender and Wang (2006) model by interacting *CFO Finance Industry Connected*$_t$, ΔC_t, and KZ_t, where *KZ* is the Kaplan-Zingales Index of financial constraint as defined in Lamont, Polk, and Saaa-Requejo (2001). As shown in Table V, the coefficient estimates on this three-way interaction are significantly negative in all three models. This finding confirms our prediction that the value of additional cash is lower for financially constrained firms when their CFOs have connections to the finance industry.[7]

[7] Our inference in Tables IV and V are unchanged if control for CEO and director finance-industry connections (See Internet Appendix Table IA4).

6. Additional Results and Robustness Tests

6.1 CFO Connections to Firms' Lenders

The literature shows that firms tend to enjoy lower loan costs when borrowing from banks that have executives who share personal connections with any executives in these firms (e.g., Engelberg, Gao, Parsons, 2012 and Karolyi, 2018). This finding indicates that a potential alternative explanation for our findings is that low cash reserves can be afforded because CFO-finance industry connections merely represent bilateral connections to bankers at institutions already lending (or are ready to lend) to the CFO's company. In other words, our CFO-finance industry connections impact on cash holdings may simply reflect an effect stemming from bilateral ties between firms and their lenders, as documented in Engelberg, Gao, and Parsons (2012) and Karolyi (2018).[8]

We address this alternative explanation by directly controlling for the CFO's connections to her company's lenders in our base specification in equation (1). We use the DealScan loan database to identify the banks that currently lend to the CFO's firm and banks that would make loans to them in the near future (in the next one and two years, respectively). We then identify all connections a CFO has, as specified in Section 2, and the companies at which the CFO's connections work. Finally, we match these companies to the lender information from DealScan and classify whether a connection for a CFO works at her company's current and future lenders. We define two variables using this information: 1) *CFO Lenders Connected*, a binary variable with a value of one if any connections a CFO shares work at a current or immediate lender to the CFO's company; and 2) *CFO Lenders Connection Size*, which equals the natural logarithm of the

[8] We thank an anonymous referee for this insight.

summation of one and the number of connections who work at a current or immediate lender to the CFO's company.

We present the results from analyses that add CFO-lenders connections as a control variable in Table VI. The first two columns consider a firm's current lenders and lenders in the next year, and the last two columns include a firm's current lenders and lenders in the next two years. As shown, the coefficient estimates on *CFO Lenders Connected* and *CFO Lenders Connection Size* are negative and significant at the 10% levels in columns (1) and (2), but not significant in columns (3) and (4). These findings suggest that there is some evidence that bilateral connections between CFOs and their lenders may lead to lower cash holdings. However, and most importantly, we continue to find that CFO-finance industry connections are negatively associated with corporate cash holdings. Specifically, the coefficient estimates on *CFO Finance Industry Connected* are –0.0169 and –0.0170 in columns (1) and (3), respectively, and are both significant at the 5% level. These coefficient estimates are similar in magnitude to those in the baseline model in Table II. Tests based on *CFO Finance Industry Connection Size* in columns (2) and (4) yield similar findings. Taken together, these results suggest that the impact CFO-finance industry connections have on firm cash holdings is different and orthogonal to the potential effects stemming from CFO-lender connections.

6.2 CFO Network Size and Other Measures of CFO-Finance Industry Connections

A potential explanation for our results is that the size of the CFO's network in general rather than his or her connection to the finance industry may reduce precautionary cash holding. Larger CFO networks may reduce the information asymmetry that makes it hard to raise cash when needed and may also provide the CFO with tacit cash management knowledge. If, in turn, CFOs with large networks in general are more likely to have finance industry connections then our

findings of a negative association between CFO-finance industry connections and cash holding may simply reflect a large CFO network effect.

We test and find (see Internet Appendix Table IA7) that CFO network size by itself does not predict the existence of a CFO finance industry connection. We nevertheless further examine the alternative explanation by replicating the analysis specified in equation (1) while controlling for CFO Network Size which is defined as the natural logarithm of one plus the total number of CFO connections. The results, which we present in Table VII (columns 1 and 4), indicate a positive association between CFO Network Size and cash holding: larger CFO networks in general are associated with higher cash holdings. However, and more importantly for our research question, we continue to find that CFO-finance industry connections reduce cash holding even after controlling for the overall size of the CFO's network.[9]

Another alternative explanation arises from the possibility that social capital could itself be a proxy for human capital. CFOs with more talent or innate ability may be more likely to have cultivated finance industry connections while also being more astute at cash management. To examine this possibility, we follow Ferris, Javakhadze, and Rajkovic (2017) and create an "excess" CFO-finance industry connectedness measure, CFO Finance Industry Connected (Excess), which parses out human capital from our social capital measure. We define this variable as the residual from running a regression of the CFO Finance Industry Connected variable on a human capital index. The human capital index is the sum of the following indicator variables: an indicator

[9] To further address the concern that our findings are due to CFOs' network in general, we perform an additional test in which we consider only CFOs' secondary-degree relationships in the finance industry – i.e., CFOs connected to the finance industry through their connected directors' connections. If our finding is mainly driven by CFO connections in general, we should observe that CFO-finance industry connections established through second degree relationships should also lead to lower cash holdings. We performed this test by replacing our measures of CFO-finance industry connectedness using this new definition based on secondary-degree relationships. The results, which we report in Internet Appendix Table IA8, show that second degree finance industry connections are not associated with cash holdings. These results underlie our finding that it is direct bilateral CFO finance industry connections that are negatively associated with cash holdings rather CFO connections in general.

variable that takes the value of one if the CFO has an academic degree from an Ivy league college; an indicator variable that takes the value of one if the CFO has a Ph.D.; an indicator variable that takes the value of one if the CFO has legal experience; an indicator variable that takes the value of one if the CFO has finance experience; an indicator variable that takes the value of one if the CFO has political experience; and an indicator variable that takes the value of one if the CFO has military experience. We also create a CFO Finance Industry Connection Size (Excess) in a similar manner as the residual from a regression of CFO Finance Industry Connection Size on the human capital index.

We present the results from using the "excess" CFO-finance industry connectedness measures in columns 2 and 5 of Table VII. We find a significantly negative association between excess CFO-finance industry connectedness and firm cash holding. These results suggest that even when we parse human capital from our CFO-finance industry connections measures we continue to find that CFO-finance industry connections are associated with lower cash holdings.[10]

Another concern is that our measure of CFO-finance industry connections increases monotonically over time; once a connection is established between two individuals, those connections remain into the future. This mechanically introduces a time trend into our measures of finance industry connections. We create de-trended measures of our original variables (CFO Finance Industry Connected and CFO Finance Industry Connection Size) as residuals from a regression of these variables on a time-trend (Faleye, Kovacs, Venkateswaran, 2014). We then examine the effects of these de-trended variables on cash holding. The results, which we present

[10] We also address the possibility that higher ability executives may be better at managing the firm's cash holding policy while also having more connections specifically because of their ability by directly controlling for CEO and CFO ability in our estimation of the effects of finance industry connections on cash held as specified in equation (1). We use executive age, tenure, and whether or not the executive attended an Ivy League university as proxies for ability. We find that including these proxies for ability does not change our inference that the presence or number of connections to the finance industry reduces corporate cash holding (see Internet Appendix Table IA5).

in columns 3 and 6 of Table VII, show that our inference remains unchanged and that firms with CFO–finance industry connections hold less cash.

Thus far, we have used CFO connections to individuals in the finance industry as our key measure for CFO social capital within the finance industry. However, one possibility is that our measure merely proxies for CFO connections to the broader corporate finance profession – not just connections to bankers but connections to other CFOs.[11] We assess this possibility by identifying CFO connections to other CFOs following the procedure outlined in Section 2 for identifying connections to the finance industry while only considering connections to other CFOs. We use this measure to account for a CFO's connectedness within the cadre of CFO professionals. We then directly control for the CFO's connections to other CFOs using this specific measure in our base specification in equation (1). We find (see Internet Appendix Table IA9) that CFO connections to other CFOs are, by themselves, not associated with firm cash holdings. More importantly, our inference remains unchanged and that firms with CFO–finance industry connections hold less cash even after we control for CFO connections to other CFOs.

6.3 CFO–Finance Industry Social Networks as an Information Channel

Our inference thus far is that CFO–finance industry 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–finance industry connections should be more important in firms that are inherently more opaque. In contrast, CFO–finance industry connections should be less beneficial to firms that are inherently more transparent and thus easier for creditors to analyze. Because smaller firms tend to

[11] We thank an anonymous referee for this suggestion.

be more opaque, we predict a more pronounced negative relation between CFO–finance industry networks and cash holdings in smaller firms.

We test this hypothesis by adding an interaction term between the binary variable *CFO Finance Industry 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 VIII Panel A. Column (1) shows that the estimated coefficient on *CFO Finance Industry Connected* is –0.0870 (t = –2.760) and on *CFO Finance Industry Connected* × *Firm Size* is 0.0112 (t = 2.494). This finding indicates that, although the negative effect of CFO–finance industry connections on firm cash holdings remains significant, the effect is less (more) important for larger (smaller) firms. In column (4) of Panel A, we replicate the analysis using the number of CFO connections (*CFO Finance Industry Connection Size*) rather than the binary variable (*CFO Finance Industry Connected)* and find similar results.

Larger firms have greater access to various borrowing markets (e.g., borrowing from financial institutions, issuing bonds, or issuing equity) and are thus less likely to rely on financing directly from financial industry firms (Leary, 2009). Therefore, our results showing that CFO–finance industry connections are more important for smaller firms may simply reflect the fact that connections to the finance industry are more important for firms that borrow directly from them, not necessarily prove its role as an information channel. To address this issue, we perform additional tests by using two other proxies for firm information transparency: the number of voluntary earnings guidance disclosures and the bid-ask spread. Prior research shows that firms that issue more voluntary management earnings guidance are more transparent (Samuels, 2021), and it is well-documented that firms with lower bid-ask spreads are more transparent (Lang, Lins, and Maffett, 2012). We present the results in Columns (2) and (3) in Panel A of Table VIII. As

shown, the coefficient estimate on *CFO Finance Industry Connected* × *Number of Management Guidance* is positive and significant and on *CFO Finance Industry Connected* × *Bid-Ask Spread* is negative and significant. These findings suggest that (similar to our results with firm size as a measure of information asymmetry) CFO finance industry connections' impact on reducing firm cash holdings is more pronounced among firms that are less transparent. We find similar results using the continuous measure of CFO finance industry connectedness (*CFO Finance Industry Connection Size*) as shown in columns (5) and (6) in Panel A of Table VIII.

We perform another set of tests in which we employ an exogenous shock to direct lending from financial institutions that led to reductions in loan availability. A severe contraction in credit made financial institutions more conservative in extending loans after the 2008 financial crisis, which means that only firms that were more transparent to financial institutions retained easier access to direct lending.[12] This suggests that CFO–finance industry connections would have become more important in the post-financial crisis period.

We test this hypothesis by adding an interaction term between the binary variable and *Post-Crisis*, a dummy variable that equals one for years after 2008, and zero otherwise, to equation (1). Firms with stronger needs for direct loans from financial institutions possibly may have replaced their CFOs with one who had finance industry 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.[13] We present the results in column (1) of Panel B of Table VIII. The coefficient estimates on *CFO Finance Industry Connected* and the interaction term *CFO Finance Industry Connected* × *Post-Crisis* are –0.0187 ($t = -1.843$) and –0.0261 ($t = -2.015$),

[12] While the depth of the financial crisis occurred in 2008-2009, there is evidence to suggest that lending standards for commercial loans remained tight for many years afterwards (see, for example, Cole, 2020).
[13] We find similar results when we include firms that changed their CFOs in the post-crisis period.

respectively. These results continue to show that CFO–finance industry connections have a negative association with cash holdings, but this effect is stronger after the financial crisis. This finding supports the notion that CFO–finance industry connections are more important when information asymmetry is of greater concern to financial institutions. In column (2) of Panel B, we replicate the analysis using the number of CFO connections (*CFO Finance Industry Connection Size*) rather than the binary variable *CFO Finance Industry Connected* and find similar results.

6.4 CFO–Finance Industry Connections and Friendship Deals

The previous results show that CFO–finance industry relationships lead to less cash holdings, especially when soft information on borrowing firms is harder to acquire or more important to financial institutions. However, an alternative explanation for our results may be that CFOs with finance industry connections anticipate that they can negotiate deals with financial institutions when they need cash even when their firms do not qualify for such loans, as opposed to these connections being a channel for the dissemination of value-relevant private information. In other words, it is possible that CFO–finance industry connections reduce the need for firms to hold cash simply because the CFO has friends in financial institutions who are 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 financial institutions benefit by gaining potential businesses. In sharp contrast, in the friendship deals case, financial institutions might suffer loss from lending to poor quality firms.

We examine this possibility by looking at the effect of CFO–finance industry 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–finance industry connections' impact on cash holdings arises simply from the possibility of friendship 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 IX. Columns (1) and (2) report the results for the subsample of firms without and with junk bonds, respectively. The results show that the negative relation between cash holdings and CFO–finance industry connections holds only for the non-junk bond firms. Firms with junk bonds, who we expect to have greater needs for friendship deals, do not have easier access to direct loans from financial institutions even if their CFOs have finance industry connections. These findings provide strong evidence against the alternative friendship deal hypothesis. Tests based on the number of finance industry connections in Columns (4) and (5) provide similar results.

The results discussed in the preceding paragraph indicate that CFO–finance industry 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–finance industry connections provide a valid conduit for information diffusion, high-quality firms with low ratings and CFO–finance industry connections should be able to reduce cash holdings. We test this possibility by adding an interaction term between CFO–finance industry connections and return on assets (ROA) to column (2) of Table IX, where we use the subsample of firms with junk bonds and use firm performance (ROA) as a proxy for firm quality.[14] Column

[14] We perform another test in which we replace ROA with the Altman's Z-Score measure of the probability of bankruptcy (Graham, Lemmon and Schallheim, 1998). We find qualitatively similar results: CFO-finance industry connection leads to less cash holdings among firms with junk bonds that have lower bankruptcy probabilities (see Internet Appendix Table IA6).

(3) shows the coefficient estimate on this interaction term is –0.187 (t = –2.161). Using the number of CFO finance industry connections (column 6) produces similar results. These findings indicate that, among firms with junk bonds, those that are of higher quality hold less cash when they can convey information about their true quality to financial institutions through CFO–finance industry networks. This evidence further supports the notion that the negative relation between CFO–finance industry connections and cash holdings is due to the information channel, not friendship deals.

6.5 CFO–Finance Industry Relationship — A Firm Location Effect?

Executives at firms located in large cities may have, by virtue of their location, higher levels of social capital since they are geographically closer to more financial institutions, especially large ones with a large number of employees. This social capital makes access to financing easier for these firms (Hasan, Hoi, Wu, and Zhang, 2017). These firms' geographical locations also increase their CFOs' opportunities to connect with the finance industry 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 financial institutions may mean financing is more readily obtainable even if executives are not personally connected to the finance industry. 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 X. Columns (1) and (4) include a dummy variable, *FC*, that equals one 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–finance industry relationships and the financial center dummy to capture any differences in CFO–finance industry relationship's effects on firm cash holding for firms located in and outside financial centers. The results show that CFO–finance industry 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 X, 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–finance industry networks and firm cash holding is robust to controlling for the firm location effect even after including various location fixed effects.

6.6 The Impact of Corporate Governance Quality

It has been documented in the literature that corporate governance quality affects firms' cash management policy. For example, Harford, Mansi, and Maxwell (2008) analyze how firms' governance quality measured based on antitakeover provisions affect firm cash holdings. They show that firms with weaker corporate governance hold less cash than firms with stronger corporate governance and attribute their findings to weakly governed firms more quickly spending cash on acquisitions and capital expenditures. If future use of cash on acquisitions and capital expenditure are affected by finance industry connections, it is possible that the association between CFO-finance industry connections and cash holding will be affected by governance quality.

We test this possibility by including the E-index and board duality as measures corporate governance quality in our test of the association between CFO-finance industry connections and cash holding, as well as their interactions with the CFO-finance industry connections variables.

We present the results in Table XI. As shown, the coefficient estimates on the interaction terms between *CFO–Finance Industry Connected* and *E-Index* as well as between *CFO–Finance Industry Connected* and *Duality* are both positive and significant, while the coefficient estimates on *CFO–Finance Industry Connected* remain negative and significant (Columns 1 and 2). Using the continuous measure *CFO–Finance Industry Connection Size* yields similar results (Columns 3 and 4). These results suggest that our main inference remains unaffected: firms tend to hold less cash when their CFOs are connected to the finance industry. However, this relation appears to be less pronounced when the firms have weaker corporate governance structures.

6.7 CFO Connections to the Most Senior Finance Industry Executives

Thus far our measure of social connections between corporate executives and the finance industry has used *all* the connections to the finance industry that meet the criteria we set out in Section 2 without consideration of the role of the person in the finance industry to whom the CFO is connected. However, an argument can be made that the most relevant finance industry connections for cash holding are the most "important" finance industry connections, i.e., those finance industry connections who are themselves senior executives at their banks or financial institutions. To examine this possibility, we identify and limit our finance industry connections to only those finance industry connections who hold one of the following titles: CEO, CFO, COO, Chair (chairman, chairwoman), VP (e.g., VP Finance, VP Operations, Executive VP), President, Chief (e.g. Chief Executive Officer), and Director (i.e., executive director on board). We then replicate the regression specified in equation (1) using these specific connections to determine the effect of "important" finance industry connections on cash holdings.

The results (presented in columns 1 and 2 of Table IA1 of the Internet Appendix) show that the effect of having "important" finance industry connections on firm cash holdings is similar

in magnitude to the effect of having finance industry connections in general. Having an "important" finance industry connection reduces cash held as a percentage of assets by 1.6 percentage points (Internet Appendix Table IA1 column 1), and there is a negative association between the number of "important" finance industry connections and cash holdings (Internet Appendix Table IA1 column 2).

6.8 CFO Connections Formed in a Professional Context

Thus far our measure of social connections between corporate executives and the finance industry has used *all* the connections to the finance industry without consideration of the context in which the connection was made. These include connections formed from overlapping membership in social clubs, attending the same schools, and those formed in a more professional business context such as working in, or serving as directors in the same firm. An argument can be made that the most relevant finance industry connections for cash holding are those that were formed specifically in a professional business context. These connections could be considered the ones that may be most likely to facilitate relevant information transfer within networks. To examine this possibility, we identify and limit our finance industry connections to only those formed in a professional context and exclude those formed via social organizations or attending the same school. We then replicate the regression specified in equation (1) using these specific connections to determine the effect of professional finance industry connections on cash holdings.

The results (presented in columns 3 and 4 Internet Appendix Table IA1) show that the effect of having professional finance industry connections on firm cash holdings is similar in magnitude to the effect of having finance industry connections in general. Having a professional finance industry connection reduces cash held as a percentage of assets by 1.7 percentage points (Internet Appendix Table IA1 column 3), and there is a negative association between the number

of professional finance industry connections and cash holdings (Internet Appendix Table IA1 column 4).

6.9 CEO Power, CEO Expertise, and the CEO-CFO Relationship

Our results thus far show that, relative to CEO connections, CFO finance industry connections have a more significant impact on reducing firm cash holdings. However, it is possible that this finding may simply be driven by firms in which CEOs are relatively less powerful. It is also possible that CEOs who lack extensive financial expertise may not be astute at managing their firms' finances and may thus rely more on their CFOs (e.g., Custodio and Metzger, 2014). In these firms, CFO finance industry connections may magnify the relative power or expertise imbalance between the CEO and the CFO such that the CFO becomes the focal point for cash management policy.

We examine the association between CFO finance industry connections and cash holdings while separately accounting for CEO power and CEO financial expertise respectively. Our proxies for CEO power are CEO tenure and a binary variable for whether or not the CEO is also the Chair of the Board (CEO duality). Our proxy for CEO expertise is a binary variable for whether or not the CEO served as a CFO prior to being appointed as a CEO. We find that neither controlling for CEO power (Internet Appendix Table IA2 columns 1 and 4) nor controlling for CEO financial expertise (Internet Appendix Table IA2 columns 2 and 5) changes our inference that CFO finance connections reduce corporate cash holding.

Finally, we consider the possibility that the social relationship between the CFO and the CEO may itself affect the impact of CFO finance industry connections on cash holding. CFOs with high social capital may be more likely to be connected to the CEO outside the company at which they are both currently executives. CEOs who are socially connected to the CFOs outside may, in

turn, be more likely to rely on their CFOs for cash management such that CFO connections become more important for cash holding than CEO connections. We examine this possibility by creating a binary variable that equals one (zero otherwise) in cases in which the CEO and CFO are connected outside their current company. We find that controlling for this variable does not change our inference that CFO finance industry connections reduce corporate cash holding (Internet Appendix Table IA2 columns 3 and 6).

7. Conclusion

We investigate how social connections between corporate executives and the finance industry – especially those of a firm's chief financial officer (CFO) – affect a firm's level of cash holdings and the valuation of such holdings. Cash represents a significant part of a firm's assets; in our sample, the typical firm holds 13% of its assets in cash. Information asymmetry and uncertainty about future liquidity needs mean that firms must hold precautionary cash. However, holding cash is costly due to its low returns and agency costs associated with the potential for managerial opportunism. Easier access to financing through lines of credit can reduce the need for precautionary cash, but information asymmetry also impedes access to such financing.

We study executive networks in the finance industry because they offer a channel by which firms can reduce information asymmetry with potential lenders. We focus on CFOs in particular because they are the financial experts on the executive team and cash management is one area where a CFO's social and professional networks in the finance industry may be particularly important. Therefore, our key hypotheses are that firms with CFOs connected to the finance industry will hold less cash and that the CFOs' connection to the finance industry will be more important than that of other executives and directors.

Across a broad range of empirical choices, we find evidence to support our hypotheses. Firms that have CFOs with connections to the finance industry hold significantly less cash than firms without such CFOs. CFO–finance industry connections are more important for cash holdings than the finance industry connections of the CEO or other directors. We attribute this result to a reduction in information asymmetries and not to alternative explanations that we dismiss through a series of robustness tests. Specifically, we find that in the two years following unexpected turnover that leads to the arrival of a CFO with finance industry connections, firms experiencing such turnovers reduce their cash holdings significantly when benchmarked to similar firms. Finally, we show that CFO–finance industry connections reduce the value assigned by investors to incremental cash holdings.

We believe our work has several implications for investors and researchers. First, our results suggest that executive social and professional networks function as a form of insurance against future uncertainty. In particular, CFO–finance industry connections mitigate information asymmetry, increase availability of financial institution financing, and reduce the value of precautionary cash holdings. Firms without these CFOs, in contrast, must insure against uncertain future liquidity needs in a way that firms with CFO–finance industry connections do not. In addition, our work dovetails with prior work that finds higher performance in firms with well-connected directors and executives (e.g., Larcker, So, and Wang, 2013). Our results suggest that one of the potential mechanisms by which connections enhance performance is by lowering the long-term costs of external financing and reducing the "deadweight" cost of holding precautionary cash.

Our findings also affirm the centrality of the CFO and the importance of the CFO's social and professional human capital to corporate financial policy. In particular, as the financial crisis

of the late 2000s and the COVID-19 crisis of 2020 illustrate dramatically, liquidity management by CFOs – and the CFO's social capital – can be essential to firm performance and survival. In contrast, much of the focus in research and media has been on the CEO or other directors. The importance of role-specific social capital may extend to other members of the executive team, such as chief marketing officers. Future work should investigate how corporate executive social capital affects corporate policy in various executives' respective areas of expertise.

References

Akbas, F., F. Meschke, and M. B. Wintoki. 2016. Director Networks and Informed Traders. *Journal of Accounting and Economics* 62:1, 1-23.

Bates, T. W., K. M. Kahle, and R. M. Stulz. 2009. Why Do U.S. Firms Hold So Much More Cash than They Used To? *Journal of Finance* 64:5, 1985-2021.

Beck, M. J., and E. G. Mauldin. 2014. Who's Really in Charge? Audit Committee versus CFO Power and Audit Fees. *The Accounting Review* 89:6, 2057-2085.

Berger, A. N., T. Kick, M. Koetter, and K. Schaeck. 2013. Does It Pay to Have Friends? Social Ties and Executive Appointments in Banking. *Journal of Banking and Finance* 37:6, 2087-2105.

Bushee, B. J., J. Gerakos, and L. F. Lee. 2014. Corporate Jets and Private Meeting with Investors. *Chicago Booth Research Paper No. 12-43*.

Chava, S., and A. Purnanandam. 2010. CEOs versus CFOs: Incentives and Corporate Policies. *Journal of Financial Economics* 97, 263-278.

Chuluun, T., A. Prevost, and J. Puthenpurackal. 2014. Board Ties and the Cost of Corporate Debt. *Financial Management* 43:3, 533-568.

Cohen, L., A. Frazzini, and C. Malloy. 2008. The Small World of Investing: Board Connections and Mutual Fund Returns. *Journal of Political Economy* 116:5, 951-979.

Cole, R. A. and J. Damm. 2020. How did the Financial Crisis Affect Small-Business Lending in the U.S.? *Journal of Financial Research* 43:4, 767-820.

Custodio, C. and D. Metzger. 2014. Financial expert CEOs: CEO's Work Experience and Firm's Financial Policies. *Journal of Financial Economics* 114, 125-154.

Do, T. T. and H. Zhang, 2020. Peer Effects among Financial Analysts. *Contemporary Accounting Research* 37:1, 358-391.

El-Khatib, R., K. Fogel, and T. Jandik. 2015. CEO Network Centrality and Merger Performance. *Journal of Financial Economics* 116:2, 349-382.

Engelberg, J., P. Gao, and C. A. Parsons. 2012. Friends with Money. *Journal of Financial Economics* 103:1, 169-188.

Faulkender, M., and R. Wang. 2006. Corporate Financial Policy and the Value of Cash. *Journal of Finance* 61:4, 1957-1990.

Fee, C. E., C. J. Hadlock, and J. R. Pierce. 2013. Managers with and without Style: Evidence Using Exogenous Variation. *Review of Financial Studies* 26:3, 567-601.

Ferris, S. P., D. Javakhadze, and T. Rajkovic. 2017. CEO Social Capital, Risk-Taking and Corporate Policies. *Journal of Corporate Finance* 47, 46-71.

Fogel, K., T. Jandik, and W.R. McCumber. 2018. CFO Social Capital and Private Debt. *Journal of Corporate Finance* 52, 28-52.

Faleye, O., T. Kovacs, and A. Venkateswaran. 2014. Do Better-Connected CEOs Innovate More? *Journal of Financial and Quantitative Analysis* 49:5/6, 1201-1225.

Fracassi, C. 2017. Corporate Finance Policies and Social Networks. *Management Science* 63:8, 2420-2438.

Fracassi, C., and G. Tate. 2012. External Networking and Internal Firm Governance. *Journal of Finance* 67:1, 153-194.

Geiger, M. A., and D. S. North. 2006. Does Hiring a New CFO Change Things? An Investigation of Changes in Discretionary Accruals. *The Accounting Review* 81:4, 781-809.

Gormley, T. A., and D. A. Matsa. 2014. Common Errors: How to (and not to) Control for Unobserved Heterogeneity. *Review of Financial Studies* 27:2, 617-661.

Graham, J. R., and C. R. Harvey. 2001. The Theory and Practice of Corporate Finance: Evidence from the Field. *Journal of Financial Economics* 60, 187-243.

Graham, J. R., M. L. Lemmon, and J. S. Shallheim. 1998. Debt, Leases, Taxes, and the Endogeneity of Corporate Tax Status. *Journal of Finance* 53:1, 131-162.

Graham, J. R., S. Li, and J. Qiu. 2008. Corporate Misreporting and Bank Loan Contracting. *Journal of Financial Economics* 89:1, 44-61.

Harford, J., S. A. Mansi, and W. F. Maxwell. 2008. Corporate Governance and Firm Cash Holdings in the US. *Journal of Financial Economics* 87, 535-555.

Hasan, I., C.K. Hoi, Q. Wu, and H. Zhang. 2017. Social Capital and Debt Contracting: Evidence from Bank Loans and Public Bonds. *Journal of Financial and Quantitative Analysis* 52:3, 1017-1047.

He, Z., and M. B. Wintoki. 2016. The Cost of Innovation: R&D and High Cash Holdings in U.S. Firms. *Journal of Corporate Finance* 41, 280-303.

Hwang, B., and S. Kim. 2009. It Pays to Have Friends. *Journal of Financial Economics* 93, 138-158.

Javakhadze, D., S. Ferris, and D. French, 2016. Social Capital, Investments, and External Financing. *Journal of Corporate Finance* 37, 38-55.

Jiang, J., K. R. Petroni, and I. Y. Wang. 2010. CFOs and CEOs: Who Have the Most Influence on Earnings Management? *Journal of Financial Economics* 96, 513-526.

Karolyi, S. A. 2018. Personal Lending Relationships. *Journal of Finance* 73:1, 5-49.

Kashyap, A. K., R. Rajan, and J. C. Stein. 2002. Banks as Liquidity Providers: An Explanation for the Coexistence of Lending and Deposit-taking. *Journal of Finance* 57:1, 33-73.

Kim, J., Y. Li, and L. Zhang. 2011. CFOs versus CEOs: Equity Incentives and Crashes. *Journal of Financial Economics* 101, 713-730.

Kinnan, C., and R. Townsend. 2012. Kinship and Financial Networks, Formal Financial Access, and Risk Reduction. *American Economic Review: Papers & Proceedings* 102:3, 289-293.

Kroszner, R., and P. E. Strahan. 1999. Bankers on Boards: Monitoring, Conflicts of Interest, and Lender Liability. NBER Working Paper Series No. 7319 https://www.nber.org/papers/w7319.

Lamont, O., C. Polk, and J. Saaa-Requejo. 2001. Financial Constraints and Stock Returns. *Review of Financial Studies*, 14:2, 529-554.

Lang, M., K. V. Lins, and M. Maffett. 2012. Transparency, Liquidity, and Valuation: International Evidence on When Transparency Matters Most. *Journal of Accounting Research* 50:3, 729-774.

Larcker, D. F., E. C. So, and C. Y. Wang. 2013. Boardroom Centrality and Firm Performance. *Journal of Accounting and Economics* 55, 225-250.

Leary, M. T. 2009. Bank Loan Supply, Lender Choice, and Corporate Capital Structure. *Journal of Finance* 64:3, 1143-1185.

Leland, H. E., and D. H. Pyle. 1977. Informational Asymmetries, Financial Structure, and Financial Intermediation. *Journal of Finance* 32:2, 371-387.

Nguyen, B. D. 2012. Does the Rolodex Matter? Corporate Elite's Small World and the Effectiveness of Boards of Directors. *Management Science* 58:2, 236-252.

Opler, T., L. Pinkowitz, R. H. Stulz, and R. Williamson. 1999. The Determinants and Implications of Corporate Cash Holdings. *Journal of Financial Economics* 52, 3-46.

Pinkowitz, L., R. Stulz, and R. Williamson. 2016. Do U.S. Firms Hold More Cash than Foreign Firms Do? *Review of Financial Studies* 29:2, 309-348.

Pool, V. K., N. Stoffman, and S. E. Yonker, 2015. The People in Your Neighborhood: Social Interactions and Mutual Fund Portfolios. *Journal of Finance* 70:6, 2679-2732.

Samuels, D. 2021. Government Procurement and Changes in Firms Transparency. *The Accounting Review* 96:1, 401-430.

Schmidt, B. 2015. Costs and Benefits of Friendly Boards during Mergers and Acquisitions. *Journal of Financial Economics* 117:2, 424-447.

Shue, K. 2013. Executive Networks and Firm Policies: Evidence from the Random Assignment of MBA Peers. *Review of Financial Studies* 26:6, 1401-1442.

Stiglitz, J. E., and A. Weiss. 1981. Credit Rationing in Markets with Imperfect Information. *American Economic Review* 71:3, 393-410.

Sufi, A. 2009. Bank Lines of Credit in Corporate Finance: An Empirical Analysis. *Review of Financial Studies* 22:3, 1057-1088.

Wang, W., Y. Shin, and B. B. Francis, 2012. Are CFOs' Trades More Informative Than CEOs' Trades? *Journal of Financial and Quantitative Analysis* 47:4, 743-762.

Table I – 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	12890	0.027	0.063	0.000	0.000	0.018
Banker on Board	12890	0.116	0.321	0.000	0.000	0.000
Board Friendliness	12890	0.115	0.213	0.000	0.000	0.167
Capital Expenditures	12890	0.050	0.056	0.016	0.032	0.062
Cash	12890	0.213	0.222	0.041	0.133	0.317
CEO Finance Industry Connected	12890	0.084	0.278	0.000	0.000	0.000
CEO Finance Industry Connection Size	12890	0.949	4.299	0.000	0.000	0.000
CF	12890	0.054	0.175	0.029	0.086	0.135
CF std	12890	0.094	0.709	0.028	0.049	0.086
CFO Finance Industry Connected	12890	0.094	0.292	0.000	0.000	0.000
CFO Finance Industry Connection Size	12890	1.153	5.157	0.000	0.000	0.000
CFO Network Size	12890	432.128	459.721	77.000	260.000	654.000
Director Finance Industry Connected	12890	0.336	0.472	0.000	0.000	1.000
Director Finance Industry Connection Size	12890	11.439	29.382	0.000	0.000	5.000
Dividend	12890	0.357	0.479	0.000	0.000	1.000
Equity	12890	0.049	0.140	0.001	0.006	0.022
Executive and Director Finance Industry Connected	12890	0.446	0.497	0.000	0.000	1.000
Executive and Director Finance Industry Connection Size	12890	13.831	30.833	0.000	0.000	12.000
FC	11907	0.235	0.424	0.000	0.000	0.000
Firm Size	12890	4540.069	24380.480	142.519	594.742	2154.500
Junk	5267	0.504	0.500	0.000	1.000	1.000
Leverage	12890	0.462	0.218	0.288	0.458	0.621
Loss	12890	0.300	0.458	0.000	0.000	1.000
MB	12890	4.144	23.637	1.381	2.200	3.676
Rating	12890	0.333	0.471	0.000	0.000	1.000
R&D	12890	0.276	1.414	0.000	0.007	0.091
Tangible	12890	0.480	0.367	0.184	0.380	0.700
Tax	12890	0.197	0.416	0.009	0.295	0.372

Table II – CFO– Finance Industry Relationship and Cash Holdings

This table documents results for the analysis of CFO–finance industry 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 Finance Industry Connected	-0.00731*							
	(-1.828)							
CFO Finance Industry Connected		-0.0173**		-0.0173**				
		(-2.100)		(-2.095)				
CEO Finance Industry Connected			-0.00155	-0.000787				
			(-0.164)	(-0.0832)				
Director Finance Industry Connected				-0.00640*				
				(-1.851)				
Executive and Director Finance Industry Connection Size					-0.00270**			
					(-2.271)			
CFO Finance Industry Connection Size						-0.00720**		-0.00714**
						(-2.227)		(-2.206)
CEO Finance Industry Connection Size							-0.00248	-0.00231
							(-0.661)	(-0.615)
Director Finance Industry Connection Size								-0.00167
								(-1.563)

Table II continues

Table II (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

Table III – Cash Holdings after CFO Turnover and an Increase in CFO–Finance Industry Connections

This table reports the difference-in-differences (DID) analysis of cash holdings after additions of CFO–finance industry connections following turnover seemingly not related to CFO performance or firm characteristics. Treatment firms are the ones that experience unexpected additions of CFO–finance industry 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. There are 137 CFO turnovers that we classify as routine and not attributed to CFO or firm performance (i.e., the sample in Figure 1). The first two rows in Panels A 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. Panel B reports results from a regression of Cash/Assets on *Treat* which is a binary variable which equals one (zero otherwise) for treatment firms, *Post* which is a binary variable which equals one (zero otherwise) for all the years following the CFO turnover, CFO Network Size which is the log of one plus the number of CFO connections, and the interaction of Treat and Post. In Panel B. *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

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)

Panel B

Dependent Variable: Cash/Assets						
Treat × Post	Treat	Post	CFO Network Size	Constant	Observations	R^2
-0.0667***	0.0702**	0.0292**	-0.158	0.241***	595	0.009
(-3.067)	(2.260)	(2.076)	(-1.567)	(3.977)		

Table IV – CFO–Finance Industry Relationship and Value of Cash Holdings

This table documents the analyses on the effect that CFO–finance industry 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 Finance industry Connected*$_t$ is a dummy variable indicating whether a firm's CFO is connected with the finance industry. 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 Finance Industry Connected$_t$	0.0134	0.0273	0.0371*
	(0.627)	(1.268)	(1.703)
CFO Finance Industry 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 V – CFO–Finance Industry Relationship, Financial Constraint, and Value of Cash Holdings

This table documents the analyses on the effect that CFO–finance industry relationships have on the value of their firms' cash holdings, conditional on the firms' financial constraints. ΔX_t represents $(X_t - X_{t-1})$ for variable X. C_t is cash and cash equivalents. *CFO Finance Industry Connected*$_t$ is a dummy variable indicating whether a firm's CFO is connected with the finance industry. KZ_t is the Kaplan-Zingales index. 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)
CFO Finance Industry Connected$_t$ * ΔC_t * KZ_t	-0.166***	-0.137**	-0.138**
	(-3.312)	(-2.399)	(-2.366)
CFO Finance Industry Connected$_t$ * ΔC_t	0.0377	-0.0886	-0.0946
	(0.187)	(-0.393)	(-0.412)
CFO Finance Industry Connected$_t$ * KZ_t	0.0181	0.0114	0.0115
	(1.439)	(1.064)	(1.071)
ΔC_t * KZ_t	0.0113*	0.00901	0.00854
	(1.900)	(1.495)	(1.431)
ΔC_t	1.495***	1.398***	1.373***
	(8.231)	(7.775)	(7.721)
CFO Finance Industry Connected$_t$	-0.0123	0.00931	0.0185
	(-0.565)	(0.424)	(0.827)
KZ_t	0.000260	-0.001000	-0.000973
	(0.276)	(-1.359)	(-1.321)
ΔE_t	0.00929	0.00901	0.00906
	(1.110)	(0.946)	(0.960)
ΔNA_t	0.0300**	0.0306**	0.0295**
	(2.512)	(2.098)	(2.049)
ΔRD_t	-1.693***	-1.313***	-1.320***
	(-4.007)	(-3.500)	(-3.560)
ΔI_t	0.218	0.208	0.224
	(1.154)	(1.057)	(1.126)
ΔD_t	-0.566***	-0.601***	-0.617***
	(-2.902)	(-3.071)	(-3.137)
C_{t-1}	0.121***	0.135***	0.139***
	(3.079)	(3.292)	(3.335)
L_t	-0.442***	-0.212***	-0.305***
	(-14.51)	(-6.205)	(-7.815)
NF_t	-0.0716***	-0.0721**	-0.0708**
	(-2.835)	(-2.416)	(-2.392)
C_{t-1} * ΔC_t	8.71e-05	8.90e-05	8.12e-05
	(1.050)	(0.873)	(0.810)
L_t * ΔC_t	-1.611***	-1.479***	-1.432***
	(-5.892)	(-5.061)	(-4.983)
Constant	0.180***	0.241***	0.677**
	(15.56)	(20.66)	(2.564)
FF25 x Fiscal Year FE	NO	YES	YES
Industry FE	NO	NO	YES
Calendar Year FE	NO	NO	YES
Observations	14,269	14,269	14,153
Adjusted R-squared	0.151	0.337	0.345

Table VI– Accounting for CFO Connections to Banks Lending to the Company

This table documents results for the analysis of CFO–finance industry relationships by controlling CFO connections to banks that lend to their company. Columns (1) and (2) consider banks that currently lend to the company and in the next year; columns (3) and (4) consider banks that currently lend to the company and in the next two years. 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 Finance Industry Connected	-0.0169**		-0.0170**	
	(-2.049)		(-2.050)	
CFO Finance Industry Connection Size		-0.00690**		-0.00691**
		(-2.124)		(-2.125)
CFO Lenders Connected	-0.0128*		-0.00993	
	(-1.715)		(-1.388)	
CFO Lenders Connection Size		-0.00959*		-0.00755
		(-1.800)		(-1.544)
CEO Finance Industry Connected	-0.000657		-0.000682	
	(-0.0695)		(-0.0720)	
Director Finance Industry Connected	-0.00637*		-0.00636*	
	(-1.844)		(-1.843)	
CEO Finance Industry Connection Size		-0.00225		-0.00226
		(-0.601)		(-0.602)
Director Finance Industry Connection Size		-0.00167		-0.00167
		(-1.563)		(-1.563)
Banker on Board	-0.0129**	-0.0128**	-0.0129**	-0.0128**
	(-2.140)	(-2.124)	(-2.137)	(-2.124)
Board Friendliness	0.000698	0.000780	0.000693	0.000729
	(0.0561)	(0.0625)	(0.0556)	(0.0584)
MB	0.000464***	0.000465***	0.000464***	0.000465***
	(3.085)	(3.082)	(3.087)	(3.083)
Firm Size	-0.00650***	-0.00648***	-0.00654***	-0.00651***
	(-2.809)	(-2.799)	(-2.823)	(-2.807)
CF	-0.00167	-0.00206	-0.00157	-0.00197
	(-0.0762)	(-0.0939)	(-0.0717)	(-0.0900)
Leverage	-0.240***	-0.240***	-0.240***	-0.240***
	(-15.19)	(-15.18)	(-15.19)	(-15.18)
Capital Expenditures	-0.152***	-0.152***	-0.152***	-0.152***
	(-3.469)	(-3.458)	(-3.471)	(-3.459)
R&D	0.0227***	0.0227***	0.0227***	0.0227***
	(9.676)	(9.702)	(9.676)	(9.702)
CF std	0.00253	0.00255	0.00253	0.00255
	(0.537)	(0.541)	(0.537)	(0.541)
Equity	0.282***	0.281***	0.282***	0.281***
	(14.54)	(14.50)	(14.54)	(14.50)
Tax	-0.0154***	-0.0155***	-0.0154***	-0.0155***
	(-4.212)	(-4.236)	(-4.205)	(-4.228)
Tangible	-0.110***	-0.110***	-0.110***	-0.110***
	(-10.77)	(-10.79)	(-10.77)	(-10.79)
Dividend	-0.00950	-0.00915	-0.00954	-0.00916
	(-1.556)	(-1.493)	(-1.562)	(-1.495)
Acquisition Costs	-0.484***	-0.483***	-0.484***	-0.483***
	(-21.55)	(-21.58)	(-21.55)	(-21.58)
Loss	0.0245***	0.0242***	0.0245***	0.0242***
	(4.708)	(4.662)	(4.706)	(4.663)
Rating	-0.0140*	-0.0140*	-0.0140*	-0.0140*
	(-1.862)	(-1.856)	(-1.863)	(-1.857)
Constant	0.396***	0.396***	0.396***	0.396***
	(14.65)	(14.62)	(14.64)	(14.60)
Year Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
Observations	12,890	12,890	12,890	12,890
Adjusted R^2	0.531	0.531	0.531	0.531

Table VII– Accounting for CFO Network Size, Excess CFO-Finance Industry Connectedness, and Time Trend

This table documents results for the analysis of CFO–finance industry relationships by considering CFO Network Size, Excess CFO-Finance Industry Connectedness, and Time Trend. *CFO Network Size* is the number of all types of connections a CFO has. *Excess CFO-Finance Industry* is the excess CFO connectedness in the finance industry after considering their human capital (as defined in Section 6.2). *De-trended CFO-Finance Industry Connectedness* measures remove possible time trend (as defined in Section 6.2). 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 Finance Industry Connected	-0.0189**					
	(-2.273)					
CFO Finance Industry Connected (Excess)		-0.0176**				
		(-2.133)				
CFO Finance Industry Connected (De-trended)			-0.0178**			
			(-2.149)			
CEO Finance Industry Connected	-0.00385	-0.000807	-0.000796			
	(-0.432)	(-0.0848)	(-0.0836)			
Director Finance Industry Connected	-0.00589	-0.00692**	-0.00692**			
	(-1.625)	(-1.994)	(-1.994)			
CFO Finance Industry Connection Size				-0.00918***		
				(-2.757)		
CFO Finance Industry Connection Size (Excess)					-0.00758**	
					(-2.344)	
CFO Finance Industry Connection Size (De-trended)						-0.00751**
						(-2.320)
CEO Finance Industry Connection Size				-0.00389	-0.00231	-0.00232
				(-1.111)	(-0.611)	(-0.612)
Director Finance Industry Connection Size				-0.00172	-0.00177*	-0.00177*
				(-1.509)	(-1.661)	(-1.662)
CFO Network Size	0.00789***			0.00853***		
	(3.253)			(3.484)		
Banker on Board	-0.0147**	-0.0132**	-0.0132**	-0.0146**	-0.0130**	-0.0130**
	(-2.321)	(-2.169)	(-2.170)	(-2.309)	(-2.148)	(-2.149)
Board Friendliness	0.00678	0.00200	0.00200	0.00695	0.00183	0.00182
	(0.570)	(0.160)	(0.160)	(0.584)	(0.146)	(0.145)
MB	0.000440***	0.000466***	0.000466***	0.000440***	0.000466***	0.000466***
	(3.070)	(3.111)	(3.111)	(3.061)	(3.103)	(3.103)
Firm Size	-0.00826***	-0.00645***	-0.00646***	-0.00835***	-0.00644***	-0.00643***
	(-3.357)	(-2.770)	(-2.774)	(-3.397)	(-2.769)	(-2.765)
CF	-0.00115	-0.000354	-0.000339	-0.00138	-0.000563	-0.000578
	(-0.0520)	(-0.0161)	(-0.0154)	(-0.0623)	(-0.0256)	(-0.0263)
Leverage	-0.233***	-0.239***	-0.239***	-0.233***	-0.239***	-0.239***
	(-14.50)	(-15.05)	(-15.05)	(-14.49)	(-15.05)	(-15.05)
Capital Expenditures	-0.163***	-0.149***	-0.149***	-0.162***	-0.149***	-0.149***
	(-3.626)	(-3.344)	(-3.344)	(-3.600)	(-3.332)	(-3.333)
R&D	0.0233***	0.0228***	0.0228***	0.0233***	0.0228***	0.0228***
	(9.945)	(9.638)	(9.639)	(9.993)	(9.667)	(9.666)
CF std	0.00128	0.00248	0.00248	0.00128	0.00251	0.00251
	(0.337)	(0.531)	(0.531)	(0.336)	(0.536)	(0.536)
Equity	0.279***	0.282***	0.282***	0.278***	0.282***	0.282***
	(14.15)	(14.53)	(14.53)	(14.14)	(14.50)	(14.50)
Tax	-0.0143***	-0.0160***	-0.0160***	-0.0144***	-0.0161***	-0.0161***
	(-3.745)	(-4.398)	(-4.398)	(-3.774)	(-4.425)	(-4.425)
Tangible	-0.108***	-0.111***	-0.111***	-0.108***	-0.111***	-0.111***
	(-10.02)	(-10.78)	(-10.78)	(-10.02)	(-10.80)	(-10.80)
Dividend	-0.00808	-0.00997	-0.00997	-0.00743	-0.00954	-0.00954
	(-1.271)	(-1.621)	(-1.622)	(-1.167)	(-1.548)	(-1.547)
Acquisition Costs	-0.477***	-0.484***	-0.484***	-0.477***	-0.484***	-0.484***
	(-20.62)	(-21.41)	(-21.41)	(-20.65)	(-21.43)	(-21.43)
Loss	0.0240***	0.0246***	0.0246***	0.0237***	0.0244***	0.0244***
	(4.382)	(4.707)	(4.707)	(4.327)	(4.665)	(4.666)
Rating	-0.0199**	-0.0155**	-0.0155**	-0.0199**	-0.0154**	-0.0154**
	(-2.552)	(-2.041)	(-2.043)	(-2.555)	(-2.034)	(-2.033)
Constant	0.362***	0.424***	0.424***	0.360***	0.424***	0.424***
	(11.75)	(25.21)	(25.21)	(11.63)	(25.28)	(25.28)
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	11,581	12,787	12,787	11,581	12,787	12,787
Adjusted R^2	0.540	0.532	0.532	0.541	0.532	0.532

Table VIII– CFO–Finance Industry Relationship as Information Channel

This table documents results for the analysis of CFO–finance industry relationships as information channel. *Bid-Ask Spread* is the average daily bid-ask spread in a fiscal year. *Number of Management Guidance* is the number of management earnings guidance issued in a fiscal year. *Post-Crisis* is a dummy variable with a value of one for years after 2008. 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.

Panel A

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
CFO Finance Industry Connected	-0.0870***	-0.0281***	-0.00712			
	(-2.760)	(-2.962)	(-0.747)			
CFO Finance Industry Connected × Firm Size	0.0112**					
	(2.494)					
CFO Finance Industry Connected × Number of Management Guidance		0.00141*				
		(1.762)				
CFO Finance Industry Connected × Bid-Ask Spread			-1.768***			
			(-2.764)			
CEO Finance Industry Connected	-0.000859	-0.000793	0.00208			
	(-0.0913)	(-0.0834)	(0.226)			
Director Finance Industry Connected	-0.00633*	-0.00651*	-0.00523			
	(-1.835)	(-1.877)	(-1.518)			
CFO Finance Industry Connection Size				-0.0264**	-0.00861**	-0.00491
				(-2.441)	(-2.392)	(-1.284)
CFO Finance Industry Connection Size × Firm Size				0.00295**		
				(2.053)		
CFO Finance Industry Connection Size × Number of Management Guidance					0.000177	
					(0.527)	
CFO Finance Industry Connection Size × Bid-Ask Spread						-0.499**
						(-2.102)
CEO Finance Industry Connection Size				-0.00239	-0.00233	-0.000264
				(-0.638)	(-0.616)	(-0.0743)
Director Finance Industry Connection Size				-0.00167	-0.00165	-0.00134
				(-1.563)	(-1.536)	(-1.249)
Number of Management Guidance		3.11e-05			0.000130	
		(0.116)			(0.472)	
Bid-Ask Spread			-2.664***			-2.712***
			(-9.822)			(-10.06)
Banker on Board	-0.0133**	-0.0128**	-0.0110*	-0.0134**	-0.0131**	-0.0109*
	(-2.209)	(-2.109)	(-1.799)	(-2.213)	(-2.150)	(-1.779)
Board Friendliness	0.00103	0.00151	0.00655	0.000581	0.00159	0.00600
	(0.0826)	(0.120)	(0.563)	(0.0466)	(0.126)	(0.515)
MB	0.000464***	0.000464***	0.000426***	0.000464***	0.000464***	0.000425***
	(3.102)	(3.099)	(2.964)	(3.094)	(3.089)	(2.955)
Firm Size	-0.00767***	-0.00680***	-0.0177***	-0.00730***	-0.00678***	-0.0176***
	(-3.256)	(-2.902)	(-7.342)	(-3.114)	(-2.892)	(-7.310)
CF	-0.000243	-0.000622	-0.00678	-0.000366	-0.000893	-0.00713
	(-0.0112)	(-0.0283)	(-0.286)	(-0.0168)	(-0.0406)	(-0.300)
Leverage	-0.241***	-0.238***	-0.218***	-0.240***	-0.238***	-0.217***
	(-15.26)	(-15.00)	(-13.79)	(-15.22)	(-15.00)	(-13.76)
Capital Expenditures	-0.150***	-0.151***	-0.220***	-0.150***	-0.150***	-0.220***
	(-3.416)	(-3.406)	(-4.962)	(-3.416)	(-3.398)	(-4.962)
R&D	0.0227***	0.0228***	0.0214***	0.0227***	0.0228***	0.0214***
	(9.666)	(9.605)	(9.352)	(9.686)	(9.660)	(9.323)
CF std	0.00248	0.00248	0.00200	0.00253	0.00252	0.00203
	(0.530)	(0.531)	(0.415)	(0.538)	(0.539)	(0.419)
Equity	0.281***	0.282***	0.269***	0.281***	0.281***	0.268***
	(14.59)	(14.55)	(13.94)	(14.51)	(14.51)	(13.83)
Tax	-0.0155***	-0.0160***	-0.0170***	-0.0156***	-0.0161***	-0.0171***
	(-4.224)	(-4.393)	(-4.646)	(-4.259)	(-4.432)	(-4.675)
Tangible	-0.110***	-0.110***	-0.0988***	-0.110***	-0.110***	-0.0988***
	(-10.80)	(-10.75)	(-9.997)	(-10.81)	(-10.75)	(-10.00)
Dividend	-0.00968	-0.00937	-0.00946	-0.00925	-0.00897	-0.00933
	(-1.589)	(-1.530)	(-1.549)	(-1.512)	(-1.457)	(-1.522)
Acquisition Costs	-0.483***	-0.486***	-0.504***	-0.483***	-0.486***	-0.504***
	(-21.51)	(-21.67)	(-22.42)	(-21.53)	(-21.72)	(-22.46)
Loss	0.0246***	0.0249***	0.0303***	0.0244***	0.0248***	0.0300***
	(4.731)	(4.749)	(5.887)	(4.699)	(4.724)	(5.833)
Rating	-0.0134*	-0.0154**	-0.00837	-0.0137*	-0.0154**	-0.00849
	(-1.781)	(-2.036)	(-1.114)	(-1.819)	(-2.033)	(-1.131)
Constant	0.404***	0.427***	0.504***	0.401***	0.426***	0.504***
	(14.69)	(25.41)	(27.99)	(14.60)	(25.47)	(28.07)
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	12,890	12,787	12,320	12,890	12,787	12,320
Adjusted R^2	0.532	0.533	0.553	0.532	0.532	0.552

Panel B

VARIABLES	(1)	(2)
CFO Finance Industry Connected	-0.0187*	
	(-1.843)	
CFO Finance Industry Connected × Post-Crisis	-0.0261**	
	(-2.015)	
CEO Finance Industry Connected	-0.000859	
	(-0.0913)	
Director Finance Industry Connected	-0.00633*	
	(-1.835)	
CFO Finance Industry Connection Size		-0.00709*
		(-1.798)
CFO Finance Industry Connection Size × Post-Crisis		-0.0154***
		(-2.987)
CEO Finance Industry Connection Size		-0.00244
		(-0.531)
Director Finance Industry Connection Size		-0.00130
		(-1.058)
Crisis	0.0315***	0.0224***
	(8.981)	(6.584)
Banker on Board	-0.0170***	-0.0170***
	(-2.665)	(-2.650)
Board Friendliness	-0.0153	-0.0156
	(-1.140)	(-1.171)
MB	0.000608***	0.000609***
	(3.186)	(3.197)
Firm Size	-0.00678**	-0.00672**
	(-2.311)	(-2.287)
CF	-0.00925	-0.00983
	(-0.292)	(-0.308)
Leverage	-0.249***	-0.250***
	(-13.66)	(-13.76)
Capital Expenditures	-0.184***	-0.181***
	(-2.982)	(-2.882)
R&D	0.0237***	0.0237***
	(8.029)	(7.986)
CF std	0.00148	0.00151
	(0.388)	(0.396)
Equity	0.270***	0.269***
	(11.56)	(11.51)
Tax	-0.0163***	-0.0166***
	(-4.130)	(-4.224)
Tangible	-0.109***	-0.109***
	(-10.08)	(-10.10)
Dividend	-0.0118*	-0.0113
	(-1.661)	(-1.568)
Acquisition Costs	-0.493***	-0.494***
	(-18.28)	(-18.46)
Loss	0.0241***	0.0238***
	(3.227)	(3.190)
Rating	-0.0129	-0.0128
	(-1.491)	(-1.468)
Constant	0.422***	0.421***
	(13.14)	(13.09)
Year Fixed Effects	YES	YES
Industry Fixed Effects	YES	YES
Observations	9,528	9,528
Adjusted R^2	0.536	0.536

Table IX – CFO–Finance Industry Relationship as Friendship Deals

This table documents results for the analysis of whether CFO–finance industry relationships lead to friendship 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 Finance Industry Connected	-0.0182**	-0.00228	-0.00322			
	(-2.056)	(-0.143)	(-0.217)			
CFO Finance Industry Connected × ROA			-0.187**			
			(-2.161)			
CEO Finance Industry Connected	0.00590	0.0203	0.0206			
	(0.748)	(1.123)	(1.139)			
Director Finance Industry Connected	-0.00530	-0.00101	-0.000219			
	(-1.405)	(-0.176)	(-0.0385)			
CFO Finance Industry Connection Size				-0.00694**	0.000141	-0.000218
				(-2.228)	(0.0224)	(-0.0389)
CFO Finance Industry Connection Size × ROA						-0.0766**
						(-2.477)
CEO Finance Industry Connection Size				0.00340	0.00480	0.00508
				(1.291)	(0.580)	(0.615)
Director Finance Industry 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 X– CFO–Finance Industry Relationship and Firm Cash Holdings: A Firm Location Effect?

This table documents analyses similar to those in Table II, 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.

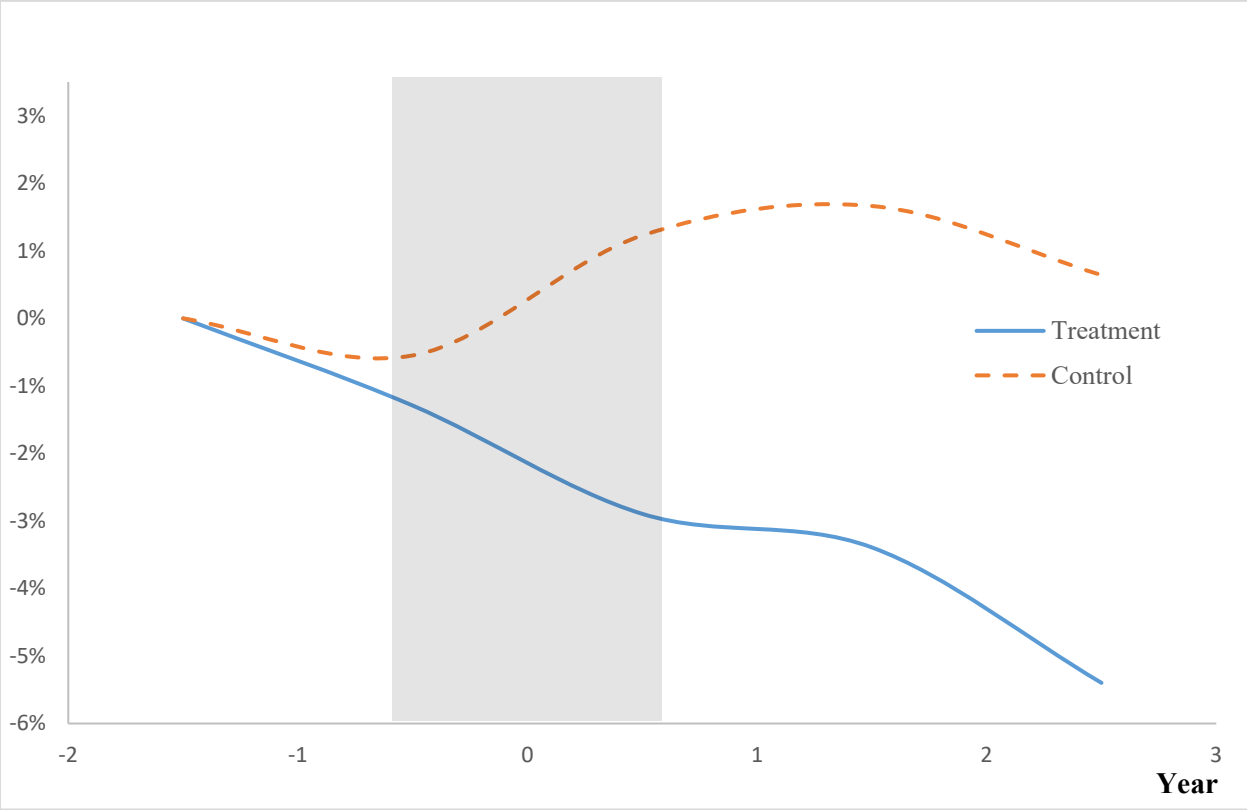
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
CFO Finance Industry Connected	-0.0262***	-0.0164**	-0.0211**			
	(-2.884)	(-1.982)	(-2.550)			
CFO Finance Industry Connected × FC	0.0303					
	(1.401)					
CEO Finance Industry Connected	-0.00304	-0.00485	-0.00876			
	(-0.312)	(-0.509)	(-0.911)			
Director Finance Industry Connected	-0.00731**	-0.00728**	-0.00644*			
	(-2.025)	(-2.081)	(-1.812)			
CFO Finance Industry Connection Size				-0.00971***	-0.00621**	-0.00852***
				(-2.593)	(-1.965)	(-2.686)
CFO Finance Industry Connection Size × FC				0.00724		
				(0.920)		
CEO Finance Industry Connection Size				-0.00304	-0.00621**	-0.00852***
				(-0.790)	(-1.965)	(-2.686)
Director Finance Industry 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 XI– CFO–Finance Industry Relationship and Cash Holdings: The Impact of Corporate Governance

This table documents analyses similar to those in Table II with additional considerations of corporate governance quality. We use the E-index and CEO duality to proxy for corporate governance quality. 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 Finance Industry Connected	-0.0470***	-0.0308***		
	(-2.759)	(-2.947)		
CFO Finance Industry Connected x E-Index	0.0117**			
	(1.997)			
CFO Finance Industry Connected x Duality		0.0284*		
		(1.910)		
CEO Finance Industry Connected	-0.00411	0.00197		
	(-0.364)	(0.204)		
Director Finance Industry Connected	-0.00981**	-0.00760**		
	(-2.410)	(-2.157)		
CFO Finance Industry Connection Size			-0.0190***	-0.0166***
			(-2.743)	(-3.925)
CFO Finance Industry Connection Size x E-index			0.00441*	
			(1.895)	
CFO Finance Industry Connection Size x Duality				0.0183***
				(3.404)
CEO Finance Industry Connection Size			-0.00103	-0.00177
			(-0.275)	(-0.467)
Director Finance Industry Connection Size			-0.00270**	-0.00200*
			(-2.230)	(-1.848)
E-index	-0.00510*		-0.00487*	
	(-1.812)		(-1.742)	
Duality		-0.00499		-0.00577
		(-0.854)		(-0.991)
Banker on Board	-0.0153**	-0.0143**	-0.0148**	-0.0141**
	(-2.316)	(-2.357)	(-2.241)	(-2.326)
Board Friendliness	0.00458	0.00299	0.00467	0.00259
	(0.262)	(0.233)	(0.266)	(0.202)
MB	0.00197***	0.000454***	0.00198***	0.000454***
	(4.379)	(3.107)	(4.392)	(3.100)
Firm Size	-0.00468	-0.00617***	-0.00475	-0.00620***
	(-1.499)	(-2.604)	(-1.520)	(-2.618)
CF	0.247***	0.000678	0.249***	4.57e-05
	(5.419)	(0.0302)	(5.450)	(0.00204)
Leverage	-0.174***	-0.240***	-0.172***	-0.240***
	(-7.094)	(-15.02)	(-7.045)	(-15.03)
Capital Expenditures	-0.366***	-0.162***	-0.366***	-0.163***
	(-5.228)	(-3.568)	(-5.229)	(-3.585)
R&D	0.0446***	0.0224***	0.0448***	0.0224***
	(4.682)	(9.396)	(4.636)	(9.400)
CF std	0.624***	0.00237	0.621***	0.00239
	(6.719)	(0.522)	(6.643)	(0.526)
Equity	0.338***	0.284***	0.339***	0.284***
	(4.750)	(14.24)	(4.770)	(14.22)
Tax	-0.0165***	-0.0163***	-0.0163***	-0.0164***
	(-3.415)	(-4.452)	(-3.353)	(-4.504)
Tangible	-0.0807***	-0.110***	-0.0817***	-0.110***
	(-6.337)	(-10.48)	(-6.405)	(-10.55)
Dividend	-0.0234***	-0.0104*	-0.0229***	-0.0100
	(-3.081)	(-1.676)	(-3.004)	(-1.606)
Acquisition Costs	-0.393***	-0.481***	-0.393***	-0.481***
	(-14.35)	(-21.26)	(-14.37)	(-21.32)
Loss	0.0187***	0.0255***	0.0186***	0.0253***
	(2.770)	(4.855)	(2.755)	(4.809)
Rating	-0.0258***	-0.0162**	-0.0258***	-0.0160**
	(-2.965)	(-2.113)	(-2.967)	(-2.090)
Constant	0.333***	0.428***	0.331***	0.428***
	(11.22)	(24.97)	(11.20)	(25.11)
Year Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
Observations	5,556	12,454	5,556	12,454
Adjusted R^2	0.510	0.535	0.510	0.536

Figure 1 – Change in Cash Holdings around CFO–Finance Industry Connection Additions
This figure depicts the changes in cash holdings around additions of CFO–finance industry connections associated with 137 CFO turnovers not seemingly related to CFO or firm performance. Treatment firms are the ones that experience unexpected additions of CFO–finance industry 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 Finance Industry Connected	A dummy variable with value 1 if a firm's CEO is connected to the finance industry and with value 0 otherwise
CEO Finance Industry Connection Size	Natural logarithm of the number of individuals from the finance industry connected to the CEO
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 Finance Industry Connected	A dummy variable with value 1 if a firm's CFO is connected to the finance industry and with value 0 otherwise
CFO Finance Industry Connection Size	Natural logarithm of the number of individuals from the finance industry connected to the CFO
CFO Network Size	Natural logarithm of CFO network size
Director Finance Industry Connected	A dummy variable with value 1 if any of a firm's directors is connected to the finance industry yand with value 0 otherwise
Director Finance Industry Connection Size	Natural logarithm of the number of individuals from the finance industry connected to the directors
Dividend	A dummy variable with value 1 if the firm pays dividends (DVC > 0) and with value 0 otherwise
Equity	Sales of common or preferred stock (SSTK) divided by total assets (TA)
Executive and Director Finance Industry Connected	A dummy variable with value 1 if any of a firm's executives and directors is connected to the finance industry and with value 0 otherwise
Executive and Director Finance Industry Connection Size	Natural logarithm of the number of individuals from the finance industry 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
Junk	A dummy variable with value 1 if the firm's bonds are rated as junk by S&P
Leverage	Total liabilities divided by total assets
Loss	A dummy variable with value 1 when the firm has a negative net income (NI) and with value 0 otherwise
MB	Market value of equity divided by book value of equity
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)
Return on Assets	Net income (NI) divided by total assets (TA)
Tangible	Total tangible assets (PPEGT) divided by total assets (TA)
Tax	Total income tax (TXT) divided by pretax income (PI)

Figure A1 – Percentage of Firms with CFO–Finance Industry Connections

This figure shows the percentage of firms with CFO–finance industry connections over our sample period.