



Impact of Managerial Entrenchment on Financial Flexibility and Leverage of Small Public Firms: Policy Implications for Global Economic Crisis

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Impact of Managerial Entrenchment on Financial Flexibility and Leverage of Small Public Firms: Policy Implications for Global Economic Crisis

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Abstract- This paper examines the impact of managerial entrenchment on financial flexibility, and financial leverage decisions of small public firms compared to medium and large firms. We group firms into market capitalization quartiles where small public firms are within the first, medium firms are between the first and second, and large firms are above the third quartile. Results show that entrenched managers in small firms hold significantly less excess cash than entrenched managers in medium or large firms. Small public firms borrow significantly more money using short-term maturity compared to medium and large size firms, which borrow less money using long-term maturities. Compared to pre-2008 crisis levels, most firms borrowed more money and held more excess cash during and after the global economic crisis, though small firms had limited access to cheap long-term funding compared to medium and large firms. Managers adopted more antitakeover practices after the 2008 global crisis and they became more entrenched. Results have economic and policy implications. Public policy should prioritize timely (within 1.5 to 2 years) access to cash for small firms over medium and large firms to pre-crisis excess cash levels in a global economic crisis.

Keywords: managerial entrenchment, financial flexibility, financial leverage, debt maturity, excess cash, small firms.

I. INTRODUCTION

Financial flexibility is a primary determinant of firms' financing policy according to chief financial officers in the U.S. and Europe (Skiadopoulos 2019). This is because firms require access to cash to exploit of investment opportunities and meet financing and operating cash flow needs (Hsu et al. 2017). Financial flexibility is also identified as a missing link in capital structure research (Yousefi and Yung 2022, Bates et al 2016, Byoun 2011 Marchica and Mura 2010). This is especially the case for small firms that are financially constrained (Nicolas 2022) and subject to reduced financial reporting requirements by securities regulators (U.S. Securities and Exchange Commission 2022). Small firms are the backbone of the global economy (de Carvalho Zinga et al. 2013), yet prior research does not focus on the impact of entrenchment on financial flexibility and leverage of small firms. Prior research

provides mixed results on the relationship between managerial entrenchment and the extent of leverage in capital structure of the firm (Berger et al. 1997, Ji et al. 2019), and excess cash (Falaye 2004). While Berger et. al (1997) document entrenched managers tendency to borrow less using long-term debt, Ji et. al (2019) find that entrenched managers of diversified firms borrow more (Ampofo 2021), which could be different for small firms (Nicolas 2022). Past research find that managers in poorly governed firms keep less cash (Dittmar and Mahrt-Smith 2007), but it is not clear whether managers in small firms keep more or less excess cash (Jones 2022). This paper examines the impact of managerial entrenchment on financial flexibility, and financial leverage decisions of small public firms compared to medium and large firms during a Global Economic Crisis.

Some of the characteristics of small firms include fewer employees, limited financial resources, lower credit worthiness or collateral for secured borrowing, restricted access to cheap long-term debt, and external equity funding. Recognizing the critical value of small firms to the economy and the relative resource limitations compared to larger firms, U.S. Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) often modify accounting guidance to be more practical and less burdensome for small firms to implement in preparing financial statements and related disclosures. For example, FASB established the Small Business Advisory Committee in 2004 with a renewed focus in 2016 to actively provide feedback on matters important to small public companies in the accounting standard setting process (FASB 2022). Similarly, IASB publishes IFRS for small and medium-sized entities (SMEs) that is practically an accounting framework for entities that are not large enough to have the resources to use the full IFRS (IFRS 2023). Securities regulators including the U.S. Securities and Exchange Commission (2022) broadly define smaller reporting companies as those with a public float of less than \$250 million, or \$100 million in revenues and no public float or public float of less than \$700 million. Prior research uses market capitalization (Jones 2022), and we categorize firms with market capitalization below the first quartile as small

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firms. Our viewpoint is that the inclusion of medium and large firms in capital structure regression analysis when using average firm-year financial data from all firm sizes has the potential to skew the results in favor of the larger firms. Thus, results in prior research can misinform policy implications for small firms.

Managerial entrenchment denotes the level to which firms' management exploit agency conflicts and the consequent information asymmetry to extract private benefits, establish dominance, and implement measures that safeguard and enhance the interests of management, rather than protecting and prioritizing the interests of other stakeholders' over an extended period (Murphy and Zbojnik 2004, Zwiebel 1996, Edlin and Stiglitz 1995). Managerial entrenchment occurs when managers gain so much power that they are able to use the firm to further their own interests rather than the interest of shareholders (Weisbach 1988). Managerial entrenchment is primarily operationalized using E-index as in prior research (Harris and Hampton 2022, Bebchuk, Cohen and Ferrell 2009). Shleifer and Vishny (1989) find that managers entrench themselves by making manager-specific investments that make it costly for shareholders to replace them, extract higher wages and larger perquisites from shareholders, and obtain more latitude in determining corporate strategy. Prior research suggest that while managers in medium and large firms who are working for capital providers may be entrenched (Jones et al. 2022), this may not be the case for small firm managers with limited resources. This paper exploits the tension between agency theory and a resource-based view of managers as a source of competitive advantage (Hansen et al. 2004, Bowman and Toms 2010, Cecchini et al 2013) to examine the impact of entrenchment on excess cash and leverage of small public firms compared to medium and large firms.

Financial flexibility refers to a firm's operating cash flows (Bounie 2011, Charitou and Ketz 1991), free cash flow (Jensen 1986, Easterbrook 1984), excess or residual cash (Faleye 2004, Daniels et al. 2010), and debt capacity (Hess and Immenkötter 2014). Financial flexibility is distinguished from financial performance or profitability of the firm (Hsu et al. 2017, Charitou and Ketz 1991). First, financial flexibility is excess cash flows that primarily arise from net debt proceeds after satisfying operating and investing cash requirements of the firm (Daniels et al. 2010, Faleye 2004). This excess cash perspective differs from free cash flow to the firm (Jensen 1986, Easterbrook 1984). This paper uses excess cash (Daniels et al. 2010, Faleye 2004), and free cash flow (Easterbrook 1984) as proxies for financial flexibility. We argue that one channel of excess cash is to borrow cheaper long-term debt (relative to equity), which a large or medium and not necessarily a small firm, typically pays interest costs, and rollover principal payments for a long period of time (Ampofo 2021). Accordingly, in this paper we posit that entrenched

managers in small firms hold less excess cash than entrenched managers in medium and large firms.

Financial leverage refers to the proportion and maturity of debt in the capital structure. Consistent with prior research, financial leverage is primarily operationalized as debt to total assets (Faleye 2004, Ji, Mauer, and Zhang 2019). Berger, Ofek, and Yermack (1997) find evidence that firms that have entrenched managers often borrow less, and use long rather than short-term debt. However, Ji et al. (2019) finds entrenched managers borrow more in diversified firms. Prior research has not addressed the impact of entrenchment on the financial leverage of small firms. Small firms typically have less total assets and capital resources than medium and large firms. As a result, we expect the financial leverage ratio of small firms should be higher than the medium or large firms that often have significantly high equity capital and total assets. Also, small firms are not as reputable as medium or large firms that issue more equity capital subscribed by investors. Small public firms rely on limited equity capital and often have to borrow money at expensive short-term rates. Accordingly, unlike Berger et al (1997) this paper posits that entrenched managers in small firms borrow more money (H2) using short-term maturities (H3) compared to entrenched managers in medium and large firms that borrow less money using long-term maturities.

The findings of this paper indicate that entrenched managers in small firms hold significantly less excess cash than entrenched managers in large or medium sized firms that maintain higher amounts of excess cash. Small firms have significantly more financial leverage than medium, and large firms. Moreover, small firms borrow more money at short-term maturities, while medium size and large firms borrow less money at long-term maturities. In contrast to the levels observed before the 2008 global financial crisis, most firms experienced an increase in borrowing held larger amounts of excess cash during and after the global financial crisis. However, small firms faced limitations in accessing cheap long-term funding compared to medium and large firms. Consistent with agency theory, managers displayed a higher inclination towards implementing antitakeover measures to safeguard the interests of stakeholders in the aftermath of the 2008 global crisis. This led to an increase in the level of managerial entrenchment.

This paper provides new evidence that entrenched managers in small firms exhibit a tendency to borrow more money through short-term debt maturities, compared to their counterparts in large or medium firms who borrow less at cheaper long-term debt maturities (Berger et al. 1997). We also provide new evidence that entrenched managers in small firms tend to hold significantly less excess cash compared to entrenched managers in large or medium-sized firms,

who maintain higher amounts of excess cash. To supplement the E-index measure of managerial entrenchment, we also develop two direct measures of entrenchment based on four (DME 4), and six (DME 6) using anti-takeover provisions frequently used by firms after the Sarbanes-Oxley Act (2002). Public policy should place a higher priority on facilitating timely access to cash for small firms to restore their pre-crisis levels of excess cash within 1.5 to 2 years.

Section I of this paper discusses the theoretical background. Section II analyzes data and provides summary statistics. Section III describes the methodology, and Section IV discusses the results. Finally, the paper concludes with implications of our research in section V.

II. PRIOR RESEARCH AND HYPOTHESES DEVELOPMENT

a) *Agency Theory and Resource-based Theory of the Firm*

Traditional agency theory arises from its origins in risk-sharing, and agency problem perspectives (Jensen and Meckling 1976) in which principal and agent have different attitudes towards risks, and different goals (Eisenhardt 1989). Agency theory stems from the principal-agent conflict that arises from the separation of ownership and control of firms (McGuire, Wang, and Wilson 2014). The agency problem arises from conflicting goals between the agent (i.e., managers) and the principal (i.e., shareholders, debtholders), partly because it is difficult or expensive for the principal to verify the agent's activities (Eisenhardt 1989). Agency theory postulates that managers are self-interested, and risk averse individuals whose decisions follow bounded rationality in contractual relationships (Jensen and Meckling 1976). Managers may extract firms' cash flows, and make it difficult to replace them by investing in projects for which success is tied to the managers (Shleifer and Vishny 1989).

Positivist or contrarian agency theory posit that corporate governance mechanism, such as, goals alignment using outcomes-based contracts, or efficient information systems, limit agent's self-serving behavior so that managers act in the interest of the capital providers (Blair 1996). Managers who work for capital providers are expected to act in the best interest of the stakeholders to maximize the value of the firm (Blair 1996). Prior research argues that agency theory and strategic management perspectives, such as, the positivists agency theory, yield opposing predictions (Denis et al. 1999, p. 1073). Shankman (1999) also indicates that agency and stakeholder theories offer competing explanations for firm outcomes. Using agency theory and related creditor alignment, and managerial entrenchment hypotheses Ji, Mauer, and

Zhang (2019) find: (1) positive relation between managerial entrenchment and leverage in diversified firms (creditor alignment hypothesis), and (2) negative relation between managerial entrenchment and leverage in focused firms (managerial entrenchment hypothesis). A gap in prior research is the lack of consideration of financial flexibility in capital structure studies (Ariff et al 2022, Bates et al 2016, Byoun 2011 Marchica and Mura 2010), especially, for small firms across different economic cycles. We question the impact of managerial entrenchment on financial flexibility, and the amount and maturity of debt for small versus medium and large firms in a global economic crisis.

b) *Managerial Entrenchment*

Managerial entrenchment occurs when managers gain so much power that they are able to use the firm to further their own interests rather than the interests of shareholders (Weisbach 1988). Firms' management exploits agency conflicts and information asymmetry to extract private benefits (Zwiebel 1996, Edlin and Stiglitz 1995). Managerial entrenchment hypothesis arises from agency conflicts between managers, shareholders, creditors, and even employees (Murphy and Zbojnik 2004). Shleifer and Vishny (1989) explain that entrenched managers make manager-specific investments that make it costly for shareholders to replace them, extract higher wages and larger perquisites from shareholders, and obtain more latitude in determining corporate strategy. Prior research uses the Gompers, Ishii, and Metrick (GIM, 2003) index, Alternative Takeover Index (ATI) of Cremers and Nair (2005), and Entrenchment (E) index of Bebchuk, Cohen, and Ferrell (2009) areas proxies for managerial entrenchment. Shleifer and Vishny (1989) use blockholders of at least 20% as a measure of entrenchment. CEO turnover, anti-takeover provisions, proxy contests, and managerial entrenchment index are also used in prior research (Faleye 2007, Chakraborty et al. 2014, Chakraborty, and Sheikh 2010, Jiang and Lie 2016, and Florackis and Ozka 2009). Lee, Matsunaga, and Park (2012) use CEO share ownership, CEO/chairman duality, and CEO tenure as measures of entrenchment. The underlying essence of the entrenchment measures mentioned above suggests that strong corporate governance practices (such as increased presence of blockholders, fewer antitakeover provisions, and enhanced managerial) reduce managerial entrenchment, while the reverse holds true as well.

Following Bebchuk et al. (2009) development of E-index, we also utilize different six antitakeover provisions that firms frequently use in the period after the Sarbanes Oxley Act (2002) namely: (1) blank check preferred stocks, (2) cumulative voting, (3) confidential or secret ballot, (4) fair price amendments, (5) limits to special meetings, and (6) limits to written consent to develop two direct measures of managerial entrench-

ment indexes (DME4, and DME6) (Ampofo 2021). The direct measures of entrenchment add to the nomological validity of the E-index and provide alternative measures of managerial entrenchment, and they are utilized as alternative proxies of managerial entrenchment.

c) *Financial Flexibility*

Financial flexibility refers to a company's ability to adjust the amounts and timing of cash flows in order to meet unexpected requirements and capitalize on emerging opportunities (Ampofo 2021, FASB 2019). Prior research suggests that financial flexibility is the availability of cash, cash flows, or liquidity to meet unexpected needs or opportunities (Bates et al., 2016). Financial flexibility and financial performance of the firm are two constructs which are highly correlated (Arslan-Ayaydin et al. 2014, Lie 2005) but are not the same. Financial performance focuses on the profitability of the firm, and typically includes earned revenues less accrued expenses on the income statement (Ferris, Kumar, Sant, Sopariwala 1998). Prior research measures financial performance as return on assets, return on equity, or operating profit divided by total assets (Kumar and Sopariwala 1992, Rajan and Zingales 1995). The proportion of fixed versus variable costs of the firm is an aspect of operating flexibility that is closely related to the operating performance of the firm (Kumar and Sopariwala 1992). Prior research broadly measures financial flexibility as operating cash flows (DeAngelo and DeAngelo 2007, and Arslan-Ayaydin et al 2014, Hoberg, Phillips, and Prabhala 2014), retained earnings to total assets (Byoun 2011), excess or residual cash (Daniels et al. 2010, Faleye 2004), and debt capacity (Hess and Immenkötter 2014). We differentiate between operating and financing flexibility because operating flexibility is part of financial performance that is not independent from the broader construct of financial flexibility (Kumar and Sopariwala 1992).

The residual or excess cash perspective of financial flexibility (Faleye 2004) differs from free cash flow to the firm. Prior research also describes financial flexibility as unused debt capacity that firms can tap into for cash flows (Lo 2015, Gamba and Triantis 2008). In this paper, we describe free cash flow as operating cash flows after adjusting for interest tax shield [that is, plus interest expense (1-tax rate)], plus receipts from net debt proceeds, and less payments for long-term investments (Jensen 1986, Easterbrook 1984). The net proceeds from debt cash flows is a common factor of excess cash and free cash flows. Thus, financial flexibility in the form of untapped reserves of borrowing power is a crucial missing link in capital structure theory (Marchica and Mura 2010). This paper primarily operationalizes financial flexibility as the excess of the cash ratio of the firm over the median cash ratio of the 3-

digits SIC industry (Daniels et al 2010), residual cash (Opler et al. 1999), and free cash flow to the firm (Faleye 2004, Jensen 1986, Easterbrook 1984).

Prior research on managerial entrenchment and financial flexibility can be summarized as follows: (1) there is strong negative relationship between dividends and management stock options, (2) management stock ownership is associated with higher payouts by firms with potentially the greatest agency problems (Fenn and Liang 2001), and (3) following a period of low leverage, firms make larger capital expenditures and increase abnormal investment financed through new issues of debt (Fenn and Liang 2001). Also, there is evidence that (4) financially flexible firms invest more and better than firms that are not financially flexible (Marchica and Mura 2010), (5) self-interested managers are reluctant to disburse excess cash, and they will allow cash levels to remain high unless the firms are subject to external pressure (Jiang and Lie 2016), and (6) the cost of payout flexibility is correlated with governance and agency concerns (Bonaime et al. 2016, Rashidi 2020). However, prior research does not differentiate the evidence between small public firms versus medium and large firms despite the regulatory and economic importance of that distinction especially before and after a global economic crisis.

d) *Development of Hypotheses*

i. *Hypothesis 1. Managerial Entrenchment and Flexibility Prediction for Small Firms*

Agency theory suggests that managers are self-interested, risk-averse individuals (Jensen and Meckling 1976) who may invest excess cash balances in projects for which success is tied to the managers (Shleifer and Vishny 1989). In this view, the entrenched managers who can get away with sub-optimal decisions more than other managers who are closely scrutinized, may not be overly concerned with minimizing the opportunity cost of holding excess cash flows, as they prefer more to less financial flexibility. Utilizing agency theory, we explain that more entrenched managers are likely to prefer to hold more excess cash indicating a positive relationship between managerial entrenchment and financial flexibility. However, as the opportunity cost of having excess cash increases due to higher forgone expected returns from missed investment opportunities, the entrenched managers and shareholders lose out on the portion of expected returns that is tied up in excess cash flows. As a result, based on positivist agency theory and resource-based theory (Blair 1996, Hansen et al. 2004) that managers act in the best interest of the principal rather than their own best interest (Jensen and Meckling 1976), we expect entrenched managers to take advantage of lucrative investment opportunities rather than holding excess cash flows. Thus, entrenched managers holdless excess cash predicting a negative relationship between entrenchment financial flexibility.

Prior research suggests that firm size matters in the analysis of financial constraints in that small firms have less financial flexibility than medium or large firms (Farre-Mensa and Ljungqvist (FML) 2016). Given the limited resources that constrains self-interested behavior, managers of small firms are likely to be less entrenched than manager of medium or large firms managers (FML 2016). Given that small firms have limited access to external funding and they are financially constrained relative to medium or large firms (FML 2016), managers in small firms cannot afford to hold more excess cash compared to managers in medium or large firms. Accordingly, we hypothesize that entrenched managers in small firms will hold less excess cash compared to entrenched managers in medium or large firms (H1).

ii. *Hypothesis 2. Managerial Entrenchment and Financial Leverage Prediction for Small Firms*

Prior research find that managerial entrenchment is negatively related to leverage, such that more entrenched managers borrow less money (Berger et al 1997). This is consistent with the agency theory that self-interested, risk-averse, and boundedly rational entrenched managers prefer less to more debt due to the discipline imposed by timely repayment of debt (Jensen 1983). Positivist agency theory (Blair 1996), however, suggests that entrenched managers may utilize more debt if it is cheaper than other sources of financing (e.g., equity or retained earnings) to finance lucrative transactions (e.g., mergers and acquisitions) that add value to their entrenchment objectives. As a result, under these conditions, we expect that entrenched managers are likely to borrow more debt indicating a positive relationship between entrenchment and financial leverage.

FML (2016) find that small firms are typically financially constrained, but they are able to raise funds through private debt and equity markets with some difficulty. We argue that small firms primarily use debt finance because of the difficulty of raising equity capital. Accordingly, we posit that entrenched managers in small firms borrow more compared to entrenched managers in medium or large firms (H2).

iii. *Hypothesis 3. Debt Maturity used by Small Firms*

Prior research find that more entrenched managers use long-term rather than short-term debt (Datta et al 2005). Debt with maturities of less than 3 years is short-term, and more than 5 years is long-term (Datta et al 2005). Market place evidence suggests that companies are frequently issuing domestic and foreign medium-term notes to finance business activities. Medium-term debt (3 to 5 years debt maturity) that is commonly used by firms because it is often cheaper than long-term debt, especially when the yield curve is positively sloping. Also, some investors may prefer to make debt investment decisions in the medium rather than long-term.

Self-interested managers in firms are expected to borrow less using cheaper long-term(after 5 years) rather than more expensive medium term (between 3 and 5 years), and short-term (less than 3 years) debt maturities. Compared to medium and large firms, we believe that small firms typically have limited financial resources and credit worthiness to qualify for cheap long-term maturities in debt markets. Accordingly, small firms are likely to utilize more short-term debt maturities than medium or large size firms. This suggests a positive relationship between firm size and debt maturity (H3).

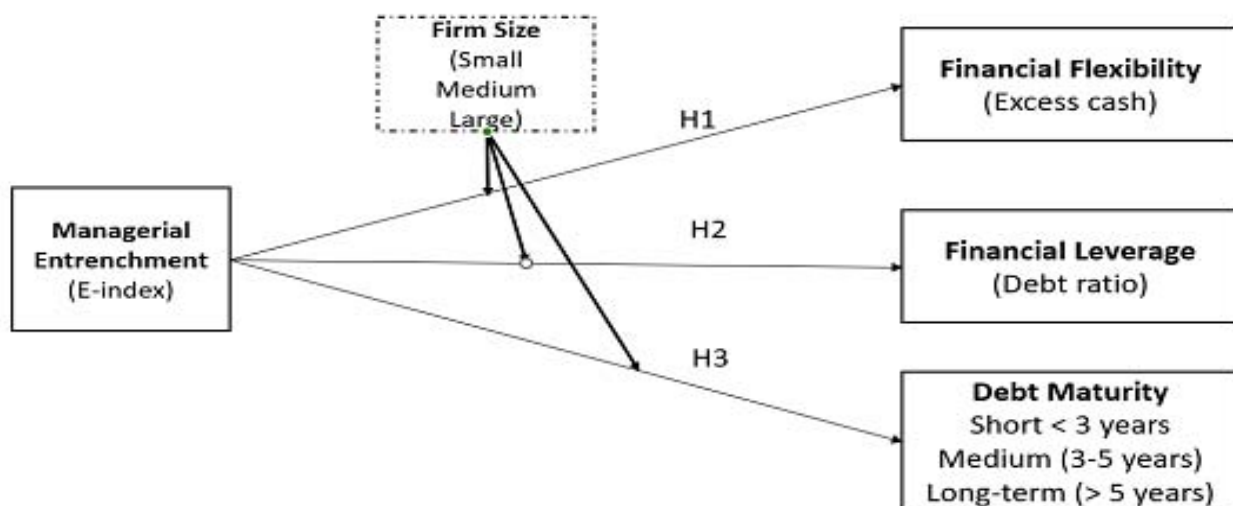


Figure 1: The Impact of Managerial Entrenchment on Capital Structure Decisions of Small and Medium Size Firms

III. SAMPLE, DATA AND DESCRIPTIVE STATISTICS

a) Sample Selection and Definition of Variables

The final sample consists of 1,864 firms or 17,338 firm years for the period from 2000 to 2018. Managerial entrenchment is operationalized using E-index, DME4 and DME6 using entrenchment data obtained from ExecuComp, and Institutional Shareholders Services (ISS/formerly RiskMetrics) or Investors Responsibility Resource Center (IRRC). Financial flexibility is measured using excess cash, and free cash flows to the firm based on data obtained from Compustat. Financial leverage is operationalized as debt to total assets ratio, and average debt maturity. We collected data from different databases and joined them

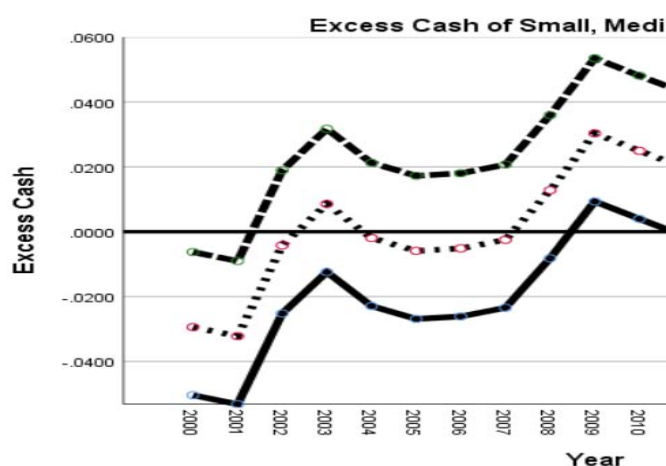
into the sample relational database using GvKey, fiscal year, and ticker as primary keys.

Consistent with prior research, we exclude firm year data for financial and utilities firms that are regulated entities with solvency requirements leading to different capital structure. We also exclude data for dual share class firms, and firms' years with negative net sales, negative book or market value of assets, and missing SIC code (Giroud and Mueller 2012). Figure 2 is reconciliation of sample size including a sample period that overlaps the 2008 global financial crisis to test our predictions in times of such a crisis. Lagged values of independent variables are used to be consistent with empirical specifications in prior research, and appendix 1 defines the proxies for the variables used in this study.

	Firm-year ¹ 2000-2018	Firms
Original Compustat observations	213,567	25,110
<i>Adjustments:</i>		
Financial industry (4010-4030)	(26,242)	(2,695)
Utilities (5510-5550)	(6,040)	(472)
Firms with no GIC industry classification	(33,503)	(4,972)
Negative sales and book value of equity	(21,704)	(1,082)
Missing key data	(6,073)	(454)
Subtotal Compustat	120,005	15,435
Firm year data not on ExecuComp	(102,667)	(13,571)
Final Sample Size	17,338	1,864

Figure 2: Reconciliation of Sample Size

¹ Additional data is lost when E-index joint is performed leaving about 10,399 firm-year observations in sample.



Figures 3 A: Shows time series of excess cash ratio of small (solid black line), medium (middle broken line), and large firms (top broken line) between 2000 and 2018. Small firms have significantly lower excess cash compared to medium or large firms over the period. In particular, excess cash ratios for small firms are predominantly negative over the sample period. Firms generally show increasing excess cash ratio from 2000 through 2003 (peak) that subsequently declined till 2005. Excess cash ratios immediately before the 2008 global economic crisis increased and peaked around 2009, but the firms utilized the cash reserves in periods after the 2008 crisis. While medium and large firms still maintained declining but positive excess cash from 2009 to 2018, excess cash of small firm declined below zero by the middle of 2010 (about 1.5 to 2 years after the crisis). See Figure 4A below for the graphs on debt ratio patterns for the small period to evaluate the extent of access to debt capital by small, medium and large firms.

b) Dependent Variables

In this paper, financial leverage is a dependent variable that is measured by debt ratio of interest-bearing debt as a percent of firms' total assets or total capital (Ji et al. 2019, Byoun 2011, Denis and McKeon 2012). The average debt ratio of the sample of all firms is about 0.26 (SD = 0.17), which differs significantly for small (debt ratio = 0.33, SD = 0.25) versus large (debt ratio = 0.39, SD = 0.21, $t = -14.10$, $p = .00$) firms. Also, the debt ratios for small versus medium (debt ratio = 0.34, SD = 0.23) groups firms are significantly different ($t = -2.83$, $p = .01$). We find that the debt ratios do not differ significantly before, during, and after the 2008 global economic crisis for the sample firms. The average debt maturity is about 4.2 years (SD = 1.1), which are significantly different ($p < .001$) for small (M = 3.84 years, SD = 1.26) versus medium (M = 4.18 years, SD = 1.11), and large (M = 4.42 years, SD = 0.86) firm. The average debt maturities differ significantly ($p < .001$) before (M = 4.28 years, SD = 1.07) and during (M = 4.16 years, SD = 1.07), as well as, after (M = 4.20 years, SD = 1.06) the 2008 global economic crisis.

Financial flexibility is a second dependent variable for which the main proxies are excess cash (Daniels et al. 2010), and residual cash (Opler et al. 1999, Faleye 2004). An alternative proxy for financial flexibility is free cash flows to the firm (Arslan-Ayaydin et al. 2014, Marchica and Mura 2010, Denis and McKeon 2012). Excess cash is highly correlated with ($r = .51$, $p < .001$) residual excess cash used in Faleye (2004). The excess cash of small versus medium firms are not significantly different ($p = .54$), though that for small

versus large firms are significantly different ($t = 5.95$, $p < .001$). Also, the median excess cash for the pre-2008 crisis period is significantly different from during the 2008 ($t = -2.51$, $p = < .01$), and post 2008 ($t = -6.81$, $p < .001$). We group firms into quartiles of market capitalization (Jones 2022), where small firms are below the first ($\leq 25\%$), medium firms are between the first and second (25% and 50%), and large firms are above the third quartile ($\geq 75\%$). Tables 1 and 2 provide descriptive statistics and correlations.

c) Independent Variables

Managerial entrenchment is a key independent variable for which the E-index (Bebchuk et al 2009) is a primary proxy. Alternate proxies for entrenchment are the direct measures of entrenchment (DME 4 and DME 6) developed in this research. E-index is highly correlated with ($r = .13$, $p < .001$) the DME 4 index.

d) Descriptive Statistics

Tables 1 and 2 summarize the descriptive statistics of the key variables. About 17,338 firm years for 1,864 firms are included in the sample of which about 25 percent each are in the small, or medium, and 50 percent are in large market value firm year groups. Approximately seventy percent firm-year data are in the post-2008 global financial crisis period, while about 24 percent and 6 percent respectively firm years are in the pre-2008 and during this period. Excess cash, and residual excess cash are significantly positively correlated ($r = .14$, $p < .001$). Figures 3 A and 4 A describe the relationship between excess cash, firm size and managerial entrenchment over time. Also, Figures 3

B and 4 B depict the association between debt ratios, firm size, and managerial entrenchment over the sample period.

IV. METHOD

Ordinary least squares (OLS) panel regression is used to analyze data. Consistent with prior research, firm year data is grouped into small, medium, and large based on market values (Byoun 2011, FML 2016, Giroud and Mueller 2011). We evaluate univariate and multivariate regressions, and include standard controls for growth opportunities (market to book ratio), firm size (Log of total assets), asset tangibility (PPE to total assets), leverage (debt to equity), and profitability (return on assets) to minimize endogeneity (Rajan and Zingales 1995). Year, and firm, or industry fixed effects are included in regression models to minimize heterogeneity in the analysis. We also include alternative variables for managerial entrenchment (DME 4 and DME 6 as proxies for E-index), financial flexibility (free cash flows as alternate proxy for excess cash), and financial leverage (debt to equity ratio as proxy for debt to total assets ratio) in robustness tests. We also test predictions before, during, and after the 2008 global financial crisis for small, medium, and large sized firms. Consistent with

prior research, results are robust to endogeneity as we use standard controls, firm and year fixed effects, and alternative proxies in regression analysis (Roberts and Whited 2013, Benlemlih 2019).

a) Hypotheses Tests

i. Managerial Entrenchment and Financial Flexibility

Hypothesis H1 states that entrenched managers in small firms will hold less excess cash compared to entrenched managers in medium or large firms. Correlation analysis in Table 1 panel A shows significant positive correlation between E-index and excess cash ($r = .02, p < .05$). Results of t-test in Table 2 panel A shows that small firms hold less residual cash than medium or large firms ($p < .01$). Table 3 panel B shows that E-index has significant positive beta in explaining the variance in excess cash ($t = 1.96, p < .05$) of all firm sizes. This is especially the case for medium size firms ($t = 2.29, p < .01$), but not small firms in Table 3 panel C. The evidence suggests that more entrenched managers keep more excess cash, but small firms utilize less excess cash than large firms. Results support H1 that entrenched managers in small firms will hold less excess cash compared to entrenched managers in medium or large firms.

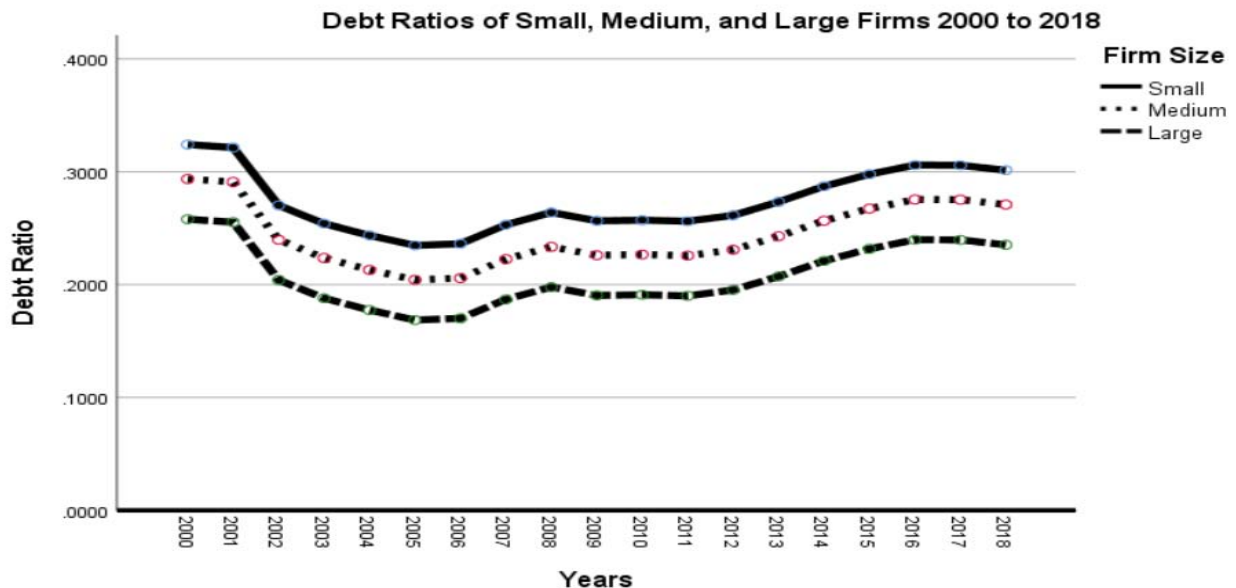


Figure 4 A: Above shows the debt ratios of small, medium, and large firms from 2000 to 2018. Compared to figure 3 above, the debt ratio line for small firms lies on top while that of large firms lies at the bottom. This indicates that the small firms generally had higher debt ratios than the large or medium firms. Also, debt ratios for all firm sizes declined from 2000 through 2005, which partially explains the decline in excess cash from 2003 to 2005. The debt ratios increase through 2009 as firm needed access to cash to mitigate the effects of the 2008 global economic crisis. Thereafter, the debt ratios for all firm sizes have increased through 2018, although excess cash declined from 2009 through 2018.

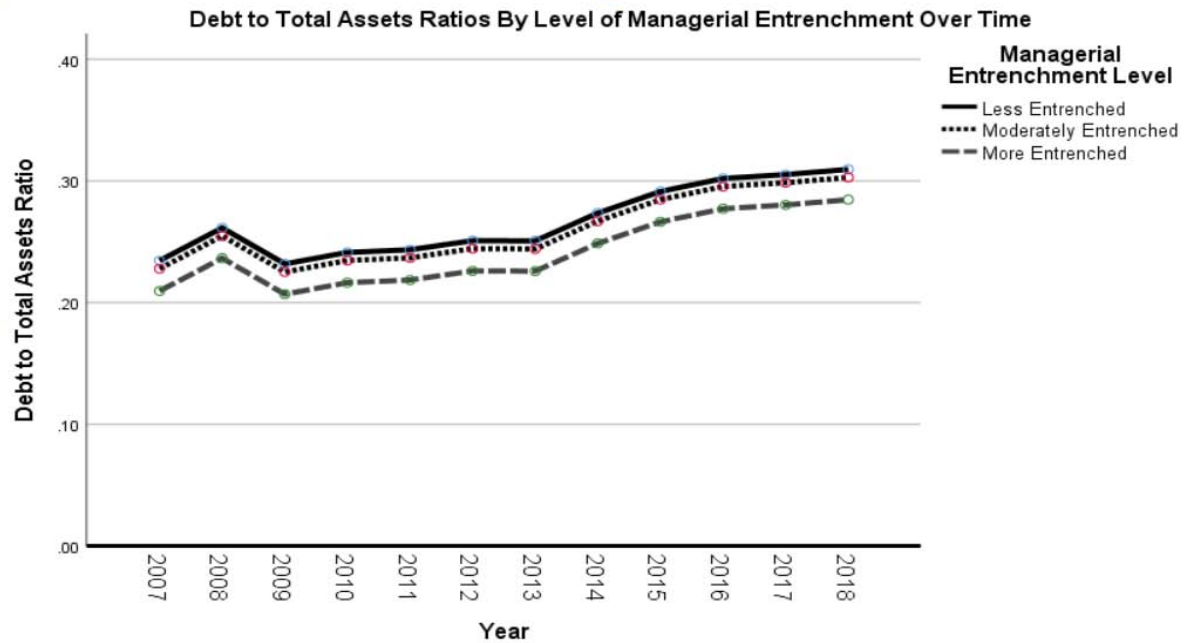


Figure 4 B: Illustrates that debt to total assets ratio of more entrenched managers were lower than that of moderate or less entrenched managers over the sample period. It is interesting to note that debt ratios peaked around 2008 for all levels of managerial entrenchment, but it declined slightly through 2009. Thereafter, the debt ratios rose steadily through 2018. It should be noted that less entrenched managers tend to keep low excess cash, but increase borrowing to finance operating and investing activities over time. Accordingly, it is critical that small firms' managers who typically have less resources and are less entrenched, have timely access to cash or debt markets.

Public Policy Implications

Public policy should prioritize small firms' access to cash to pre-crisis levels within 2 years or less after a global economic crisis, given that small firms that are the backbone of the economy. Also, public policy should provide access to cash to medium and large firms in less than 3 years after the global economic crisis to minimize a liquidity crisis. It appears from figure 3A that firms increased borrowing after the 2008 crisis, although access to credit or debt markets dried up for small firms that needed cash the most immediately after the 2008 crisis. As a result, the Cares Act (2020) provides timely access to cash of about \$1.8 trillion in economic stimulus package for individuals, and small firms through the paycheck protection program (PPP), and economic injury disaster loans (EIDL) in 2020 and 2021 during the COVID-19 pan



Figure 5: Excess Cash and E-Index

ii. *Managerial Entrenchment, Financial Flexibility and Financial Leverage*

Hypothesis H2 predicts that entrenched managers in small firms borrow more compared to entrenched managers in medium or large firms. Univariate results indicate significant positive correlation between firm size and debt ratio ($r = .30, p < .01$). T-test in Table 2 shows small firms experience significantly less debt-to-equity ratio than medium ($t = -2.83, p = .01$) or large firms ($t = -14.06, p = < .01$). Multivariate tests in Table 4 panel B shows that E-index has a significant positive beta in explaining debt ratio ($t = 1.89, p < .05$), especially for small, but not medium or large firms (footnote 2 to Table 4). Market to book shows a significant positive beta in explaining debt ratio ($t = 4.47, p < .001$) indicating firms with small market to book ratios borrow more than firms with large market to book ratios. Therefore, univariate and multivariate tests suggest entrenched managers in small firms borrow more compared to entrenched managers in medium or large firms, lending support to H2.

iii. *Firms Size and Debt Maturity*

Hypothesis H3 predicts that small firms utilize more short-term debt maturities than medium or large size firms. This suggests a positive relationship between firm size and debt maturity as shown in the correlation matrix ($r = .27, p < .05$). Table 2 panel A shows the average debt maturities of small firms is significantly lower than medium ($t = -13.43, p < .001$) and large ($t = -27.08, p < .001$) firms. Multivariate test in Table 5 panel B shows that debt maturities significantly positively explain the variance in debt ratio ($t = .10, p < .001$). Also, firm size significantly and positively explain the variance in debt ratio ($t = 20.68, p < .001$). This suggests that large firms utilize more long-term debt than small firms, lending support to H3.

b) *Robustness Tests*

We control for omitted variables to minimize endogeneity (Black 2010) in the panel regression tests by including standard control variables (Rajan and Zingales 1995), firm and year fixed effects in our design (Roberts and Whited 2013). We include corporate governance and compensation variables of CEO pay slice, CEO tenure, CEO share ownership, and CEO dual role as chair in a robust model to test our predictions. We also utilize alternative proxies for the key variables (Ampofo 2021).

In robustness tests, we find that entrenched managers in all firms keep significantly more excess cash ($t = 2.97, p = .003$) than managers who are not entrenched. Results do not change if we utilize residual excess cash ($t = 2.75, p = .006$, untabulated) instead of median excess cash as dependent variable. Market to book ratio shows significant positive relationship with excess cash suggesting that firms with small market to book have low excess cash relative to firms with large

market to book ratios. Also, entrenched managers in all firms tend to borrow significantly less ($t = -2.11, p < .05$) compared to managers who are not entrenched, consistent with prior research (Berger et al. 1997). Debt maturity is also positively related to debt ratio ($t = 23.8, p < .001$), which together with the market to book ratio noted above suggest that small firms utilize more short-term debt. Robustness tests support the hypotheses.

However, results are not always consistent from using E-index, and DME 4 as proxies for managerial entrenchment in regressions with excess cash or financial leverage as dependent variables. This is because while E-index was developed in the 1990s by Bebchuk et al. (1999) for antitrust provisions that were frequently used during that period, the corporate American scandals in 2000s and related Sarbanes-Oxley Act (2002) reforms led to firms using different antitrust provisions (Bebchuk et al. 2011) that are reflected in the DME 4 and DME 6.

Finally, prior research indicates that unlike the E-index that reflects entrenchment of the entire senior leadership team, a CEO's pay slice is a proxy for individual CEO's managerial ability or efficiency of compensation contract (Bugeja et al. 2017). Therefore, an individual CEO may borrow more (not less) money compared to results from entrenchment indexes that entrenched managers generally borrow less money than managers who are not entrenched (Berger et al. 1997).

c) *Economic Significance using Analysis of Actual Loans and Spread Data*

We obtain data on actual loans, debt maturity, and spreads on 44,399 firm years for 9,606 firms from Deal scan from 1989-2011. Given the sample period of 2000 to 2018, and excluding 15,270 firm year missing data, we analyze the available 2,953 firm year data from 2000 to 2011. The average loan amount between 2000 and 2011 is about \$467.6 million with a spread of 214 basis points over the London Interbank Offered Rate (LIBOR). Spreads range from a mean of 127.35 bps (SD 19.66) in the year 2000 to 188.16 bps (SD 7.30) in the year 2011.

ANOVA shows that the normalized spread is increasing for short to medium term debt, but declining for long-term debt. Also, we find that debt maturity is significantly negatively related to loan spreads ($\beta = -15.97, SE = 2.14, t(10) = -7.46, p < .001$) in robustness test. This suggests the firms in the sample period receive cheaper spreads for using long-term rather than short-term debt maturities. The impact of excess cash on loan spreads is also significant ($t = 2.61, p = .009$), which suggests that large firms that hold high excess cash often utilize cheaper long-term debt than small or medium firms that keep low excess cash.

Overall, the results of this research show that entrenched managers in large firms are able to keep more liquidity than small firms. With more resources and

credit worthiness, large firms are able to borrow cheaply using long-term rather than equity to save on borrowing costs, which further increases excess cash for the firms. On the other hand, small firms with limited resources have less liquidity that allows them to borrow short to medium term debt with high borrowing costs. Accordingly, our results suggest that the inability of small firms to show more financial resources and creditworthiness to banks and other lenders raise borrowing costs for using expensive short to medium-term debt facilities. As a result, compared to large and medium sized firms, small firms have to make higher periodic payments on borrowed money, which must be repaid rather than rolled over into a new long-term loan at debt maturity. Taken together, the limited resources, lack of liquidity, and limited creditworthiness of small firms significantly reduce their ability to absorb shocks in the financial system including recessions, pandemic, and global financial crisis.

d) *Global Financial Crisis*

The global financial crisis of 2008 led to bankruptcy filings and business failures of many small, medium, and large firms causing havoc and shocks in the economic system. Typically, firms ability to obtain funding quickly dries up and loan rates spike to high levels. As a result, most businesses during such difficult times are not able to obtain new funding or make timely payments on existing obligations. This could lead to massive unemployment and a sharp decline in aggregate demand and gross domestic product. In particular, small businesses, which are the backbone of the economy, suffer economic consequences that could force them to close down.

Our panel data from 2000 to 2018 allows us to analyze our results during the 2008 global financial crisis in Table 2 panel B. We find that debt ratio was significantly lower before than during ($t = -4.63, p < .001$) and after ($t = -11.12, p < .001$) the 2008 global crisis. Also, debt maturities was significantly higher before than during ($t = 3.30, p < .001$) and after ($t = 4.13, p < .001$) the 2008 crisis. Also, firms had generally lower residual excess cash before than during ($t = -2.51, p < .001$) and after ($t = -6.81, p < .001$). Also, while managers were significantly more entrenched before than during 2008 ($t = 3.28, p < .001$), managerial entrenchment was significantly higher after ($t = -7.88, p < .001$) than before the global financial crisis. This suggests that cash infusion and firms access to short-term financing during the global financial crisis increased firms cash balances as more entrenched managers effectively deployed anti-takeover policies to protect firms.

V. SUMMARY OF RESULTS

The overall results of this research show that entrenched managers in small firms hold significantly less excess cash than entrenched managers in medium

or large firms that keep more excess cash. Small firms have more financial leverage than medium and large firms. Also, small firms borrow more money at more expensive short-term maturities compared to medium and large firms that borrow less money at cheaper long-term maturities. Moreover, compared to pre-2008 crisis levels, most firms borrowed more money and held more excess cash during and after the global economic crisis, though small firms had limited access to cheap long-term funding compared to medium and large firms. Consistent with agency theory, managers adopted more antitakeover practices to protect stakeholders' interests in the aftermath of the 2008 global crisis and managers became more entrenched in their positions of authority.

The results also suggest that entrenched managers in medium and large firms leverage their influence and networks to secure access to long-term debt markets at cheaper interest rates than less entrenched managers in small firms. Moreover, entrenched managers in medium and large firms tend to retain more excess cash in order to obtain more favorable loan spreads and mitigate the risk of liquidity crisis. In contrast to small firms, large and medium firms opt for borrowing less long-term debt (Berger et al. 1997) to reduce borrowing costs, while strategically building up debt capacity for future business needs. The 2008 global financial crisis resulted in a significant surge in borrowing compared to the pre-crisis period, particularly when credit availability declined and firms' credit risk escalated. Unfortunately, small firms encountered challenges in securing inexpensive funding during this period.

Furthermore, the results of this research indicate that entrenched managers in medium and large firms enjoy easier access to affordable long-term funding, whereas managers in financially constrained small firms primarily rely on costly short-term financing options. As a result, public policy should prioritize facilitating timely access to cash for small firms, aiming to restore pre-crisis levels of excess cash during a global financial crisis, within a timeframe of approximately 1.5 to 2 years.

VI. CONCLUSIONS

This paper examines the impact of managerial entrenchment on excess cash, and financial leverage of small firms from 2008 to 2018. The evidence indicates a contrast between entrenched managers in large or medium sized firms, who tend to maintain higher levels of excess cash (Falaye 2004), and entrenched managers in small firms, who hold comparatively lower amounts of excess cash. Additionally, unlike entrenched managers in medium and large firms who borrow less money at cheaper long-term maturities (Berger et al. 1997), entrenched managers in small firms borrow more money through costly short-term maturities. In

comparison to pre-2008 crisis levels, the majority of firms experienced an increase in borrowing and held higher levels of excess cash during and after the global financial crisis. However, small firms had limited access to cheap long-term funding compared to medium and large counterparts. Despite the overall increase in borrowing during the 2008 crisis, especially in times of liquidity shortage and elevated credit risk for firms, small firms encountered difficulties in accessing the financial markets for borrowing purposes.

This paper makes several contributions to existing research. First, it presents novel findings that highlight the borrowing behavior of entrenched managers in small firms. Unlike their counterparts in medium or large firms, entrenched managers tend to acquire higher levels of short-term debt maturities. In contrast, entrenched managers in larger firms exhibit a preference for cheaper long-term debt maturities (Berger et al. 1997). We also provide new evidence that entrenched managers in small firms hold significantly less excess cash than entrenched managers in large or medium sized firms that keep more excess cash (Falaye 2004). To supplement E-index measure of managerial entrenchment, we develop two direct measures of entrenchment based on four (DME 4), and six (DME 6) anti-takeover provisions frequently used by firms after the Sarbanes-Oxley Act (2002).

This paper has important economic and policy implications, consistent with De Vito and Gomez (2020). It suggests that the COVID-19 health crisis may result in a significant liquidity crunch for most firms, potentially occurring within 6 months to 2 years. During the 2008 global financial crisis, firms typically increased borrowings to mitigate liquidity crisis. However, access to credit in the debt markets significantly diminished, particularly for small firms. In the aftermath of the 2008 financial crisis, Federal Reserve policies facilitated direct borrowing at a more favorable funds rate from the Feds for medium to large firms (Ampofo 2021). Conversely, individuals and small firms generally faced challenges in accessing debt capital when it was most needed during the 2008 global financial crisis.

Against this background, the economic stimulus policy implemented by the U.S. government in 2020 and 2021 aimed at ensuring easy access to cash for not only medium and large firms but also for individuals and small firms, is a positive and forward-thinking measure. Under the CARES Act (2020), the U.S. Congress approved about \$2 trillion in COVID-19 relief that included \$1.8 trillion direct aid to individuals and businesses to stimulate the U.S. economy. Also, regulatory policies that provide more time for individuals and small firms to pay cash for existing debt, or purchased goods and services should ease the cash crunch. Based on this study and existing evidence, it becomes apparent that the effectiveness of an economic stimulus package depends on the amount,

timing, and the specific entities targeted. The findings suggest that in times of global financial crisis, public policy should prioritize supporting small firms timely access to cash over medium and large firms,

The limitations of this study provide opportunities for further research. This paper focused on small public firms that have publicly available financial data for analysis. Future research can investigate small private firms as well as firms that operate as Employee Stock Ownership Plan (ESOP) companies. Also, further research can study the trade-offs of keeping high excess cash versus investing excess funds during periods of global financial crisis depending on if the company is new and cash starved or cash cow companies that are more mature and are not cash starved. The impact of instrumental variables, such as significant tax cuts for businesses, payment protection programs, economic injury and disaster loans on firms' outcomes may be other fruitful research topics to investigate in the future. Finally, it may be interesting to examine other variables during the global financial crisis and recommend additional policies for individuals, firms and governments.

Data Availability: Data is available from public sources cited in this paper.

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APPENDIX 1

Variable	Definition of Variable	Expected Beta Sign	Measurement/Data Sources
Managerial entrenchment	<i>Independent variable</i> (more/less) ME. Managerial entrenchment means managers gain so much power that they are able to use the firm to further their own interests rather than the	+	Main proxy: Entrenchment (E) - index

Variable	Definition of Variable	Expected Beta Sign	Measurement /Data Sources
[ME]	interests of shareholders (Weisbach 1988). The measures of ME are as follows: <i>E-index</i> is a measure of entrenchment based on six anti-takeover provisions namely staggered boards, limits to shareholders bylaw amendments, poison pills, golden parachutes, and supermajority requirements for merger and charter amendments (Bebchuk et al. 2009)	+	Alternate proxies Direct Measures of Entrenchment (DME) <i>Data Sources:</i> ExecuComp, ISS (formerly RiskMetrics or IRRC).
Financial flexibility	<i>Excess cash</i> is the median SIC industry cash and cash equivalents/total assets ratio in year t less firm cash and cash equivalents/total assets ratio in year t. <i>Residual excess cash</i> is the error term of OLS regression of Opler et al. (1999) model per Faleye (2004).	+	Main proxy <i>Excess cash</i> Alternative proxies <i>Residual excess cash</i> <i>Free cash flow to the firm</i>
[FINFLEX]	<i>Free cash flow to the firm</i> is operating cash flow plus after-tax interest expense, plus net debt proceeds less long-term investment.	+	+
Capital structure	The term leverage (LEV) refers to the level of debt in the capital structure.	n.a.	Main proxy LEV = Interest-bearing debt/Total assets
[LEV]	It is measured as the proportion of interest-bearing debt divided by total assets of the firm.	n.a.	Alternative proxy DE = Debt /Equity
			Data source: Compustat
Debt maturity structure	Debt maturity structure refers to the average terms (in years) of interest-bearing debt of the firm.		Main proxy Average debt maturity
[DM]	Short-term debt has a term of 3 years or less, while long-term debt matures in more than 3 years. Barclay and Smith (1995), Datta, Iskandar-Datta and Raman (2005), and Johnson (2003) define long-term debt as the proportion of debt with maturities exceeding three years.	n.a.	Alternative proxy Short versus long-term debt. Short versus medium versus long-term debt.
	We operationalize debt maturities as follows: short-term debt (3 years or less), medium term debt (3 to 5 years), long-term debt (greater than 5 years).	n.a.	
	Weighted average debt maturity is the proportion of short, medium or long-term debt as a measure of debt maturity (Titman and Wessels 1988).		Data sources: Compustat
FIXED EFFECTS	Year fixed effects (YFE) are dummy variables to control for heterogeneity in year trends over the sample period.	n.a.	YFE, FFE, or IFE are individually and collectively included in the regression models to control for heterogeneity in these fixed effects.
[FE]	Firm fixed effects (FFE) are dummy variables to control for heterogeneity in firm's characteristics.	n.a.	I do not include both FFE and IYE in the same regression since firms

Variable	Definition of Variable	Expected Beta Sign	Measurement /Data Sources
	Industry fixed effects (IFE) are dummy variables to control for heterogeneity in industry characteristics	n.a.	rarely change industries and two are generally capture similar fixed effects. Data sources: Compustat
CONTROLS [CNTRLS]	Factors that are for the known to significantly affect capital structure and debt maturity including:	+	Firm size = Log of Total assets Market to book = Market value of firm/Book value of equity
	Firm size, Market to book, Profitability, Asset tangibility, or Leverage (Rajan and Zingales 1995).	+	Profitability = Return on assets (ROA) = Net income/Total Assets
	The control variable minimize endogeneity in the regression models.	+	Asset tangibility = Property, plant and equipment/Total assets Data sources: Compustat
		+	

Table 1: Panel A: Correlation Matrix

This table shows the descriptive statistics and two-tail correlations of the key variables that are significant at .01**, and .05*

# Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Debt to Total Capital	1																
2 Debt to Total Assets	.933**	1															
3 Tobin's Q	-.280**	-.270**	1														
4 CEO Pay Slice	.059**	.052**	-.018*	1													
5 E-Index	-0.011	-0.015	0.002	.100**	1												
6 DME4 Index	.068**	0.014	-.037**	0.001	.131**	1											
7 DME6 Index	.105**	.063**	-0.012	.024*	.413**	.793**	1										
8 CEO Tenure	0.015	.019*	-0.012	-0.003	-0.006	.021*	0.006	1									
9 CEO Share Ownership>20%	-.044**	-.027**	0.006	-.039**	-.067**	-.063**	-.078**	.045**	1								
10 Median Excess Cash (Mxcash)	-.135**	-.146**	.116**	0.003	.020*	-0.002	-.026**	-0.001	0.011	1							
11 Residual Excess Cash (RxCash)	.025*	0	.121**	0.006	0.02	.038**	.035**	0.009	-0.003	.509**	1						
12 CEO Duality	.025**	.016*	-0.002	-.052**	0.005	0.009	0.011	-.093**	-.229**	-0.011	0.011	1					
13 Market to Book	.098**	.066**	.070**	-0.005	0.001	0	0.009	-0.002	-0.002	0.002	0	-0.003	1				
14 Asset Tangibility	-.017*	-.036**	.041**	.015*	-0.011	-0.005	-0.013	-.027**	.026**	-0.01	-0.002	-0.002	0.008	1			
15 Return on Assets	-.077**	-.072**	.190**	.030**	-.026**	0.013	.035**	0	-0.009	.027**	.028**	-0.007	0.013	.083**	1		
16 Debt to Equity	.096**	.088**	-.017*	-0.004	0.001	0.000	0.004	-0.001	-0.002	-0.013	-0.009	0.001	.696**	0.011	-0.009	1	
17 SIZE(LogTotalAssets)	.303**	.246**	-.148**	.041**	-.098**	.216**	.243**	.022**	-.100**	-.154**	0.000	.023**	-0.005	-.083**	.156**	0.007	1
18 Average Debt Maturity	.236**	.225**	-.093**	.034**	0.018	.050**	.093**	-0.008	-.056**	-.058**	-.030**	0.013	.021**	-.028**	.022**	.021**	.274**

Panel B: Descriptive Statistics

This Table Shows Descriptive Statistics Including the Number of Observations, Mean, Standard Deviation, Minimum and Maximum.

Description	N	Mean	Std. Deviation	Minimum	Maximum
Debt to Total Capital	17338	0.36	0.23	0.00	1.00
Debt to Total Assets	17338	0.26	0.17	0.00	0.87
Tobin's Q	17338	1.32	1.16	0.00	20.09
CEO Pay Slice	17338	0.40	0.12	0.00	1.00
E-index	10399	3.99	0.98	0.00	6.00
DME4 Index	10399	1.22	0.58	0.00	4.00
DME6 Index	10399	2.97	0.82	0.00	6.00
CEO Tenure	17338	0.07	1.26	0.00	56.04
CEO Shares Ownership	17338	0.74	3.28	0.00	68.76
Median Excess Cash	17338	0.01	0.10	-0.36	0.74
Residual Excess Cash	10882	0.00	0.52	-4.04	1.80
CEO Duality	17338	2.52	0.86	0.00	3.00
Market to Book	17338	4.73	48.43	0.03	5603.07
Asset Tangibility	17338	0.09	0.33	-7.61	0.94

Return on Assets	17338	0.03	0.10	-2.56	3.60
Debt to Equity	17338	1.96	40.80	0.00	3569.37
SIZE(Log Total Assets)	17338	3.39	0.69	0.56	5.90
Average Debt Maturity	17338	4.21	1.06	-0.63	5.50

Table 2: Descriptive Statistics by Firm Size and Crisis Period

Panel A shows descriptive statistics of small, medium, and large firms using market value groups and test of differences in means.

Description	N			Mean			SD			T-statistic (Unequal Variance Assumed)			
	Small	Medium	Large	Small	Medium	Large	Small	Medium	Large	Small vs. Medium	p-value	Small vs. Large	p-value
Debt to equity ratio	4,334	4,335	8,669	2.99	1.78	1.53	72.58	34.99	9.11	0.99	0.32	1.32	0.19
Debt to total capital	4,334	4,335	8,669	0.33	0.34	0.39	0.25	0.23	0.21	-2.83	0.01	-14.06	0.00
Average debt maturity	4,334	4,335	8,669	3.84	4.18	4.42	1.26	1.11	0.86	-13.43	0.00	-27.08	0.00
Debt maturity category 2	4,334	4,335	8,669	1.70	1.82	4.42	0.46	0.39	0.86	-12.97	0.00	-29.12	0.00
Debt maturity category 3	4,334	4,335	8,669	1.93	2.10	2.18	0.72	1.11	0.86	-11.25	0.00	-20.61	0.00
CEO Pay Slice	4,334	4,335	8,669	0.39	0.40	0.41	0.12	0.12	0.11	-4.99	0.00	-8.98	0.00
E-index	1,716	2,607	6,076	3.95	4.07	3.96	1.07	1.00	0.93	-3.77	0.00	-0.65	0.52
DME4 Index	1,716	2,607	6,076	1.11	1.15	1.29	0.47	0.53	0.62	-2.36	0.02	-12.56	0.00
DME6 Index	1,716	2,607	6,076	2.71	2.86	3.08	0.82	0.80	0.80	-6.01	0.00	-16.75	0.00
Residual excess cash	2,792	2,706	5,384	-0.04	0.00	0.02	0.61	0.53	0.45	-2.56	0.01	-4.94	0.00
Median excess cash	4,334	4,335	8,669	0.02	0.02	0.01	0.11	0.10	0.09	-0.61	0.54	5.95	0.00
Retained earnings/total assets	4,334	4,335	8,669	-0.25	0.14	0.22	1.80	1.04	1.23	-12.56	0.00	-15.56	0.00

Panel B Shows Descriptive Statistics for 2000 to 2007 (pre-crisis), 2008, and Post-2008 Crisis Periods and Difference in Means Test.

Description	N			Mean			SD			T-statistic (Unequal Variance Assumed)			
	Pre-crisis	Crisis	Post crisis	Pre-crisis	Crisis	Post crisis	Pre-crisis	Crisis	Post crisis	Pre vs. Crisis	p-value	Pre vs. Post	p-value
Debt to equity ratio	4,101	1,076	12,161	1.80	1.71	2.03	48.65	12.61	39.51	0.11	0.92	-0.28	0.78
Debt to total capital	4,101	1,076	12,161	0.33	0.37	0.37	0.21	0.23	0.23	-4.63	0.00	-11.12	0.00
Average debt maturity	4,101	1,076	12,161	4.28	4.16	4.20	1.07	1.07	1.06	3.30	0.00	4.13	0.00
Debt maturity category 2	4,101	1,076	12,161	1.84	1.83	4.20	0.36	0.37	1.06	0.82	0.41	0.73	0.47
Debt maturity category 3	4,101	1,076	12,161	2.15	2.08	2.08	0.66	1.07	1.06	2.97	0.00	5.68	0.00
CEO Pay Slice	4,101	1,076	12,161	0.39	0.39	0.41	0.12	0.12	0.12	-0.46	0.64	-8.10	0.00
E-index	617	680	9,102	3.64	3.40	4.05	1.29	1.26	0.90	3.28	0.00	-7.88	0.00
DME4 Index	617	680	9,102	1.24	1.25	1.22	0.61	0.61	0.58	-0.38	0.70	0.83	0.41
DME6 Index	617	680	9,102	2.54	2.54	3.03	1.00	1.02	0.77	0.08	0.94	-11.84	0.00
Residual excess cash	2,741	696	7,445	-0.05	-0.02	0.02	0.50	0.57	0.52	-1.37	0.17	-6.65	0.00
Median excess cash	4,101	1,076	12,161	0.00	0.01	0.01	0.09	0.10	0.10	-2.51	0.01	-6.81	0.00
Retained earnings/total assets	4,101	1,076	12,161	0.14	0.09	0.06	0.99	1.09	1.50	1.53	0.13	3.88	0.00

Table 3: Impact of Managerial Entrenchment on Excess Cash

Variables	Panel A				Panel B				Panel C			
	Dep. Var. = Excess Cash	1	2	3	4	1	2	3	4	Small	Medium	Large
<i>Intercept</i>	.087*** (19.78)	.086** *	.077*** (16.24)	.101*** (16.76)	.090*** (14.22)	.107*** (15.92)	.098*** (14.03)	.10*** (16.39)	.10*** (16.39)	.10*** (3.92)	.20*** (7.48)	.12*** (10.46)
<i>CEO Pay Slice</i>	.007 (1.17)	.007 (1.14)	.008 (1.34)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>E-index</i>	n.a.	n.a.	n.a.	n.a.	.000 (.54)	.002* (1.76)	.002** (1.96)	n.a.	n.a.	.00 (1.09)	.01** (2.29)	.00 (1.47)
<i>DME4 Index</i>	n.a.	n.a.	n.a.	.005*** (3.57)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.s.	n.s.
<i>DME6 Index</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	.004***	.004***	n.a.	n.s. ²	n.a.

² DME 4 or DME 6 each is significant predictor of excess cash for firms in small or large ($p < .05$), but not medium market value groups.

Size (Log of Total Assets)	-	.023*** (-21.68)	-.023*** (-21.53)	-.025*** (-17.67)	-.024*** (-17.79)	-.023*** (-17.09)	-.023*** (-16.97)	-	(3.62)	-	.03*** (-3.34)	.05*** (-6.24)	.02*** (-10.60)
Market to Book (MTB)	n.s.	(1.72)	n.s.	.000** (3.03)	.000** (2.74)	.000** (2.96)	.00** (3.02)	.00** (3.04)		.01*** (7.52)	-.00 (-1.28)	.00* (1.86)	
Tangibility (PPE/TA)	-	.008** (3.81)	-.008*** (-3.60)	-.009*** (-3.28)	-.008*** (-2.95)	-.009*** (-3.39)	-.009*** (-3.20)	-.009 (3.33)		-	-.02 (-1.83)	.010** (-2.38)	
Return on Assets (ROA)	.054*** (7.21)	.054** (7.10)	.053*** (7.04)	.106*** (9.46)	.100*** (8.88)	.108*** (9.60)	.107*** (9.51)	.107 (9.50)		.10*** (3.26)	.05 (1.38)	.14*** (6.99)	
Debt to Equity (Debt/Equity)	-.00** (-2.28)	-.00** (-2.28)	-.00** (-2.28)	-.00** (-2.32)	-.00 (-2.24)	-.00** (-2.26)	-.00** (-2.33)	-.00** (2.33)		-	-.00 (-2.25)	-.00** (-2.3)	
Year Fixed Effects	N	Y	Y	Y***	N	Y***	Y***	Y***		Y	Y***	Y***	
Firm Fixed Effects	N	N	Y***	Y***	N	N	Y***	Y***		Y	Y**	Y**	
Observations	17337	17337	17337	10398	10398	10398	10398	10398		2599	2599	5199	
R ²	.028	.028	.030	.044	.036	.041	.046	.044		.099	.046	.059	

Table 4: Impact of Managerial Entrenchment on Financial Leverage

This table reports results of testing hypothesis 2 by regressing on financial leverage (debt to total assets) managerial entrenchment (E-index, DME4 and DME6). Control variables and fixed effects for year and firm fixed effects are included. Slope betas are significant at ***, **, *, and .10 p-values.

Variables	Panel A				Panel B				Panel C			
	Dep. Var. = Debt to Total Assets				Dep. Var. = Debt to Total Assets				Dep. Var. = Debt to Total Assets			
	1	2	3	4	1	2	3	4	Overall	Small	Med	Large
<i>Intercept</i>	.034*** (4.67)	-.003 (-.37)	-.001 (-.10)	-.029*** (-2.80)	.038*** (3.51)	-.029*** (-2.54)	-.028*** (-2.34)	-.027*** (-2.56)	-.001 (-.10)	-.33*** (-18.17)	-.524*** (-22.20)	.06*** (4.15)
<i>Independent Variables</i>												
<i>CEO Pay Slice</i>	.071*** (6.95)	.057*** (5.60)	.056*** (5.57)	n.a.	n.a.	n.a.	n.a.	n.a.	.056*** (5.57)	.073*** (3.62)	.006 (.34)	.07*** (5.38)
<i>E-index</i>	n.a.	n.a.	n.a.	n.a.	.003* (1.89)	-.001 (-.94)	-.001 (-.95)	n.a.	n.a.	n.a.	n.a.	n.a. ³
<i>DME4 Index</i>	n.a.	n.a.	n.a.	-.007*** (-2.70)	n.a. ⁴	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>DME6 Index</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-.006** (-3.05)	n.a.	n.a.	n.a.	n.a.
<i>Controls</i>												
<i>Log of Total Assets</i>	.069*** (38.94)	.066*** (37.41)	.066*** (37.39)	.071*** (29.76)	.073*** (30.88)	.069*** (29.61)	.069*** (29.59)	.071*** (29.81)	.066*** (37.39)	.21*** (36.30)	.25*** (35.79)	.04*** (12.36)
<i>Market to Book</i>	.00*** (8.67)	.00*** (8.74)	.00*** (8.74)	.001*** (10.60)	.001*** (11.00)	.001*** (10.61)	.001*** (10.61)	.001*** (10.59)	.00*** (8.74)	.00*** (4.47)	.002*** (10.63)	.00*** (11.86)
<i>Asset Tangibility</i>	-1.3E-5 (-.00)	.005 (1.27)	.005 (1.24)	.018*** (3.96)	.013*** (2.87)	.018*** (3.92)	.018*** (3.90)	.018*** (4.00)	.005 (1.24)	-.02*** (-3.58)	-.007 (-.93)	.02*** (4.59)
<i>Return on Assets</i>	-.197*** (-15.81)	-.225*** (-18.11)	-.225*** (-18.10)	-.392*** (-20.50)	-.360 (-18.64)	-.393 (-20.53)	-.393 (-20.51)	-.393*** (-20.54)	-.225*** (-18.10)	-.14*** (8.52)	-.20*** (-6.42)	-.45*** (-18.95)
<i>Fixed Effects</i>												
<i>Year Fixed Effects</i>	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
<i>Firm Fixed Effects</i>	N	N	Y	Y	N	N	Y	Y	Y	Y	Y	Y
<i>Diagnostics</i>												
<i>No. of Observations</i>	17336	17336	17336	10397	10397	10397	10397	10397	17336	4333	4334	8667
<i>R²</i>	.092	.108	.108	.138	.113	.138	.138	.138	.138	.246	.269	.109

³ E-index is significant for firms in small (p < .05), but not medium or large market value groups (p > .05). "n.a." means variable not included in the model.
⁴ DME 4 and DME 6 each significantly negatively explain variance in leverage ratio. "n.s." means variable is included in the model but it is not significant.

Table 5: Robustness Test: Impact of Managerial Entrenchment on Excess Cash and Financial Leverage

This table reports results of hypotheses H1, H2 and H3. We include standard control variables, as well as, corporate governance variables of CEO pay slice, CEO tenure, CEO share ownership, and dual role as CEO and chairperson. Columns 1 to 3 use DME4, while column 4 only uses DME6. There are no fixed effects in column 1, year fixed effects in column 2, and both year and firm fixed effects in columns 3, and 4. Results are significant at *** .01, ** .05, and * .10 p-values.

Variables	Panel A				Panel B			
	Dep. Var. = Excess Cash				Dep. Var. = Debt Ratio			
	1	2	3	4	1	2	3	4
<i>Intercept</i>	.081*** (9.36)	.098*** (10.94)	.087*** (9.46)	.089*** (9.73)	-.107*** (-7.71)	-.166*** (-11.74)	-.166*** (-11.44)	-.168*** (-11.66)
<i>E-Index</i>	.00 (.59)	.00 (.71)	.00 (.85)	-.00 (-.15)	.00 (.89)	-.00*** (-2.03)	-.00*** (-2.03)	-.00 (-.88)
<i>DME4</i>	.01** (3.34)	.00** (2.65)	.01** (2.97)	n.a.	-.01*** (-3.62)	-.01*** (-2.11)	-.01** (-2.11)	n.a.
<i>DME6</i>	n.a.	n.a.	n.a.	.00*** (3.23)	n.a.	n.a.	n.a.	-.01** (-3.06)
<i>Debt maturity</i>	-.00 (-.89)	-.00 (-.74)	-.00 (-.71)	-.00 (-.80)	.11*** (23.76)	.10*** (23.73)	.10*** (23.72)	.10*** (23.80)
<i>CEO pay slice</i>	.01 (.94)	.01 (1.19)	.01 (1.32)	.00 (1.39)	.07*** (5.26)	.06*** (4.78)	.06*** (4.77)	.06*** (4.70)
<i>CEO duality</i>	-.00 (-.47)	.00 (-.37)	.00 (-.36)	.00 (-.35)	.00 (.08)	.00 (-.13)	.00 (-.13)	.00 (-.14)
<i>CEO tenure</i>	.00 (1.31)	.00 (1.11)	.00 (1.12)	.00 (1.14)	.00 (1.25)	.00* (1.72)	.00* (1.72)	.00* (1.71)
<i>CEO share owned</i>	.00 (-.96)	.00 (-.94)	.00 (-1.21)	.00 (-1.23)	-.00** (-2.76)	-.00** (-2.85)	-.00** (-2.84)	-.00** (-2.84)
<i>Log Total Assets</i>	-.01*** (-13.46)	-.00*** (-12.69)	-.01*** (-12.69)	-.01*** (-12.75)	.02*** (22.05)	.02*** (20.57)	.02*** (20.57)	.02*** (20.68)
<i>Market to Book</i>	.00** (1.95)	.00** (2.17)	.00* (2.23)	.00** (2.25)	.00*** (10.90)	.00*** (10.53)	.00*** (10.52)	.00*** (10.51)
<i>Asset Tangibility</i>	-.008*** (-2.90)	-.01*** (-3.31)	-.01*** (-3.12)	-.01*** (-3.19)	.01*** (2.36)	.02*** (3.31)	.02*** (3.30)	.02*** (3.38)
<i>Return on Assets</i>	.10*** (8.65)	.11*** (9.37)	.01*** (9.27)	.11*** (9.27)	-.35*** (-18.38)	-.38*** (-20.23)	-.38*** (-20.22)	-.38*** (-20.22)
<i>Debt to Equity (Debt/Equity)</i>	-.00** (-2.24)	-.00** (-2.25)	-.00** (-2.34)	-.00** (-2.34)	n.a.	n.a.	n.a.	n.a.
<i>Year Fixed Effects</i>	N	Y	Y	Y	N	Y	Y	Y
<i>Firm Fixed Effects</i>	N	N	Y	Y	N	N	Y	Y
<i>F-statistic</i>	23.11	25.68	26.29	26.41	185.16	197.41	182.21	182.67
<i>No. of Obs.</i>	10371	10371	10371	10371	10370	10370	10370	10370
<i>R²</i>	.026	.031	.034	.034	.164	.186	.186	.187