The Effects of CEO Power on Firm Value: Evidence from the Financial Crisis of 2008

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Abstract

We examine the impact of Chief Executive Officer (CEO) power on the variability of firm value under an exogenous financial crisis. We apply our analysis to 298 financial service firms and find that financial service firms with more powerful CEOs influence higher firm value under the financial crisis by developing sophisticated measures of CEO power. Our interpretation is that firms with powerful CEOs invest more efficiently, and thus generate greater profitability when firms are exposed to the harsh shock and need sophisticated decision making of CEOs. Finally, powerful CEOs are likely to connect the government for TARP funding under the crisis and increase more positive impact on firm value for TARP firms than non-TARP firms. Our study contribute to the discussion about the importance of powerful CEOs with individual decision-making power in a post-crisis period where policy makers, analysts, and investors are concerned.

Keywords: CEO power, Firm value, Financial crisis, TARP, Individual decision making

1. Introduction

Chief Executive Officer (CEO) managerial power has attracted attention since the global financial crisis, because CEO specific-effect matters for firm policies and investment management (Bertrand and Schoar, 2003; Koo, 2015). Agency theorists provide that CEO power influences the board of directors for managerial compensation strongly (Bebchuck and Fried, 2004). Bebchuk, Cremers, and Peye (2011) argue that CEO power reduces firm performance negatively. The general consensus is that powerful CEOs extract their compensation from firms and reduce the relation between firm performance and their compensation when CEOs have abnormal power (Bebchuk and Fried, 2004; Landier, Sraer, and Thesmar, 2008). Another argument provides the contrasting view of the effect of CEO power. Powerful CEOs with higher ownership are likely to manage firms in align with shareholder interests (Jensen and Meckling, 1976). Adams, Almeida and Ferreira (2005) provide that positive performance variabilities are more severe by powerful CEOs. Given the importance of CEO power, it is surprising that such little research exists about the potential effects of CEO power. Thus, we examine the impact of CEO power on firm value under an exogenous shock.

Business environment influences top executive's managerial discretion, and the firm outcomes (Finkelstein and Hambrick, 1996). Outside shocks could impel CEOs to behave more efficiently for long-term survivals. Dowell, Shackell, and Stuart (2011) provide that CEO power positively influences the firm outcomes when firms face a negative shock. CEO power can bring more benefits in non-stable periods than in stable times (Haleblian and Finkelstein, 1993). The net potential effects of powerful CEOs are likely to have benefits of individual decision-making to dismiss sudden negative firm performance without inputs from the board because collective decision-making with a balanced power facilitate costly information sharing in non-stable times. Thus, firms facing a financial turmoil are likely to need powerful CEOs for the positive variabilities of firm value. Despite the corporate finance literature on CEO power, and the growing literature on the financial crisis, the impact of powerful CEOs on firm outcomes under negative outside shocks has been ignored. Thus, the goal of this study is to provide the impact of powerful CEO effectiveness under the financial shock by examining the CEO power on firm value on setting in which the financial service firms have industry downturns. More specifically, we hypothesize that firms with powerful CEOs exert positive firm value when firms face unanticipated negative shocks or the extreme situations. In

our empirical analyses, we construct our variables to capture the CEO power and firm characteristics during the financial crisis.

The recent financial crisis provides a good opportunity to investigate the effect of CEO power under a negative shock. The financial crisis leads to increase uncertainty and illiquidity in financial institutions (Ivashina and Sharfstein 2010). It constrains investment and more debt for investment purposes, thus reducing firm value in financial institutions unexpectedly. It has severe consequences on management (Campello, Graham, and Harvey, 2010). This means that such shock is out of the control of any CEO in the financial industry. Firms may face cash shortages and overdue debt repayments. The application and management of a powerful CEO is much different in financial distress compared to in stable times. Thus, financial institutions need more CEO power during the financial crisis, because powerful CEOs would exert extreme management to get successful certification of management by motivating firms' investment and dictating higher internal control without collective decision-making.

The TARP recipients have attracted attention because of the CEO excessive risk-taking and bank rescue attempts during the crisis period in 2007-2009. Therefore, many investors and professionals are curious about whether powerful CEOs in firms in the financial industry would relate to TARP firms getting the TARP funds from the U.S. Treasury which was signed into law on October 3, 2008 after Lehman's collapse (Note 1). To investigate the impact of CEO power on firm value under a negative shock, we focus on financial service firms including TARP firms during the 2007-2009 period. This setting allows us to help our empirical questions.

Many officials have acknowledged a little of transparency in the TARP funds' decisions (Note 2). Thousands of financial institutions applied for TARP funds (Note 3). It's implausible that TARP applications are randomly assigned to financial institutions. As a result, powerful CEOs in TARP firms with strong politically connecting the government are positively related to the likelihood of receiving TARP funds. In other words, CEO power is likely to enhance the probabilities of receiving TARP money and amplifying firm value, and then is very critical during the financial crisis. Using a sample of financial service firms, our study split the subsample between the TARP recipients and non-TARP recipients. To recognize the net effect of powerful CEOs, we also compare the subsamples of powerful CEOs and non-powerful CEOs in the financial service firms.

Consistent with our hypotheses, our results show that CEO power positively influence firm value by using resources and political connection. More specifically, the results provide that financial service firms with powerful CEOs exert more positive variabilities of firm value and TARP funding. In robustness analyses, we consider alternative explanations that powerful CEOs extract more managerial compensation due to agency theory. This rationalize why powerful CEOs would earn more compensation. To confirm the evidence, we examine the analysis including CEO total compensation. The results do not change our hypotheses. We also consider alternative measures of firm value and CEO power. To confirm our findings we investigate the analysis after including firm performance and individual CEO power measures. The finding remain similar.

In summary, we makes two main contributions to the literature by showing that CEO power influences firm outcomes and extending Dowell et al. (2011) (Note 4). First, to the best of our knowledge, this paper is the first empirical analysis that firms with more powerful CEOs influence firm value positively under a negative shock by quantifying measures of CEO power. More specifically, under the concentrated versus collective decision-making debate, firms with concentrated powerful individual overcome a negative crisis better than firms with balanced power board. We add to extant literature by exploring the powerful CEOs' management under an exogenous shock. Second, the study provides the effect of CEO power on the TARP recipients which those probably are the weighted reason of getting the TARP funds under the global financial crisis. We investigate the net impact of CEO power between TARP firms and non-TARP firms in terms of firm value. Thus, this study contributes to an understanding of the benefits of CEO power with political connection in regulated industries for investment funding. The remainder of this paper is organized as follows. Section 2 presents a literature review and develops hypotheses. Section 3 discusses data and research designs. Section 4 provides empirical results. Section 5 conclude.

2. Literature review and Hypothesis

Powerful CEOs could be prone to have the professional knowledge, experience and change ongoing firm management by overconfidence of their own abilities. Thus, this study for impact of CEO power is related to two streams of research. The first stream of research examines whether CEO idiosyncrasies influence the variabilities of firm value. Within this literature, we focused on CEO power as one of important characteristics, because CEO characteristics matter for a wide range of firm ongoing management (Bertrand and Schoar, 2003; Koo, 2015). Second, in the light of the importance of CEO power, this study consider the specific environment as an exogenous financial crisis, because firm environments limit the scope of management (Hannan and Freeman, 1977).

An important characteristics of powerful CEO is the sole decision-making discretion. Firms with collective decision-making power make moderate decision as a consequence of the social dynamics. The result of group decision-making is predictable by a compromise (Adams and Ferreira, 2010). But, firms with powerful individuals are more likely to make extreme decisions positively or negatively without a cooperation, because powerful individuals is not unchallenged by other executive members (Adames et al., 2005). As a result, CEO power should influence greater variance of firm outcomes.

Powerful CEOs strongly affect the management of firms under the global financial crisis, and this topic is the motivation to this paper. In stable times, the net effect of CEO power could be insignificant or negatively significant but in turmoil times the benefits (or costs) of a CEO power become important. When firms face a turbulent shock, CEO power may be overturned. Firms in turbulent times need more urgent managerial discretion than firms in stable times because collective decision-making facilitate information sharing slowly and discordantly (Haleblian and Finkelstein, 1993). When firms need powerful CEOs' quick judgements, CEO power can have a positive impact on performance (Harris and Helfat, 1998; Coles, Daniel, and Naveen, 2008). The more a firm has CEO power, the getter its public attention under the economic shock, and then the net effect of a powerful CEO for firm value will be revealed when business environment deteriorate. Thus, we focus on the global financial crisis in which CEOs have difficulty of predicting or managing the sudden changing environment when a huge exogenous shock is out of control of any CEO or firm.

Hambrick and Mason (1984) argue that top management leadership power drive organizations evolutionally. The more firms have powerful CEOs, the more the CEO have managerial discretion to influence critical decisions which directly affect firm outcomes under the economic shock (Fast, Sivanathan, Mayer, and Galinsky, 2012). We assume that powerful CEOs could weigh the costs and benefits of the crucial decision early, and then they exert high-quality decisions under the industry crisis. To extend the above literature, we argue that CEO power is likely to influence positive variability of firm value in regulated industries when firms face a negative exogenous shock. Therefore, we hypothesize that CEOs who hold great power are more likely to increase firm values positively in unstable times. We also hypothesize that CEOs who hold greater power in the market are more likely to increase firm values by infusing the TARP funds from the government. In this section, we review the literature and our central hypotheses.

2.1 The role of CEO power on firm value under a financial crisis

Managerial power theory explains that powerful CEOs are able to influence their compensation schemes by using their marketability in the financial communities (Jensen and Meckling, 1976). Powerful CEOs are interested in building their own reputations to convey firm value more credibly to directors and third parties, such as bondholders and shareholders by developing relationships, because they would extract more compensation (Malmendier and Tate 2005). Reputed powerful CEOs are likely to make highly sophisticated decisions without compromising with other top management in non-stable times. Zahra and Pearce (1989) argues that large top management is less likely to run management for a more complex organization due to diversification of interests. Higher quality of decisions and greater resources may help financial service firms to improve firm value during the financial crisis. Consequently, powerful CEOs do sophisticated management and help firms to secure more resources when firms experience an exogenous crisis. To the extent that CEO power play a role for a financial service firm under an exogenous shock, we propose the following hypothesis.

H1: Under the global financial crisis (exogenous shock), the CEO power will have a positive effect on firm value for financial service firms when the industry experiences a negative shock.

2.2 Powerful CEOs and TARP recipients

We now develop CEO power hypothesis related to government funding for firm value under a financial crisis. The literature on the importance of CEO power with political connections on firm value relatively investigate the opportunity of government funding and corporate governance. For example, Shleifer and Vishny (1994) suggests that federal capital would be used to accommodate powerful politicians, such as transferring resources to favored institutions by political connection. Faccio, McConnell, and Masulis (2006) also shows that politically connected firms are more likely to be bailed out by the government. But, Fisman (2001), Faccio (2006), and Faccio and Parsley (2009) only document the impact of CEOs with political links on firm value in countries with weak legal systems. Previous study does not have any implications on whether powerful CEOs with government funding create higher firm value. To add the literature on the role of CEO power to firms, we investigate whether distinctive powerful CEOs play critical roles for firm value of TARP firms under the financial shock. Specifically, the second hypothesis refers to the relation between CEO power and firm value for between TARP firms and non-TARP firms during the period of crisis:

H2: Under the financial crisis (exogenous shock), the CEO power will have more positive effects on firm value for TARP firms than for non-TARP firms.

3. Data and Methodology

3.1 Why financial service firms?

Our central hypothesis is the impact of CEO power on firm value under an exogenous financial shock. If powerful CEOs exert major high quality of decisions, stronger CEO power will increase higher firm values. The financial service firms provide a valuable and interesting opportunity for a negative industry shock for the following reasons.

First, we discuss the negative industry shock or the crisis in the introduction. The 2008 financial crisis is a global exogenous shock and then the crisis strongly influences the financial industry than any other industries. Thus, CEO should exert their most managerial discretion to overcome the shock for survival. Campello et al. (2010) provides that the financial crisis is a severe shock which it is hard to resolve the risk for banks. This specific setting needs high quality of internal control to dictate extreme management for overcoming a negative shock. In these situations, we assume that the financial crisis constrain firms in the financial industry, and then firms with powerful CEOs would recover more firm value than firms with non-powerful CEOs by managing and controlling resources.

Second, during the financial crisis period where investment and government funding is constraint, only TARP firms get funding from the government. The crisis cause reduce investment and liquidity due to the uncertainty (Ivashina and Sharfstein, 2010). Banks and some other financial service firms are regulated to a higher degree than non-financial service firms during the crisis. These traits enable powerful CEOs to make political connection for the funding and firm value in the financial industry. Yet it remains unclear whether CEO power still matter in the regulated financial services industry for firm value in financial distress. If powerful CEOs improve firm value in the regulated industry, the financial crisis is a good opportunity for the net impact of CEO power because it makes firms have difficulties of restructuring management. We expect that the results may provide a much better evidence by investigating the financial service industry during the financial crisis.

3.2 Sample

We begin with financial institutions on publicly-traded firms (SIC codes 6000-6999) between 2007 and 2009. For our analysis, we obtain data of firm value and financial information from Execump/Compustat merged database, then interest the dataset with Center for Research in Security Prices (CRSP). To test the second hypothesis, we differentiate between TARP recipients and non-TARP recipients by ProPublica, and independent journalism corporation (Note 5). We restrict our sample to publicly-traded firms. We also delete over-the-counter-traded firms, resulting in a sample of 252 TARP recipients. To obtain the final data we intersect our sample with our hand-collecting data for CEO power from Yahoo Finance. Finally, we supplemented the data with manual searches of SEC proxy statements. The final sample consist of 298 financial institutions, giving us a total of 894 observations.

We control for the financial strength of the firm to determine valuation and performance. We also include year dummies as well as controlling for time-invariant firm heterogeneity by using firm fixed-effects. Table 1 provide summary statistics along several control variables for our sample of TARP participants as well as non-TARP participants. We have a main independent variable, CEO power, which capture CEO managerial structural power. The CEO power has a mean 1.6 with standard deviation of 0.95, while the 25 th percentile is 0.89 and the 75 th percentile is 2.86. We control for these variables in all subsequent regressions.

Table 1. Descriptive Statistics

Panel A. CEO Characteristics

Variable	Mean	Standard deviation	Q1	Median	Q3
CPS	0.40	0.14	0.25	0.38	0.50
Tenure	9.50	7.31	5.22	7.90	13.87
Ownership	0.03	0.04	0.00	0.01	0.06
Duality	0.70	0.50	0.00	1.00	1.00
CEOPowerIndex(0-4)	1.69	0.95	0.89	2.00	2.86
CEOage	58.50	7.60	52.35	57	62.50

Panel B. Firm Characteristics

Variable	Mean	Standard deviation	Q1	Median	Q3
M/B	1.91	0.71	1.17	1.45	2.15
Δ*M/B*	-0.29	0.71	-2.01	-0.38	1.07
Size(billions)	98.13	224.51	54.51	80.158	319.64
Income(millions)	-156.51	113.15	-554.16	1.54	295.17
ROA	0.46	0.57	0.17	0.50	0.65
Return	-18.50	16.85	-31.62	-16.14	5.14
Sales(millions)	4,051	7,631	107	261	15,622
Sales Growth	5.78	3.61	-2.51	3.54	8.75
Capex	0.09	0.02	0.07	0.09	0.18
Leverage	0.28	0.19	0.16	0.22	0.42
Volatility	0.05	0.02	0.02	0.04	0.06

This table reports descriptive statistics for the full sample. The sample is 298 financial service firms (894 observations) for the period from 2007 to 2009.

3.3 Empirical measure of CEO power and our research focus

CEO power (Note 6) is hard to be observed directly. Thus, one of the problems in this stream of research has a lack of objectivity in the measures (Finkelstein, 1992). To maintain objectivity of measures, we combine four proxies of CEO power (Adams et al., 2005).The first measure of CEO power is the CEO Pay Slice (CPS) which captures the relative importance of the CEO in top management (Bebchuk et al., 2011). The second measure is the duality. Previous studies have used the duality where one person jointly serves as CEO and chairman of the board (Adams et al., 2005; Pathan, 2009). CEOs with greater stock ownership (Hermalin and Weisbach, 1998; Finkelstein, 1992), possess greater tenure (Bertrand and Mullainathan, 2001; Linck, Netter, and Yang, 2008) are likely to have greater power.

CEO Pay Slice (CPS): the CEO's total compensation as a fraction of the combined total compensation of the top-five executives (including the CEO) in a given firm. We create an indicator variable that takes the value one if CPS is above the sample median.

Duality: We create an indicator variable that takes the value one if the CEO is also the Chair of the firm's board of directors.

Tenure: We create an indicator variable that takes the value one if CEO tenure is above the sample median.

Ownership: We construct an indicator variable that takes the value one if the CEO's ownership is above the sample median.

CEO Power: Above indicators determine the CEO power index as the sum of each indicator variables from 0 to 4. We construct a CEO power indicator variables that takes the value one if total number of index is above the sample median.

3.4 Research design

To teste our hypotheses, we estimate the following regression with TARP firms and non-TARP firms due to unobservable firm characteristics. We use the financial crisis as our setting, and then reduce endogeneity issue. Our main dependent variable is the change in the Market-to-book ratio (Note 7). Furthermore, the change in the Market-to-book ratio could provide the direction to reflect the net impact of CEO power.

$$FirmValue_{it} = \alpha + \beta_1\ CEO\ Power_{it} + \beta_2\ Financial\ Crisis_{it} + \beta_3 CEO\ Power * Financial\ Crisis_{it} + \beta_4 Ln(income)_{it} + \beta_5\ Capex_{it} + \beta_6 Leverage_{it} + \beta_7\ Volatility_{it} + \beta_8\ Size_{it} + \sum_t \text{Year}_t + \sum_k \text{Firm}_k + \varepsilon \quad \text{----(1)}$$

Independent variables are as follows.

Financial Crisis is the binary indicator takes the value of one for the 2008 year and zero otherwise

Ln(income) is the log of net income

Capex is a the ratio of capital expenditures to total assets

Volatility is the standard deviation of a firm's daily stock

Sales Growth is the annual change in revenue defined as $(Sales_t - Sales_{t-1})/Sales_{t-1}$

Leverage defined as total long-term liabilities (LT) divided by total assets (AT)

Size is the natural log of the firm's asset

The coefficient on CEO power (β1) captures the effect of CEO power on firm value after controlling for fundamental financial service firms characteristics associated with firm value. We predict β1 to be positive (negative) if powerful CEOs report positive (negative) firm value. To test the second hypothesis, we partition the sample into TARP firms and non-TARP firms and examine the models separately for these two groups.

4. Results

4.1 The mean values of powerful CEOs and Correlations

Panel A of Table 2 presents the mean values of the variables separately for firms with powerful CEOs and non-powerful CEOs. All of the measure of firm value (i.e., M/Bt, ΔM/Bt) are significantly greater for the powerful CEOs group than for the non-powerful CEOs group, providing evidence consistent with H1, in which we expect higher firm value by powerful CEOs compared to firm value by non-powerful CEOs. Firms with powerful CEOs characterized by bigger size (Size, Sales), higher growth (Sales growth, Income), more volatile firm (Volatility), higher firm performance (ROA, Return) and higher capital expenditure (Capex). Panel B of Table 2 provides correlations between CEO power, dependent variables, and control variables. Our primary main variables, CEO power, is positively and significantly related to our measure of firm value. While most variables are significantly correlated with one another, most of them are relatively small. We do not find significant multicollinearity problem for our analysis.

Table 2. Means of the Variables across High and Low CEO power and Correlation Matrix

Panel A. CEO Characteristics

	Powerful CEOs only (N=448)	Non-Powerful CEOs only (N=448)	Difference
Variable	Mean	Mean	
CEOage	60.50	56.50	4.00*
M/B	2.01	1.87	0.14*
ΔM/B	-0.27	-0.32	0.05**
Size(billions)	106.58	89.68	16.90**
Income(millions)	-149.84	-163.18	13.34*
ROA	0.47	0.46	0.00
Return	-9.63	-27.37	17.74***
Sales(millions)	4,563	3,539	1,024*
Sales growth	5.98	5.57	0.41
Capex	0.10	0.09	0.01*
Leverage	0.35	0.30	0.05
Volatility	0.07	0.06	0.01*

Panel B. Correlation Matrix

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1.CEO power	1.00	0.05***	0.01***	0.10*	0.11	0.10***	0.01*	0.07***	0.41***
2. M/B		1.00	0.42***	0.30***	0.32***	0.12***	-0.27***	0.14***	-0.04
3. ΔM/B			1.00	0.46***	0.57***	-0.05*	0.01*	-0.07***	-0.01*
4. Return				1.00	0.43***	0.12***	0.02***	0.03***	0.01
5. Sales					1.00	0.18***	0.20**	0.07**	0.05*
6. Capex						1.00	0.05***	-0.02***	-0.01
7. Leverage							1.00	-0.15***	-0.01**
8. Volatility								1.00	0.01
9.CEO age									1.00

Panel A of this table reports the mean value of each variable separately for powerful CEOs and non-powerful CEOs groups. The sample is 894 observations for the period from 2007 to 2009. Panel B presents the Pearson correlation coefficients between CEO power and firm value. The significance is designated by '*** 'at 1%, '**' at 5% and '*' at 10%.

4.2 Main Regression Results

Table 3 discuss our multivariate tests, report main results for our hypothesis (H1). In column 1, we report an insignificant coefficient on CEO power (-0.012, p-value= 0.114) before the financial crisis. This result imply that CEO power do not seems to influence firm value. In column 2, we re-estimate equation (1) separately for the sample of 2008 year and 2009 year. We report that the coefficient on CEO power (0.051) is positive and significant. In column 3, financial crisis variable not surprisingly has a significantly negative effect on firm value. In column 4, we report that the coefficient on CEO power (0.011, p-value =0.035) for the entire sample is positively significant, after including the financial crisis dummy. We report a negative and significant coefficient on the two-way. This means that CEO power minimize the impact of the financial crisis shock. The results support our prediction that the impact of strong powerful CEOs on firm value is greater after the financial crisis. These findings are consistent with the notion that powerful CEOs use their discretion to make sophisticated decisions and help firms to increase firm value by securing more resources when firms experience an exogenous shock.

Table 3. Test of Impact of CEO Power on Firm Value

	M/B	*M/B*	*M/B*	*M/B*
	Pre-Crisis	Crisis	Entire	Entire
Intercept	1.032***	0.985***	0.914***	0.975***
	(0.001)	(0.001)	(0.000)	(0.000)
CEO Power	-0.012	0.041*	0.027**	0.011**
	(0.114)	(0.090)	(0.026)	(0.035)
Financial Crisis			-0.523***	-0.285***
			(0.001)	(0.010)
*CEO Power * Financial Crisis*				-0.125*
				(0.096)
Ln(Income)	0.134***	0.106	0.115**	0.101***
	(0.001)	(0.134)	(0.015)	(0.010)
Capex	-0.335***	-0.171	-0.302**	-0.294**
	(0.000)	(0.120)	(0.016)	(0.012)
Leverage	0.122	0.204**	0.094	0.097
	(0.175)	(0.027)	(0.141)	(0.154)
Volatility	-0.513	0.631	-1.152	-1.205
	(0.181)	(0.243)	(0.139)	(0.171)
Size	0.069**	0.127***	0.073**	0.077**
	(0.047)	(0.002)	(0.034)	(0.022)
Year indicators	Excluded	Included	Included	Included
Firm Fixed Effect	Yes	Yes	Yes	Yes
Adj. R^2	10.43%	10.58%	14.51%	14.98%
N	298	596	894	894

This table reports the regression results of firm value (*M/B*) on CEO power by year. The binary indicator Financial Crisis takes the value of one for the 2008 year and zero otherwise. All tests are two-tailed. *, ** and *** denote significance at the 0.1, 0.05 and 0.01 levels, respectively.

In table 4, we investigate the difference in change to estimate the direction of causality from CEO power to firm

value. We repeat the test by controlling for the change in the same independent variables of the sample firms. We find no significant effect of the change in CEO power on the changes in firm value, which means that a firm's choice of CEO power is independent of increase in the firm value.

Table 4. Causality for the Effect of CEO Power

	$\Delta M/B$
	Entire
Intercept	-0.729***
	(0.004)
Δ*CEO Power*	0.011
	(0.127)
Financial Crisis	-0.150***
	(0.000)
Δ*CEO Power * Financial Crisis*	-0.108***
	(0.004)
Δ*Ln(Income)*	0.215**
	(0.025)
Δ*Capex*	-0.307
	(0.226)
Δ*Leverage*	0.101
	(0.193)
Δ*Volatility*	2.034
	(0.275)
Δ*Size*	0.113***
	(0.001)
Firm Fixed Effect	Included
Adj. R^2	15.43%
N	894

This table reports the causality results of CEO power on firm value ($\Delta M/B$) and controls. The binary indicator Financial Crisis takes the value of one for the 2008 year and zero otherwise. ***, **, and * denote the significance at 1%, 5%, and 10% confidence level, respectively.

Having corroborated prior findings, we next investigate whether firm performance and firm characteristics affect directly or indirectly CEO power. We argue that powerful CEOs amplify firm value and minimize managerial self-interest for stakeholders' interest and firm survival when they face a negative financial shock. To alleviate concerns for endgeneity, table 5 provide the 2SLS results. This method requires instrumental variables that relate to CEO power but cannot be related to firm value except through CEO power (John and Kadyrzhanova, 2008). Firm value of each firm is likely to influence the CEO power of that particular firm. But, firm-level firm values might not be related to industry-level CEO power. The logic is that CEOs may influence their own firms weakly when outside forces affect other firms. Thus, we choose industry-median CEO power as the instrumental variable. Industry-median CEO power exhibits a positive and significant coefficient. As we discussed, industry-level CEO power significantly explains firm-level CEO power. In the second-stage regression, we replace CEO power with predicted CEO power from the first-stage regression. The estimate β1 of Predicted CEO power (0.057, p-value =0.063) is positively significant. Overall, these results still provide consistent evidence on the role of CEO power as a means to influence firm value in firms that face strong financial shock.

Table 5. 2 SLS Estimation of Impact of CEO power on Firm Value

	CEO power	*M/B*
	Entire	Entire
Intercept	0.194**	1.009***
	(0.027)	(0.007)
Predicted CEO Power		0.057*
		(0.063)
Industry-Median	0.615***	
CEO Power	(0.005)	
Financial Crisis		-0.341**
		(0.018)
*CEO Power * Financial Crisis*		-0.106*
		(0.057)
ROA	0.126**	
	(0.017)	
Return	0.084**	
	(0.034)	
Capex	-0.019	-0.213**
	(0.164)	(0.031)
Leverage	-0.028	0.074
	(0.119)	(0.184)
Volatility	-0.716	-1.038
	(0.207)	(0.163)
Size	0.021	0.081***
	(0.117)	(0.009)
Year indicators	Included	Included
Adj. R^2	9.15%	19.81%
N	894	894

This table reports the simultaneous 2SLS estimation of CEO power and firm value (*M/B*). The dependent variable is CEO power in the first model and firm value in the second model. The binary indicator Financial Crisis takes the value of one for the 2008 year and zero otherwise. All other control variables are defined the same as in Tables 3 and 4. *, ** and *** denote significance at the 0.1, 0.05 and 0.01 levels, respectively.

To investigate whether the positive impact of powerful CEOs is more pronounced for TARP firms (H2), we partition the sample into TARP firms and non-TARP firms and report results in Table 6. We report that the estimate β1 of CEO power (0.023, p-value =0.009) and the estimate β1 of CEO power (0.009, p-value =0.087) are positively significant. Column (3) report that the difference of CEO power for both groups is positively significant (p-value=1.6 %). This finding suggests that powerful CEOs of TARP firms are more likely to influence firm value. Overall, these findings provide corroborating evidence that powerful CEOs use their managerial discretion to connect the government for firm value.

Table 6. Impact of CEO Power on Firm Value across TARP Firms and Non-TARP Firms

	Dependent variable =Δ*M/B*		
	TARP Firms	Non-TARP Firms	Difference: (1)-(2)
	(1)	(2)	(3)
Intercept	0.810***	0.714**	0.096**
	(0.005)	(0.029)	(0.012)
CEO Power	0.023***	0.009*	0.014**
	(0.009)	(0.087)	(0.016)
Financial Crisis	-0.238***	-0.191**	-0.047**
	(0.001)	(0.016)	(0.043)
*CEO Power*Financial Crisis*	-0.110**	-0.092*	-0.018
	(0.045)	(0.097)	(0.113)
Ln(Income)	0.118**	0.139**	-0.021*
	(0.031)	(0.014)	(0.081)
Capex	-0.274	-0.207	-0.067
	(0.199)	(0.253)	(0.159)
Leverage	0.132	0.094	0.038***
	(0.184)	(0.202)	(0.009)
Volatility	-1.412	-0.811	-0.601*
	(0.168)	(0.237)	(0.079)
Size	0.076***	0.043***	0.033**
	(0.001)	(0.003)	(0.026)
Year indicators	Included	Included	
Adj. R^2	16.07%	12.15%	
N	756	138	

This Table reports the regression results of CEO power on firm value (Δ*M/B*) across TARP firms (252 firms) and Non-TARP firms (46 firms). All tests are two-tailed. The binary indicator Financial Crisis takes the value of one for the 2008 year and zero otherwise. *, ** and *** denote significance at the 0.1, 0.05 and 0.01 levels, respectively.

4.3 Robustness Checks

We conduct several additional analyses to further corroborate our results. We do not tabulate these additional results to conserve space in this paper. We briefly discuss the robustness checks relating to the definition of firm value and CEO power below.

- Agency theory allows us to consider that powerful CEOs extract more wealth from firms. Therefore, we made a robustness test with respect to CEO wealth including CEO total compensation. The results do not change our hypotheses.
- We use industry-adjusted historical stock returns and industry-adjusted historical ROA as alternative measures of firm value. We find that the coefficients are positively significant in the regression although the p-values are lower in comparison with our original estimations. The results confirm our main findings that powerful CEOs improve firm value through their managerial discretions.
- We use individual CEO power measures (CPS, Tenure, Ownership, and Duality) instead of the CEO power indicator and find that results are similar except for Duality.
- We use the CEO power index instead of the CEO power indicator and find that results are similar although the p-values are lower in comparison with our original estimations.

5. Conclusion and Summary

Previous literature investigate the effect of CEO power on managerial compensation and also studies the effects of CEO power. However, these studies always exclude the financial industries and a negative industry shock as an outside force. In light of recent research on how CEO characteristics affect corporate outcomes, we attempt to solve the puzzle of the impact of CEO power on firm value by focusing on the global financial crisis of 2008.

We investigate whether powerful CEO strongly influence firm value under the financial shock. We find CEO power has a positive effect on firm value when the industry experiences a negative shock. We also find that powerful CEOs have incremental effects on firm value relative to less powerful CEOs. This means that the results are not caused by CEO risk-taking behavior. Furthermore, we also investigate whether CEO power is an important determinant of the government fundings for firm value when a firm faces a negative distress. Our results support that the impact of CEO power on firm value is greater for TARP firms under an exogenous financial crisis. In all robustness tests our conclusions are similar to results to tabulated results.

We contribute to the literature on the positive impact of individual decision-making power by providing evidence that the influence of CEO power not only adepts at management but also controls strategic decision for surviving the extreme business environment. Firms with more centralized decision-making structure can get benefits when the industry faces a severe crisis. We also contribute to the literature on the impact of CEO power in market by providing evidence that CEO power may has the great implications for government funding in regulated industries. We believe that powerful CEOs may have political connection with government for funding during a financial crisis easily and our results are very instructive for investors, executives, and policy makers.

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Notes

Note 1. Sarah N.Lynch, 2009, " SEC Votes to change proxy rules" The Wall Street Journal

Note 2. We have known that the distribution of TARP funds is overseen by several monitors: the Financial Stability Oversight Board (FSOB), the Congressional Oversight Panel, the Office of the Special Inspector General (SIGTARP), and the Comptroller General. But, the Treasury does not provide specific guidelines on how it evaluates a financial service's TARP application, we don't know exactly about the list of TARP applicants. The Treasury has also made it very clear that they are not going to disclose names of TARP applicants.

Note 3. The fact sheet on the Treasury's website.

Note 4. They provide that CEO power brings benefits to firms under a crisis in internet firms, though the results were insignificant by using broad measure of CEO power. But, they only focus on internet industry.

Note 5. Data available at http://projects.propublica.org/bailout/list/index.

Note 6. There are four dimensions to the concept of CEO power, some of which are not easily observable: structural power, ownership power, expert power, and prestige power (Finkelstein, 1992). Like Adams et al. (2005), our study focuses on structural power to get a proximal measure of CEO power.

Note 7. It is computed by $M/B_t - M/B_{t-1}$. It is a common valuation method in the literature (Bebchuk, Cremers, and Peyer, 2011; Crossland and Hambrick, 2011).