

The Relationship between the Age of the CEO and Company's Capital Investment

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Abstract

An important CEO characteristic that can affect company's decision making on corporate investment is the age of the CEO. Much of the literature finds that older CEOs are more likely to invest less aggressively when compared to their younger counterparts. The thought is that older CEOs are more entrenched or have greater influence over the board, and may use a risk-averse investment strategy. This results in lower investment levels relative to younger CEOs. In this paper, I find that a CEO's age affects his or her investment decisions—in that older CEOs are more risk averse and invest less than younger CEOs. My findings are consistent with older CEOs preferring less risky investment strategies.

Keywords: CEO; Age; Capital investment

Introduction

The age of the firm's CEO may be an important characteristic affecting capital investment decisions for the corporation. Research in this area has found conflicting results. Some of the literature finds that younger CEOs invest less than older CEOs because younger CEOs are more risk averse and do not have a previous record of accomplishments. This thinking is that if a young CEO makes a bad investment decision, this could reduce his future career opportunities (e.g., Scharfstein and Stein [1]; Holmstrom [2]). Much of the literature finds that older CEOs invest less aggressively when compared to their younger counterparts. The thought is that the older CEOs are more entrenched or have greater influence over the board, and could get away with adopting a risk averse investment strategy that results in less investment activity for the firm when compared to younger CEOs (e.g., Bertrand and Mullainathan [3]).

One current study found an inverse relationship between the age of the CEO and the performance of the stock price. The article looked at technology stocks finding that higher stock returns correlated with a lower age of the CEO. For tech stocks, according to the study, that have had returns of 55% or greater year-to-date (2013), the average age of the CEO is 50. For stocks with lower returns, 55 is the average age.¹

I find in this study that the age of the CEO has an impact on the capital expenditure decisions made by the company's CEO for my sample of firms. It appears, according to my results, that older CEOs are more risk averse in company's capital expenditures than their younger counterparts. My findings are consistent with the notion that CEOs prefer to invest fewer of the firm's funds as they grow older.

The paper is divided into several parts. First, the paper presents a literature review citing the effect of the age of the top executive officer has on company's investment decisions. Next, the important variables in explaining company's capital expenditures are examined followed by a presentation of the sample of companies used in the study and the model utilized to test the relationship between the age of the CEO and company's investment.

Literature Review CEO's Age and Investment Activity

The literature testing CEO's age versus company's investment find in many instances that older CEOs are more risk averse. Prendergast and

Stole [4] developed a model that predicted that younger CEOs make more and riskier investments when compared to older CEOs. They surmised that younger CEOs pursue an aggressive investment agenda in an effort to signal to the market that they are of superior ability. In addition, older CEOs won't change investment strategy because it may signal that their earlier investment decisions were incorrect. The result is that younger CEOs follow a more aggressive investment style than that of older CEOs.

A number of studies found that older, long-tenured CEOs make less risky investments and also make fewer investments (e.g., Bertrand and Mullainathan [3]). If older CEOs are more likely to have greater influence within the company, they could get away with pursuing a less risky investment strategy that results in less company's investment activity when compared to their younger counterparts. A study by Yim [5] found that as there are permanent increases in CEO's pay following an acquisition, younger CEOs are encouraged to make more acquisitions earlier in their careers. Li *et al.* [6], by examining the investment made in plant and equipment, found that the older CEOs were less aggressive in their investment style when compared to younger CEOs.

Some studies had opposite results. Scharfstein and Stein [1] and Holmstrom [2] built market learning models that indicated that younger CEOs are more risk averse and invest less aggressively than older CEOs. Both papers present the idea that since younger CEOs don't have a track record of accomplishments as that of older CEOs, they risk being judged more critically by the market place if they make poor investment decisions. It may significantly reduce future career opportunities. Because of this, younger CEOs are less likely to pursue an aggressive investment strategy according to those studies.

In companies with abundant chances for growth, a CEO with an aggressive investment style has a larger effect on his or her firm's investment decisions. It is more likely for a CEO with an aggressive

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¹seekingalpha.com/article/177938-does-ceo-age-affect-stock-performance. Does CEO Age Affect Stock Performance?

investment style to invest heavily. So if the age of a CEO has a positive effect on the amount of investment he or she undertakes and assuming younger CEOs having a higher level of risk aversion, then in companies with large growth opportunities older CEOs should invest even more relative to their younger CEOs. On the other hand, the age of the CEO has a negative effect on his or her investment activity because younger CEOs make more and bolder investments to signal their ability, or due to older CEOs preferring a risk-averse strategy, then older CEOs with large investment opportunities should invest less.

One study (Yim [5] testing CEO's age and acquisition activity Yim [5] found that CEO's age versus acquisition activity was inversely related with young CEOs particularly motivated to pursue acquisitions when large financial benefits are anticipated. Yim [5] found a negative relation between CEO's age and company's investment through acquisitions reporting that a CEO who is 20 years older than the average CEO is 30% less likely to announce an acquisition. Yim [5] also found that the age-acquisition relation may be explained by declining overconfidence as the CEO ages where the CEO becomes more risk averse, which then leads to decreasing acquisition activity.

Other studies documented potential reasons why the age of the CEO could affect investment behavior. Li *et al.* [6] found that younger CEOs are more aggressive during mergers and acquisitions and attributed their findings to younger CEOs having higher levels of testosterone. Roberts and Rosenberg [7] argued that older CEOs have reduced energy levels and could cause less investment activity. While Taylor [8] found that younger managers are more confident in their decisions and would increase investment activity.

Variables and Model

The sample of 222 companies used to test the CEO's age and company's investment activity comes from the S&P 500. To be included in the sample, the S&P companies also had to be on the list from *Forbes'* Special Report CEO Compensation, from the April issue for years 2007 through 2010. The variable, age of the firm's CEO, is procured from *Forbes* and is the focus of this study.

The dependent variable used in the study is capital expenditures, which is a measure of investment activity for the firm. It is measured using the book numbers of property, plant, and equipment. It is an annual number taken from the S&P Compustat Data Base for years 2006 through 2009. Capital expenditures are divided by total assets. The key independent variable used to explain company's capital expenditures is the age of the company's CEO. It is taken from the *Forbes'* annual article called, Special Report CEO Compensation, from the April issue for years 2007 through 2010.

I use EBITDA (earnings before interest and taxes and depreciation and amortization) to total assets and market value to book value to control for size, similar to Serfing [9]. EBITDA is earnings before

subtracting interest and taxes with the noncash expenses of depreciation and amortization also included. Profitability is an important factor in determining the company's investment capability. EBITDA is also divided by total assets. To proxy for the firm's investment opportunity set, I use the market-to-book value ratio for each company in the sample. I calculate a firm's market-to-book ratio as the book value of assets plus the market value of equity less the book value of equity less balance sheet deferred taxes divided by the total book value of assets. I calculate the book value of equity as the book value of shareholder equity less the value of preferred stock. Leverage is an important variable in determining the amount of capital investment since investment activity depends on available capital according to Yermack [10] and Dechow and Sloan [11]. To account for this, I include the independent variable of total debt divided by total assets. Total debt consists of total current liabilities plus total long-term liabilities. All the accounting came from S&P Compustat Data Base for years 2006 through 2009.

To test the relationship between the age of a company's CEO's pay and the amount of capital investment employed for my sample of companies, the following regression equation is used:

$$\text{Company Investment}_{it} = \alpha_1 \text{CEOAGE}_{it} + \alpha_2 \text{Profitability}_{it} + \alpha_3 \text{MV/BV}_{it} + \alpha_4 \text{Leverage}_{it} + \epsilon_{it} \quad (1)$$

The dependent variable, "Company Investment," is the amount of capital expenditures per year divided by book value of assets. There are four independent variables included in the model. "CEOAGE" represents the age of each sample company's CEO. Profitability is measured with an accounting variable of EBITDA. The "MV/BV" variable is included to account for each company's investment opportunity set. Leverage or debt financing of the firm is measured using the book numbers of total debt of the firm divided by total assets.

Results

Table 1 summarizes the data used in testing the model in this study for the sample of 222 companies. Average annual capital expenditures

Average per year for the sample of 222 companies				
	2006	2007	2008	2009
*Capital expenditures	\$1,452.303	\$1,592.443	\$1,752.343	\$1,444.777
**Age	55.2	55.6	56.4	57.2
*EBITDA	\$5,019.928	\$5,382.264	\$4,523.621	\$4,292.741
*Total assets	\$53,023.54	\$58,652.73	\$54,619.57	\$56,905.71
*Total debt	\$14,519.78	\$16,976.51	\$15,982.46	\$15,443.48
*Market value of equity	\$37,531.286	\$39,884.121	\$26,111.218	\$30,249.135

*in \$ million; **in years.

Table 1: Summary Statistics for Data Used in the Study 2006–2009

	(in \$ million)											
	2006			2007			2008			2009		
	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min
Capital exp to assets	0.050	0.357	0	0.051	0.315	0	0.053	0.459	0	0.040	0.251	0
Age (years)	55.2	79	41	55.6	80	42	56.4	81	43	57.2	82	42
EBITDA to assets	0.157	0.574	0.009	0.154	0.439	-0.177	0.155	0.563	-0.200	0.132	0.438	-0.242
Debt to assets	0.206	0.626	0	0.218	0.750	0	0.232	0.657	0	0.225	0.653	0
Market value to book value	1.87	11.15	0.09	1.89	9.46	0.077	1.26	8.14	0.01	1.38	5.11	0.03

Table 2: Summary of Variables in Regression

Dependent variable—Capital expenditures/Total assets		
	Coefficient	t-stat
Age	-0.003*	-1.67
EBITDA/TA	0.244****	10.21
TD/TA	0.034****	3.36
MV/BV	-0.078***	-4.93
Adj. R ²	0.57	
N	888	

*Significant at an $\alpha = 0.10$; **significant at an $\alpha = 0.05$; ***significant at an $\alpha = 0.025$; ****significant at $\alpha = 0.01$.

Table 3: Regressions Results

averaged as high as \$1.75 billion in 2007 with the lowest annual average in 2009 of \$1.44 billion in capital expenditure, reflecting the economic downturn that was occurring during that period's capital expenditures divided by total assets for each company served as the dependent variable in my model. The focus of the study is on the coefficient for the independent variable and age of the company's CEO. The range in average age for the CEOs in the sample of 222 companies is from 55.2 years in 2006 to 57.22 years in 2009. The accounting numbers in Table 1 illustrate the large size of the sample of S&P 500 companies, measuring all numbers in multiples of billions of dollars. EBITDA, earnings before interest and taxes averaged between \$4 to \$5 billion, and total assets for the sample of companies ranged from \$53 to \$57 billion.

Table 2 is a summary of the dependent and independent variables used in the regression model. Table 3 displays the results for the regression equation. According to the results of the equation, the independent variable of age is significant and negative at an $\alpha = 0.10$. This is evidence that the age of the CEO is important in determining the investment level of a company. It appears that the older the CEO the less he or she is willing to authorize for capital expenditures for his or her company. The size variable of EBITDA divided by total assets is positive and significant at an $\alpha = 0.01$ indicating that the size of the firm is important and positive in determining company's investment amounts. However, the other size variable, MV/BV, negative at an $\alpha = 0.025$ which is at odds with the hypothesis of a positive relationship of company's investment and firm's size. The leverage variable, total debt divided by total assets, is also significant at an $\alpha = 0.01$ with a positive coefficient, which is in accordance of a firm being able to invest more with the more debt it can procure.

Conclusion

An important CEO's characteristic that can affect company's decision making on corporate investment is the age of the CEO. Much of the literature finds that older CEOs are more likely to invest less aggressively when compared to their younger counterparts. The thought is that the older CEOs are more entrenched or have greater influence over the board, and may use a risk-averse investment strategy that results in lower investment levels compared to younger CEOs. In this paper, I find that a CEO's age affects his or her investment decisions—in that older CEOs are more risk averse and invest less than younger CEOs. My findings are consistent with older CEOs preferring less risky investment strategies.

References

- Scharfstein DS, Stein JC (1990) "Herd Behavior and Investment", *American Economic Review* 80: 465-479.
- Holmstrom B (1999) "Managerial Incentive Problems: A Dynamic Perspective", *Review of Economic Studies* 66: 169-182.
- Bertrand M, Schoar A (2003) "Managing with Style: The Effect of Managers on Firm Policies", *Quarterly Journal of Economics* 118: 1169-1208.
- Prendergast C, Stole L (1996) "Impetuous Youngsters and Jaded Old-timers: Acquiring a Reputation for Learning", *Journal of Political Economy* 104: 1105-1134.
- Yim S (2012) The Acquisitiveness of Youth: CEO Age and Acquisition Behavior", *Journal of Financial Economics* 108: 250-273.
- Li X, Low A, Makhija AK (2011) "Career Concerns and the Busy Life of the Young CEO", Working paper, Ohio State University.
- Roberts SB, Rosenberg I (2006) "Nutrition and Agingchanges in the Regulation of Energy Metabolism with Aging", *Physiological Reviews* 86: 651-667.
- Taylor RN (1975) "Age and Experience as Determinants of Managerial Information Processing and Decision Making Performance", *Academy of Management* 18: 74-81.
- Serfing MA (2012) "CEO Age and the Riskiness of Corporate Policies", Working paper.
- Yermack N (1995) "Do Corporations Award CEO Stock Options Effectively?", *Journal of Financial Economics* 30(3): 237-269.
- Dechow PM, Sloan RG (1991) "Executive Incentives and the Horizon Problem: An Empirical Investigation", *Journal of Accounting and Economics* 14: 51-89.
- Cronqvist H, Makhija AK, Yonker SE (2012) "Behavioral Consistency in Corporate Finance: CEO Personal and Corporate Leverage", *Journal of Financial Economics* 103: 20-40.
- Malmendier U, Tate G (2005) "CEO Overconfidence and Corporate Investment", *Journal of Finance* 60: 2661-2700.
- Malmendier U, Tate G, Yan J (2011) "Overconfidence and Early-life Experiences: The Effect of Managerial Traits on Corporate Financial Policies", *Journal of Finance* 66: 1687-1733.

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