



Corporate Capital Budgeting During Periods of CEO Turnover

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INTRODUCTION

- A CEO of a company
 - plays a key role in designing and implementing corporate capital budgeting decisions
 - may have personal interests that diverge from those of the corporation, giving rise to agency problems
 - may lack complete relevant knowledge due to informational asymmetry problems
- Both types of problems may be more pronounced at the time of a CEO turnover.
- A firm makes efficient investment decisions when its marginal investment yields zero value to the firm (Durnev et al., 2004). Variation in the quality of a firm's investment decisions may reflect changes in its management and governance.
- Firms' operating returns on assets vary markedly in the years before and after a CEO turnover, and this effect is mitigated by corporate governance measures (Huson et al., 2004; Dezso, 2007).
- We examine the efficiency of a firm's investment decisions in the years surrounding a CEO turnover. As the average CEO now holds office for 6 years, we examine a rolling set of windows from 5 years before to 5 years after each.

1. MARGINAL Q

- Marginal q is the ratio of the change in the market value of the firm to the contemporaneous change in the value of its assets.
- In theory marginal q can be estimated in continuous time but data constraints require us to estimate it in discrete time. We therefore estimate marginal q over a period of time.

The firm's marginal q is estimated as a coefficient in:

$$\frac{\Delta V_{i,t}}{\Delta A_{i,t-1}} = \beta_{0,i} + q_{i,t} \frac{1 - T_D}{1 - T_{CG}} \frac{\Delta A_{i,t}}{A_{i,t-1}} + \beta_{2,i} \frac{V_{i,t-1}}{A_{i,t-1}} + \beta_{3,i} \frac{D_{i,t-1}}{A_{i,t-1}} + \delta_t P_t + u_{i,t}$$

where V = firm's value, A = firm's assets, D = disbursements, P represents a vector of year fixed effects, and T_D and T_{CG} represent relevant taxes.

- All coefficients are estimated as random parameters (Greene et al., 2009)
- In the absence of taxes, the benchmark value of marginal q is 1.0; using representative tax rates, the benchmark is 0.78.
- Estimated marginal q 's > 1.0 suggest under-investment; < 1.0 suggests over-investment.

TABLE 1

	# of Firms
Total # of firms	161
Marginal $q > 1.0$	24
Marginal $q > 0.78$	34
Marginal $q \leq 1$	41
Marginal $q \leq 0.78$	21

TABLE 2

	# of firms
Firm becomes under-investor ($q > 1.0$)	31
Firm becomes under-investor ($q > 0.78$)	31
Firm becomes over-investor ($q \leq 1.0$)	8
Firm becomes over-investor ($q \leq 0.78$)	8

2. EXAMINE VARIATION IN CAPITAL BUDGETING DECISIONS

- Firms that under-invest and over-invest may differ systematically
- Examine these two groups separately using a truncated regression

$$\left. \begin{matrix} (\hat{q}_i - h)^+ \\ (\hat{q}_i - h)^- \end{matrix} \right\} = \alpha + \lambda X_i + \eta C_i + \omega I_{SIC} + \varepsilon_i$$

where $h = 1.00$ or 0.78 , X is a vector of CEO characteristics, C is a vector of firm characteristics, and I_{SIC} denotes a vector of industry fixed effects.

- Each variable is measured over a 5-year window ranging from $t-5$ to $t-1$ through $t+1$ to $t+5$ to allow identification of time-varying trends. t is the year when the CEO turnover occurred.

RESULTS

Baseline results for three windows that span the CEO turnover:

	Window t-2 – t+2		Window t-1 – t+3		Window t – t+4	
	Under	Over	Under	Over	Under	Over
	.78	.78	.78	.78	.78	.78
PPE	-0.13	-0.20	0.64	-0.42*	0.25	-0.21*
Leverage	-11.34	-0.221	-11.89	4.025**	-2.680	0.055
R&D	-1.16	-3.30	4.85	-5.53**	9.12**	-5.96***
Segment Diversification	-1.878	-0.15	-1.13	-0.22	0.75	0.24*
Board Size	0.32	0.04	-0.03	0.06	0.04	0.12***
Classified Board	2.28	0.08	1.05	-0.19	-0.57	0.09
Independence of Board (in %)	1.42	1.90*	7.42	-1.97	2.50	0.78
Industry Fixed Effects	No	Yes	No	Yes	Yes	Yes
Log likelihood	-62.16	4.41	-65.58	17.73	-61.80	-3.31
N	77	43	84	34	59	50

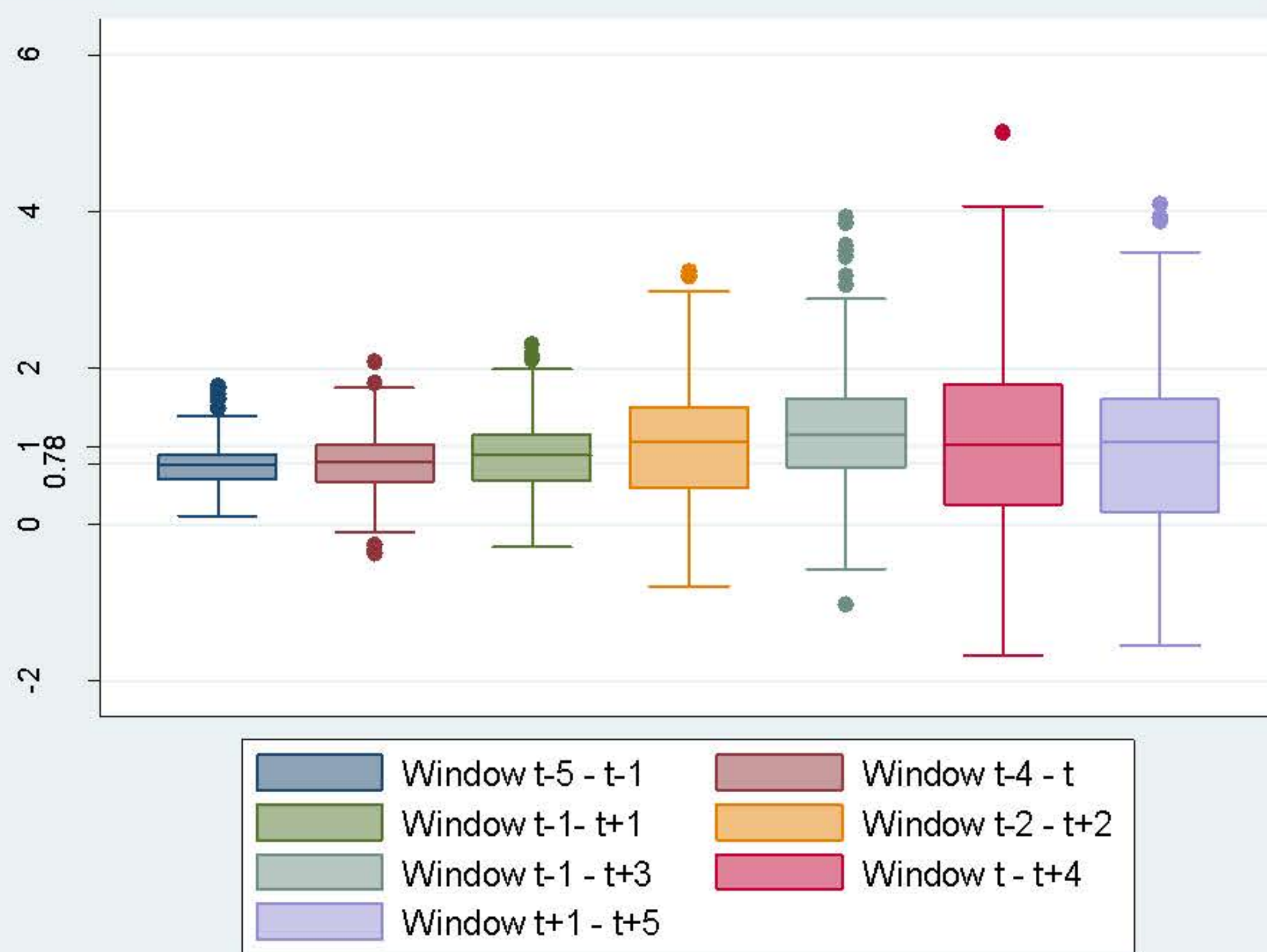
* $p < .10$, ** $p < .05$, *** $p < .01$

- PPE = Property, plant and equipment; captures effects due to firm size
- Leverage = ratio of debt/value; captures financial slack and external monitoring
- R&D = research & development expenses; captures intangible assets
- Segment diversification = # of business lines; captures firm scope
- Board size = # of directors on board
- Independence = # non-affiliated members as % of total board size
- Industry fixed effects capture persistent industry-specific trends

Expanded model

- Include variables that capture the nature of the CEO turnover (voluntary vs. forced) and whether the successor CEO is an outsider
- Outsiders are associated with more efficient investments prior to the turnover, and higher levels of over-investment subsequently

TIME VARIATION IN MARGINAL Q



CONCLUSION

The investment decisions of 161 large firms with CEO turnovers in the years 1995-2000 were examined in the study. Since a rolling time window approach was used, certain trends were observed across firms over time:

- All firms reduced their level of investments in the run-up to a CEO turnover, leading to an increased estimated marginal q
- Many firms under-invest subsequent to a CEO turnover
- Among firms that over-invest, larger firms had the highest level of investments
- Corporate governance variables were largely insignificant in explaining observed variation in estimated marginal q
- The nature of the CEO turnover – voluntary vs. forced – is largely insignificant at explaining variation in corporate capital budgeting
- Outsider CEOs are associated with higher levels of investment after the turnover

REFERENCES

- Dezso, Cristian L. 2007. Entrenchment and Changes in Performance Following CEO Turnover, Robert H. Smith School Research Paper 06-103.
- Durnev, Artyom, Randall Morck, and Bernard Yeung, 2004. Value-Enhancing Capital Budgeting and Firm-specific Stock Return Variation, *Journal of Finance*, 59(1).
- Greene, William H., Abigail S. Hornstein, and Lawrence J. White. 2009. Multinationals Do It Better: Evidence on the Efficiency of Corporations' Capital Budgeting, *Journal of Empirical Finance*, 16(5).
- Huson, Mark R., Paul H. Malatesta, and Robert Parrino. 2004. Managerial Succession and Firm Performance, *Journal of Financial Economics*, 74(2).

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