

Product-Market Competitiveness and Investor Reaction to Corporate Governance Failures

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Abstract

Is industry competition a substitute for governance quality? If so, and if self-serving behavior by corporate executives is more of a surprise at well governed firms, then the price reaction to news of option backdating should vary by the level of competition in the firm's industry. Consistent with this, we find that firms operating in more competitive sectors experienced significantly larger wealth declines upon the revelation of news regarding the backdating of stock option grants. We interpret our findings as confirming that governance quality is less important for firms operating in more competitive industries.

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1. Introduction

Does product market competition control managerial conflicts of interest and substitute for governance quality? Several theoretical papers including Hart (1983), Holmstrom (1982), and Schmidt (1997) show that product market competition can reduce the value of good governance by reducing managerial slack. Dyck and Zingales (2004) argue that more intense competition in the product market makes firm-specific outcomes more verifiable, and hence limits the opportunities for managers to appropriate private benefits of control. Furthermore, Giroud and Mueller (2010 and 2011) report evidence suggesting that firms operating in non-competitive industries benefit more from good governance.

In contrast, Scharfstein (1988) extends the model in Hart (1983) and presents conditions under which competition can increase managerial slack; in his model when competition increases firms must explicitly motivate their employees to work harder. Consistent with this, Raith (2003) shows that changes in competition can affect incentives if they lead to higher firm-level output, and Karuna (2007) finds that firms provide stronger incentives when industry competition is greater.

We provide insight into the relation between product market competition, incentives and governance quality by focusing on a sample of firms charged with corporate malfeasance, and examining how the price reaction to such news is related to the level of product market competition and governance quality. Our starting point is that investors assign some probability to the likelihood of self-serving behavior by management, and the revelation of “bad behavior”

by managers results in an upward revision of this probability. The logic underlying our empirical analysis and the resulting testable hypothesis are as follows.

If product market competition is a substitute for corporate governance, then (i) investors should assign lower probabilities to “bad behavior” by managers in more competitive industries, and (ii) revelation of “bad behavior” should be more of a surprise at firms in more competitive industries. Since a greater surprise should trigger a larger (more negative) price reaction, our testable hypothesis can be stated as:

H1: The price reaction should be negatively related to the degree of competition in the firm’s product market.

One problem with using a sample of firms charged with corporate malfeasance is that the price reaction to such news is likely to impound the effects of both lower expected future cash flows and a damaged reputation (Karpoff and Lott, 1993). The latter captures the issue of interest, which is investor reassessment of the extent of agency problems at the firm. We address this problem by using a sample of firms charged with backdating option grants to corporate executives. Option backdating provides an interesting setting, because it represents a relatively benign form of managerial self-serving behavior that has little if any impact on current or expected future cash flows. However, the revelation of such self-serving behavior is likely to increase investor concerns about other managerial activities that may be detrimental to shareholder wealth. The price reaction to news of option backdating thus has little if any cash flow component, and is likely to capture the effect of investor reassessment of the likelihood that managers are engaged in other activities that may be detrimental to shareholder wealth.

2. Sample description

We obtain the sample of firms charged with backdating stock option grants from the *Wall Street Journal's* 'Perfect Payday: Option Scoreboard' column of January 10, 2007. Bloomberg News also reported a list of 208 firms involved in backdating later in 2007. We exclude the following cases: (1) firms that were acquired, taken private, or went bankrupt during 2006-2009, (2) firms that merged with other companies or split into multiple companies, and (3) firms with no proxy filings until 2010. This process resulted in a final sample of 152 BD firms.

Summary statistics for several characteristics of the sample firms are given in Table I. As seen in Panel A, the firms have sales of \$3.3 billion on average, and total assets of \$2.9 billion. The firms are mostly profitable, with average ROA and ROE of 2.91% and 0.07% respectively. We estimate three proxies for industry competition – a Herfindahl index based on Fama-French 48 industries, a Herfindahl index based on 3-digit SIC codes, and industry profit margins, where industries are defined as the Fama-French 48. The three proxies for competition have mean values of 0.05, 0.12 and -5.47% respectively, and have a considerable dispersion.

3. Empirical findings

We use standard event study methodology to estimate daily abnormal returns for the period $t = (-60, +60)$ in event time, where day $t=0$ is the day that the news of option backdating first became public. Cumulative abnormal returns (CAR) over various different windows in event time are presented in Figure I and Table II. The revelation of backdating generated significant value losses for the sample firms over both short and longer-term time windows; values of the CAR are negative and statistically significant over a three-day period, a twenty-one day period, and a hundred and twenty-one day period surrounding the news.

The evidence also suggests that there are systematic differences in the price reaction for firms operating in industries with high vs. low competition. In particular, firms operating in more competitive sectors have more negative CAR values over all three time windows of interest, and the differences are statistically significant when competition is defined using a Herfindahl index based on Fama-French 48 industries. It is also worth noting that the broadest measure of wealth losses, the CAR over $t = (-60, +60)$, displays statistically significant differences in the price reaction for all three of the competition-based sub-samples. These findings indicate that the price reaction to news of option backdating is systematically related to the level of competition in the firm's industry, and provides initial support for Hypothesis 1.

Two factors that may have an inordinate influence on the price reaction are the resignation of the CEO and whether or not option backdating resulted in a restatement of the firm's earnings. We examine the price reaction for sub-samples of firms based on these two characteristics, and findings are presented in Table III. Not surprisingly, firms where the CEO resigned experienced larger wealth losses; the CAR for $t = (-1, +1)$ and $t = (-60, +60)$ is more negative in cases where the CEO resigned. However, the results also show that firms operating in more competitive sectors experienced a more negative price reaction than those in less competitive industries, both in cases where the CEO resigned and where there was no resignation. While the differences are not statistically, the consistent pattern of differences are supportive of Hypothesis 1.

We use the need to restate earnings as another proxy for the severity of the news that the firm was backdating option grants. While the CAR for $t = (-1, +1)$ is smaller for the sub-sample of firms that filed restatements, these firms experienced larger wealth losses over the broader time window $t = (-60, +60)$. As in the case of CEO resignations, industry competition continues

to be relevant; CAR values for firms operating in more competitive industries are uniformly more negative, although the differences are not statistically significant.

We examine the robustness of the bivariate results by estimating a series of multivariate regressions using the CAR for $t = (-60, +60)$ as the dependent variable. The variable of interest is *Hi Competition*, which is a dummy variable that takes a value of 1 for firms operating in competitive industries and is zero otherwise; competition is estimated using the Fama-French 48 industry Herfindahl index. This variable should have a negative coefficient if industry competition is a substitute for corporate governance, as described in Hypothesis 1. We also control for several firm characteristics including firm size (*Sales*), profitability (*ROE*), growth opportunities (*MB*), total executive compensation (*Compensation*), options-based compensation as a percentage of total compensation (*pct Option*), and a measure designed to capture the amount of power wielded by the CEO (*CEO Power*). This variable is measured as the total compensation of the CEO divided by the total compensation of the five highest paid executives.

Findings from the multivariate analysis are presented in Table IV. In addition to firm characteristics, the specification in column 1 of the table controls for the possible role of CEO power and the relative magnitude of option-based compensation in influencing the likelihood of backdating. The variable of interest, *Hi Competition* has the expected negative coefficient and is statistically significant. This finding is consistent with the bivariate results reported earlier, and supports the arguments summarized as Hypothesis 1. In columns 2, 3 and 4 of Table IV we report findings from slightly different specifications, and note that in all cases *Hi Competition* continues to have a negative coefficient and is statistically significant. In addition, wealth losses from the revelation of option backdating are decreasing in firm profitability and in growth

opportunities. Higher levels of executive compensation exacerbate wealth losses, perhaps by reinforcing the perception of self-serving behavior by corporate insiders.

The findings reported in Table IV are broadly supportive of Hypothesis 1, and suggest that corporate governance is less important for firms operating in more competitive industries.

4. Robustness checks

We examine the robustness of the findings reported in Table IV by including controls for the perceived severity of the backdating event, as proxied by the resignation of the CEO and by the firm filing an earnings restatement. These events do not occur in the [-60, 60] window. The resignations typically occurred in the years following the announcement of backdating. The accounting restatements were also announced in the following years. The financials were typically restated over a period preceding the backdating and in some cases going back to 10 years prior to the announcement. While these announcements occurred beyond the event window, we assume that the investors might have anticipated these types of responses and, in turn, might have substantially influenced the event window response.

Findings from these regressions are presented in Table V. Not surprisingly, both *CEO Resign* and *Restate* have negative and statistically significant coefficients, indicating that wealth losses are larger at firms where the CEO eventually resigned or the firm eventually restated earnings. *Hi Competition* however, continues to have a negative and statistically significant coefficient, confirming the findings reported in Table IV.

As indicated earlier, we constructed three measures of industry competition, and the findings reported in Tables IV and V are based on one of these three (Fama-French 48 industry Herfindahl). We examine the robustness of these findings by re-estimating the regressions using

these alternative measures of industry competitiveness, 3-digit SIC code and industry net profit margin (Giroud and Mueller, 2011) and present the findings in Table VI. The findings are broadly consistent with those reported in Tables IV and V. Profitability and growth opportunities continue to have positive and statistically significant coefficients, and compensation is negatively related to the wealth loss. More importantly, *Hi Competition* has a negative and statistically significant coefficient in all specifications, confirming the findings reported earlier.

The Herfindhal index is an industry wide Index and thus many firms belonging to the same industry have identical H Index. Our measure of Hi Competition is a dummy variable which is recorded as 1 for Hi competition (low H Index, or low levels of profit margin). We code Hi Competition = 1 for firms having H Index less than the median in FF-48 industry grouping. As a robustness check, we code Hi Competition = 1 for firms having H Index less than or equal to the median for the 3-digit SIC codes. Consequently, the number of cases coded as Hi Competition is lower in FF-48 industry compared to the coding in the 3-digit SIC code. The different Hi Competition classifications also provide an additional robustness check of the results.

The number of firms in a FF-48 industry may be high. It is possible that high “N” industry may lead to a lower H index, and lead to spurious classification as Hi Competition industry. We have compared the distribution of the number of industry firms and report that the number of firms in the Hi Competition industry is not significantly larger than those in the low competition industry. As a second robustness check on this issue, we obtained the H Index for each industry counting only the firms that contributed to the top 90% of sales in the industry. This approach effectively eliminated a large number of small firms in the industry. Regression

results based on the truncated industry H Index are very similar to the reported results and hence not reported in separate tables.

5. Conclusions

Does industry competition serve as a substitute for corporate governance? We use the price reaction to news of option backdating to provide insight into this question. Our hypothesis follows from the idea that self-serving behavior by corporate executives should be more of a surprise at well governed firms. If industry competition serves as a substitute for corporate governance, then investors should be more surprised by charges of option backdating at firms in more competitive industries, and the observed price reaction should be more negative for firms operating in more competitive industries.

Our empirical analysis indicates that industry competitiveness has a systematic influence on the price reaction to news of option backdating. In particular, firms operating in more competitive industries suffered significantly larger wealth losses when news regarding option backdating became public. This finding is robust to three different proxies for industry competitiveness and controls for both firm characteristics and the possible influence of factors such as CEO resignations on the observed wealth effect. Overall, our findings are consistent with the proposition that corporate governance may serve as a substitute for corporate governance, and governance quality may be of limited value for firms operating in highly competitive industries.

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Table I: Descriptive Statistics***Panel A: Firm Summary Statistics***

	No. of Obs	Mean	Median	Min	Max
Sales	152	3,347	535	7	81,511
Assets	152	2,960	799	19	63,722
ROA	152	2.91%	5.15%	-41.20%	38.30%
ROE	152	0.07%	2.57%	-141.61%	26.42%
AGE	152	172.07	152	30	518
Herfindahl Index (Fama-French 48)	152	0.0527	0.0346	0.0212	0.4421
Herfindahl Index (3-digit SIC Code)	152	0.1286	0.0743	0.0317	0.8714
Net Profit Margin (Fama-French 48)	152	-5.47%	0.33%	-124.32%	15.76%

Panel B: High and low competition distribution

	High		Low	
	Count	Pct	Count	Pct
Herfindahl Index (Fama-French 48)	48	31.58%	104	68.42%
Herfindahl Index (3-digit SIC)	80	52.63%	72	47.37%
Net Profit Margin (Fama-French 48)	58	38.16%	94	61.84%

Panel C: Industry Distribution

2-Digit SIC	Count
28	9
35	10
36	42
73	37
38	7

Table II: CAR corresponding to various event windows

	[-1, 1]	[-20, -2]	[2, 20]	[-20, 20]	[-60, 60]
Mean	-2.62% ***	-3.44% ***	0.56%	-5.51% ***	-7.13% ***
<i>By Herfindahl Index (Fama-French 48 industry)</i>					
High	-4.72% ***	-5.39% ***	0.63%	-9.47% ***	-12.08% ***
Low	-1.66% ***	-2.54% **	0.52%	-3.67% **	-4.84% **
Diff	-3.06% **	-2.85%	0.11%	-5.80% *	-7.23% *
<i>By Net Profit Margin (Fama-French 48 industry)</i>					
High	-3.17% ***	-4.02% **	1.36%	-5.83% **	-11.66% ***
Low	-2.28% ***	-3.08% **	0.06%	-5.31% ***	-4.33% *
Diff	-0.89%	-0.94%	1.31%	-0.52%	-7.33% *
<i>By Herfindahl Index (3-digit SIC code)</i>					
High	-3.11% ***	-4.69% ***	-0.30%	-8.10% ***	-10.82% ***
Low	-2.08% ***	-2.04% **	1.50%	-2.62%	-3.03%
Diff	-1.02%	-2.65%	-1.80%	-5.48% *	-7.79% **

*** p<0.01, ** p<0.05, * p<0.1

Table III: Summarizing results for strong events
(CEO resignations and eventual financial restatements)

	CEO resignation			CEO no resignation			Diff
	# of Obs	Mean		# of Obs	Mean		
CAR[-1,1]							
<i>High Comp</i>	19	-6.64%	***	29	-3.46%	**	-3.17%
<i>Low Comp</i>	25	-4.41%	***	79	-0.78%		-3.63%
Dif		-2.23%			-2.68%		
CAR[-60,60]							
<i>High Comp</i>	19	-17.85%	**	29	-8.29%	**	-9.56%
<i>Low Comp</i>	25	-15.82%	***	79	-1.37%		-14.45%
Dif		-2.03%			-6.92%		
	Fin Restatement			No Fin Restatement			Diff
	# of Obs	Mean		# of Obs	Mean		
CAR[-1,1]							
<i>High Comp</i>	36	-2.68%	***	12	-10.85%	***	8.17%
<i>Low Comp</i>	61	-2.64%	***	43	-0.26%		-2.38%
Dif		-0.04%			-10.59%	***	
CAR[-60,60]							
<i>High Comp</i>	36	-14.31%	***	12	-5.36%		-8.95%
<i>Low Comp</i>	61	-11.21%	***	43	4.19%		-15.40%
Dif		-3.10%			-9.55%		

*** p<0.01, ** p<0.05, * p<0.1

Table IV: Cross-sectional robust regression results*Competition dummy variable from Fama-French 48 industry Herfindahl measure*

VARIABLES	(1) CAR6060	(2) CAR6060	(3) CAR6060	(4) CAR6060
Hi Competition	-0.1340** (-2.18)	-0.1400** (-2.29)	-0.1277** (-2.08)	-0.1255** (-2.05)
Pct Option	0.0011 (1.33)	0.0007 (0.85)	0.0010 (1.22)	0.0012 (1.45)
Hi Competition x Pct Option	0.0046* (1.77)	0.0050* (1.92)	0.0048* (1.82)	0.0048* (1.77)
CEO Power	0.0303 (0.33)			
Sales	0.0035 (0.32)			
ROE	0.0176** (2.32)	0.0190** (2.45)	0.0201*** (2.78)	0.0144* (1.70)
MB	0.0193 (1.53)	0.0209* (1.68)	0.0251** (2.03)	0.0228* (1.82)
Compensation			-0.0200*** (-3.08)	
Compensation as % of Sales				-0.0197*** (-3.12)
Constant	-0.1438 (-1.58)	-0.1072** (-2.37)	0.0279 (0.52)	-0.1023** (-2.40)
Observations	151	152	152	152
R-squared	0.0678	0.0638	0.0879	0.0919
Adj. R-squared	0.0221	0.0317	0.0501	0.0543
F-statistic	2.47**	3.33***	5.10***	3.93***

Robust t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table V: Robustness tests on severity of the event (resign and restate)*(Competition is from FF 48 industry Herfindahl measure)*

VARIABLES	(1) CAR6060	(2) CAR6060	(3) CAR6060
Hi Competition	-0.1223** (-2.14)	-0.1090* (-1.92)	-0.1053* (-1.86)
Pct Option	0.0002 (0.34)	0.0006 (0.82)	0.0008 (1.04)
Hi Competition x Pct Option	0.0056** (2.08)	0.0055** (2.00)	0.0054* (1.90)
ROE	0.0093 (1.30)	0.0104 (1.60)	0.0039 (0.48)
MB	0.0151 (1.18)	0.0195 (1.53)	0.0170 (1.31)
Compensation		-0.0228*** (-3.04)	
Normalized Competition			-0.0217*** (-3.15)
CEO Resign	-0.0876* (-1.70)	-0.0841* (-1.69)	-0.0934* (-1.87)
Restate	-0.1206** (-2.42)	-0.1298** (-2.57)	-0.1221** (-2.45)
Constant	0.0067 (0.12)	0.1658** (2.06)	0.0148 (0.26)
Observations	152	152	152
R-squared	0.1603	0.1911	0.1942
Adj. R-squared	0.1195	0.1458	0.1491
F-statistic	6.43***	6.89***	6.59***

Robust t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table VI: Robustness tests using alternate measures of competition

VARIABLES	(FF 48 industry median net profit margin)			(3-digit SIC code Herfindahl measure)		
	(1) CAR6060	(2) CAR6060	(3) CAR6060	(4) CAR6060	(5) CAR6060	(6) CAR6060
Hi Competition	-0.1339** (-2.28)	-0.1001* (-1.76)	-0.1049* (-1.84)	-0.1162** (-2.09)	-0.1077* (-1.96)	-0.0994* (-1.78)
Pct Option	0.0010 (1.27)	0.0012 (1.52)	0.0012 (1.48)	0.0007 (0.75)	0.0010 (1.08)	0.0011 (1.15)
Hi Competition x Pct Option	0.0038* (1.68)	0.0014 (0.69)	0.0024 (1.06)	0.0021 (1.32)	0.0019 (1.20)	0.0023 (1.49)
CEO Power	0.0572 (0.58)					
Sales	0.0045 (0.39)					
ROE	0.0197*** (2.94)	0.0218*** (3.16)	0.0158** (2.02)	0.0158** (2.29)	0.0171*** (2.65)	0.0124 (1.63)
MB	0.0203 (1.59)	0.0283** (2.28)	0.0251** (2.01)	0.0257** (2.01)	0.0293** (2.30)	0.0267** (2.10)
Compensation		-0.0225*** (-3.09)			-0.0205*** (-3.26)	
Compensation as % of Sales			-0.0217*** (-3.06)			-0.0186*** (-2.86)
Constant	-0.1545 (-1.54)	0.0464 (0.69)	-0.0982** (-2.14)	-0.0972** (-2.00)	0.0426 (0.75)	-0.0968** (-2.08)
Observations	151	152	152	152	152	152
R-squared	0.0696	0.0862	0.0885	0.0625	0.0878	0.0860
Adj. R-squared	0.0240	0.0484	0.0508	0.0303	0.0500	0.0482
F-statistics	3.59***	5.07***	4.19***	3.18***	5.22***	4.10***

Robust t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Figure I

