Does Sound Corporate Governance Curb Managers' Opportunistic Behavior of Exploiting Inside Information for Early Exercise of Executive Stock Options?

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Introduction

- This study readdresses the issue raised by Bartov and Mohanram (2004):
  - They claim that managers have exploited inside information about the reversal of discretionary accruals for early exercise of employees' stock options (ESOs).
  - They further maintain that managers mislead the market through earnings management on account of asymmetric information.

Introduction

- We revisit and further extend this issue by including:.
  1. Corporate dividend policy.
  2. Corporate governance.

Why?

- First of all, corporate dividend policies may affect managers' decision in timing their ESO exercise.
  - the adjustment of spot price not only consists of earnings but also dividends.
  - Merton (1973) suggests that American call options should never be exercised prior to maturity unless the benefit from dividend yield received exceeds the cost of remaining time value forgone.
  - This proposition has been substantiated by subsequent studies (Whaley1982; Harvey and Whaley 1992; Diz and Finucane 1993; Bettis et al. 2005).

Why?

- **Brooks et al. (2012)[*Financial Management*]:**
  - investigate the factors that trigger executives' ESO exercise decision,
  - conclude that the most informed executives do not exercise to capture dividends.

- Given the fact that executives early exercising their ESOs prefer not to receive dividends, they are likely to utilize dividend policy in timing their ESOs Exercise.

Why?

- Secondly, we argue that managers' opportunistic behavior of early ESO exercise is more likely to occur to poorly governed companies.
  - Executive stock option plans provide managers incentives to reduce corporate dividends because the plans are generally not dividend-protected.
  - Good corporate governance mechanism provides better shareholder protection, can effectively inhibit earnings management, and guarantees more dividend payments.
  - Thus, managers of well governed companies are less likely to act on their own way, and are more likely to utilize dividend policy in timing their ESOs Exercise.
  - By contracts, managers of poorly governed companies are likely to exploit earnings management to increase the cash payout of exercises.

Contribution

- First, we resort to the textbook rule of option pricing and bring firms' dividend policy into managers' early stock option exercise decision

- Secondly, we provide evidence that how managers behave in stock option exercise depends on the firms' corporate governance mechanism.

Dividend Policy in Executives' Timing Decision of ESOs Exercise

- Bettis et al. (2005):
  - investigate how differences in exercise behavior and model choice affect measures of ESO values and incentives, and factors that affect the behavior of ESO holders.
  - find that companies' dividend yields are positively associated with the number of years prior to expiration the option is exercised, but they do not further interpret the implication behind such positive association.

- Two implications for ESOs exercise decision in their findings.
  - One is managers early exercise their ESOs to receive dividends,
  - The other is they avoid ex-dividends and consider dividend policies a means to receive more cash payout. (documented by Brooks et al. (2012))

The latter is in line with dividend signaling theory

- Signaling theory states that changes in dividend policy convey information about changes in the stability, future cash flow, and growth prospects of the company (Bhattacharya 1979, Miller and Rock 1985; Collins et al. 1996; DeAngelo et al. 1996; Benartzi et al. 1997).

- Dividend signaling suggests a positive relation between information asymmetry and dividend policy.

- Miller and Rock (1985):
  - the market will eventually learn the truth and the price will presumably then fall back.
  - but that eventual restoration will be of little concern to those managers whose compensation is tied directly or indirectly to the firm's short-run price performance.

We argue:

- In addition to earnings management, even though ESOs plans are designed for long term performance, self-interest executives are likely to exploit dividend policies in their timing decisions of ESOs Exercise.

Corporate Governance and Managers' Timing Decision

- Prior studies have found corporate governance mechanism helps to reduce earnings management (Warfield et al. 1995; Dechow et al. 1996; Beasley, 1996; Klein 2002; Leuz et al. 2003; Xie et al.2003; Cornett et al. 2008).

- Literature also suggests that more dividend payments would be guaranteed under stronger corporate governance because stronger investor protection helps minority shareholders force managers to disgorge excess cash through dividend payouts (La Porta et al. 2000; Mitton 2004).

Corporate Governance and Managers' Timing Decision

- How executives time their ESOs exercise is conditioned on the corporate governance mechanism of their companies.

- Stock options create an incentive for managers not to pay dividends because the payment of dividends, reduces the value of the option (Lambert et al. 1989).

- Hence, executives have greater willingness to time their ESOs exercise through earnings management than dividend policy.

Corporate Governance and Managers' Timing Decision

- Weak corporate governance mechanism:
  - gives managers opportunities to exploit inside information for personal interests,
  - managers of this type of firms are more likely to time their early ESOs exercise through earnings management.

Corporate Governance and Managers' Timing Decision

- Strong corporate governance mechanism:
  - provides better shareholder protection,
  - can effectively curb insiders' incentives to mask firm performance,
  - increases managers' propensity to behave more rationally when they are going to early exercise ESOs.
  - managers of well governed firms hence are likely to rely more on dividend policy in their timing decisions.

Predictions

- **Our first prediction:**
  - executives tend to exploit dividend policies to time their ESOs Exercise in addition to earnings management.

- **The second prediction:**
  - managers of weakly governed firms tend to manipulate earnings for cash payout in their ESOs exercise.

- **The third prediction:**
  - managers of strongly governed firms tend to employ dividend policy for cash payout in timing their ESOs exercise, compared to weekly governed firms.

Main Findings

- Consistent with our predictions, we find that executives tend to exploit dividend policies in their decision of timing ESOs Exercise in addition to earnings management.

- Specifically, we find that managers of poorly governed firms tend to opportunistically earn cash payout in their ESOs exercises through earnings management.

- By contrast, executives of well governed firms tend to largely exercise their stock options in the first year the firm has high dividend yield, which implies a rational behavior.

Research Design

- **Data Sources:**
  - Compustat
  - CRSP
  - ExecuComp
- Sample Period:
  - 1992~2010

Research Design

- **We use a set of sample firms with abnormally large option exercises**.
  - The size of option exercises is measured as the proportion of compensation from stock-option exercise, averaged across the five most highly compensated executives.
  - Abnormally large option exercises are identified by examining the ratio of this proportion with the average from the past up to three years depending on data availability.
  - Firms for which this ratio increases by more than fifty percent are classified as having abnormally large exercises.
  - For each firm with abnormally large ESOs exercise, we only identify the year corresponding to the highest record with respect to its own historical exercise patterns as the exercise year (year 0).

Research Design

- **We then match a firm-year with abnormally high exercise with a firm that has normal exercises in the exercise year (year 0) based on:**
  - the same industry (on the basis of two-digit SIC code)
  - belonging to the same stock-return quintile in year–1, closest market capitalization,
  - is not in the test sample in the current or prior years.

- All firms in the test and control sample are required to have complete information from years -2 to +1.

- Because stock-option-exercise data provided by S&P *Execucomp* database is only on an annual basis, we can not precisely pinpoint the option exercise during year 0.

Research Design

- **Proxy for abnormal Returns:**
  - We use Four-factor model (Carhart 1997)

- **Proxy for abnormal earnings management:**
  - Discretionary accruals estimated by performance-matched Jones model developed by Kothari et al. (2005).

Variable Measurement

We use Four-factor model (Carhart 1997)

$$R_i - R_f = \alpha_0 + \alpha_1(R_m - R_f) + \alpha_2 SMB + \alpha_3 HML + \alpha_4 UMD + \varepsilon \quad (1)$$

where:

$R_i - R_f =$ Annualized return for the *i*th firm in excess of the annualized monthly T-bill return.

$R_m =$ Value weighted annualized monthly return on the market portfolio that consists of all NYSE, AMEX, and NASDAQ firms.

$SMB =$ Small Minus Big. Annualized monthly returns on value-weighted and zero investment factor mimicking portfolios for firm-size.

$HML =$ High Minus Low. Annualized monthly returns on value-weighted and zero investment factor mimicking portfolios for book-to-market equity.

$UMD =$ Up Minus Down. Annualized monthly returns on value-weighted and zero investment factor mimicking portfolios for one-year momentum in stock returns, respectively.

Variable Measurement

Performance-matched modified Jones Model (Kothari et al. 2005)

$$\frac{TACC_{t,ij}}{A_{t-1,ij}} = \alpha_1 \frac{1}{A_{t-1,ij}} + \alpha_2 \frac{PPE_{t,ij}}{A_{t-1,ij}} + \alpha_3 \frac{\Delta REV_{t,ij}}{A_{t-1,ij}} + \alpha_4 ROA_t + \varepsilon \qquad (2)$$

Where:

TA_{tij} = Total accruals in year t of the ith firm in the jth industry, measured as the difference between income before extraordinary items and cash flow from operations in year t

$A_{t-1,ij}$ = Total assets at the beginning of year t of the ith firm in the jth industry

PPE_{tij} = Gross property, plant, and equipment at the end of the year t of the jth firm in the jth industry

ΔREV_{tij} = Revenues in year t less revenues in year t-1 of the ith firm in the jth industry

$ROA_{t,ij}$ = Return on assets at year t for of the ith firm in the jth industry.

Table 1 Sample Selection

Criterion	Number of Firm Years	Number of Distinct Firms
Preliminary merged financial, stock return, compensation, and corporate governance data (1992-2010)	166,718	19,011
Less: Firms in financial services industry	(14,930)	(1,947)
Less: Observations fewer than six consecutive years and with missing value	(49,958)	(6,949)
Data available	101,830	10,115
Less: firms with exercise below cutoff and firms attributing to abnormally large exercise but with missing value in any of the event year (-2, +1).	(79,553)	(8,631)
Data with abnormally large exercise	22,277	1,484
Less: control firms unavailable	(16,882)	(1,131)
Final matched sample of large ESO exercise	5,395	353

Table 2 Industry and Time Sample Distribution

Panel A: Industry Distribution

Two-Digit SIC Code	Firm-years	% of Sample	Two-Digit SIC Code	Firm-years	% of Sample	Two-Digit SIC Code	Firm-years	% of Sample
10	83	1.5%	34	100	1.9%	51	91	1.7%
13	379	7.0	35	423	7.8	53	20	0.4
16	19	0.4	36	641	11.9	54	20	0.4
20	105	1.9	37	116	2.2	56	68	1.3
23	51	0.9	38	358	6.6	58	10	0.2
24	20	0.4	39	16	0.3	59	94	1.7
26	34	0.6	42	38	0.7	73	808	15.0
27	56	1.0	44	20	0.4	75	17	0.3
28	758	14.1	45	19	0.4	79	68	1.3
29	40	0.7	48	135	2.5	80	99	1.8
30	29	0.5	49	306	5.7	87	89	1.6
33	87	1.6	50	178	3.3			

Panel B: Time Distribution of ESOs Exercise

Year	Number of Firms	% of Sample	Year	Number of Firms	% of Sample
1993	9	2.5	2002	18	5.1
1994	11	3.1	2003	40	11.3
1995	21	5.9	2004	20	5.7
1996	26	7.4	2005	51	14.4
1997	29	8.2	2006	14	4.0
1998	12	3.4	2007	19	5.4
1999	22	6.2	2008	15	4.2
2000	13	3.7	2009	13	3.7
2001	20	5.7			

Table 3 Descriptive Statistics

Panel A: Comparison of Test Firms and Control Firms in the Event Year

	Mean			Median		
Variable	Test firm	Control Firm	Difference (t-stat.)	Test firm	Control Firm	Difference (z-stat.)
Market Capitalization ($millions)	2,058	1,272	786 (3.81)***	679	607	72 (2.86)***
Revenue ($millions)	2,066	2,682	-616 (-0.92)	647	402	245 (4.38)***
Total Assets ($millions)	2,314	3,455	-1,141 (-1.32)	683	473	210 (2.58)***
Amount from ESOs exercise ($millions)	7.95	1.21	6.74 (6.10)***	2.88	0	2.88 (21.05)***
% Compensation from ESOs	43.8	5.5	38.4 (22.75)***	40.8	0	40.8 (21.09)***

Panel B: Comparison of Test Firms and Control Firms in Event Year and Event Years

	Mean			Median		
Variable	Event Year	Non-Event Years	Difference (t-stat.)	Event Year	Non-Event Years	Difference (z-stat.)
% Compensation from ESOs	43.8	14.4	29.4 (21.00)***	40.8	1.2	39.6 (22.08)***
Amount from ESOs exercise ($millions)	7.9	2.3	5.6 (5.52)***	2.8	0.1	2.7 (20.90)***

Stock Returns around Stock Option Exercises

Table 4: Stock Returns and Abnormal Returns around Stock Options Exercises

Panel A: Annual Returns

		Mean Raw Returns				Abnormal Returns			
Year	N	Test Firms	Control Firms	(T)-(C)	T-Stat.	Test Firms	Control Firms	(T)-(C)	T-Stat.
-3	331	2.00%	1.75%	0.25%	0.14	1.42%	1.67%	-0.25%	-0.15
-2	353	6.47	6.55	-0.07	-0.04	3.66	3.55	0.11	0.06
-1	353	8.78	8.14	0.64	0.40	7.99	6.69	1.30	0.87
0	353	5.05	1.04	4.01	2.42**	2.51	-1.99	4.51	2.97***
1	353	3.73	2.83	0.90	0.56	2.28	1.09	1.19	0.77
2	300	2.78	2.53	0.25	0.14	0.49	0.07	0.42	0.25
(-1,0)	706	6.92	4.59	2.32		5.25	2.35	2.90	
(1, 2)	653	3.29	2.70	0.59		1.46	0.65	0.81	
Change		-3.62	-1.88	-1.74		-3.79	-1.69	-1.93	
(T stat.)		(-3.17)***	(-1.54)	(-1.21)		(-3.19)***	(-1.47)	(-1.68*)	

Panel B: Stock Returns Difference between Samples Partitioned by Corporate Governance Scores Quintiles

Quintile	N	Event Years					
		-3	-2	-1	0	1	2
1st	568	1.53%	0.36%	-0.38%	6.80%**	-0.78%	2.72%
2nd	463	2.04	-0.54	3.21	-0.69	4.95	-5.11
3rd	369	2.72	0.13	-0.86	2.97	2.11	7.94
4th	346	-5.13	-1.24	3.06	3.93	-3.38	3.49
5th	297	-7.92	4.55	2.00	9.76**	0.24	-3.06

Panel C: Abnormal Returns Difference between Samples Partitioned by Corporate Governance Scores Quintiles

Quintile	N	Event Years					
		-3	-2	-1	0	1	2
1st	568	2.93%	0.65%	2.39%	6.54%**	2.50%	4.08%
2nd	463	0.94	-1.05	1.55	0.46	2.83	-4.80
3rd	369	0.69	0.91	-1.04	2.80	2.30	8.28
4th	346	-5.00	-1.23	3.86	3.81	-5.55	1.82
5th	297	-7.79	5.06	2.39	11.09***	1.64	-7.57

Table 5: Discretionary Accruals and Earnings around Event Years

Panel A: Discretionary Accruals and Non-Discretionary Accruals across Event Years

		Mean Discretionary Accruals				Mean Non-Discretionary Accruals			
Year	N	Test Firms	Control Firms	(T)-(C)	T-stat.	Test Firms	Control Firms	(T)-(C)	T-stat.
-3	331	-0.05	-0.08	0.03	0.92	-0.65	-0.34	-0.30	-0.83
-2	353	-0.01	-0.08	0.06	2.17**	-0.20	0.01	-0.21	-0.93
-1	353	0.01	-0.14	0.15	3.14***	-0.23	-0.24	0.01	0.02
0	353	0.02	0.01	0.01	0.37	-0.44	-1.48	1.04	0.92
1	353	-0.01	-0.05	0.03	1.37	-0.32	-0.00	-0.32	-0.76
2	300	0.02	-0.05	0.07	2.51**	-0.22	-0.20	-0.01	-0.04
(-1, 0)	706	0.01	-0.06	0.08		-0.33	-0.86	0.52	
(1, 2)	926	0.00	-0.05	0.05		-0.27	-0.09	-0.18	
Change		-0.01	0.01	-0.02		0.06	0.77	-0.71	
(T-stat.)		(-0.79)	(0.32)	(-0.72)		(0.24)	(1.32)	(-1.11)	

Panel B: Impact of Discretionary Accruals on Earnings

Year	N	Mean Change in Income before Extraordinary Items (Test minus Control)	T-stat	Mean Change in Income before Extraordinary Items Excluding Discretionary Accruals (Test minus Control)	T-stat.
-3	331	-0.01	-0.85	-0.05	-1.36
-2	353	0.01	0.28	-0.05	-1.49
-1	353	0.02	1.45	-0.12	-3.02***
0	353	0.05	1.79*	0.03	0.49
1	353	0.03	2.04**	-0.03	-0.14
2	300	-0.01	-0.85	-0.05	-1.36

Panel C: Discretionary Accruals Difference between Samples Partitioned by Corporate Governance Scores Quintiles

		Event Years					
Quintile	N	-3	-2	-1	0	1	2
1st	568	0.07	0.08	0.21**	0.12**	0.14*	0.13*
2nd	463	0.06	0.06*	0.10*	0.06	0.01	-0.03
3rd	369	0.05	0.06	0.04	-0.00	0.06	0.09
4th	346	0.09	0.04	0.39	-0.43	-0.08	0.01
5th	297	-0.46	0.11	0.14	0.08*	0.04	0.14***

Table 6: Dividend Policy around Event Years

Panel A: Dividend Yields across Event Years

Year	N	Dividend Yields			
		Test Firms	Control Firms	(T)-(C)	T-stat.
-3	331	1.23%	0.52%	0.71%	2.42**
-2	353	0.84	0.64	0.19	1.72*
-1	353	0.76	0.62	0.14	1.31
0	353	0.97	0.64	0.32	1.26
1	353	0.80	0.68	0.12	0.92
2	300	0.89	0.60	0.29	2.07**
(-1, 0)	706	0.87	0.63	0.23	
(1, 2)	926	0.84	0.64	0.19	
Change		-0.02	0.01	-0.02	
(T-stat.)		(-0.19)	(0.11)	(-0.14)	

Panel B: Difference in Dividend Yields between Samples Partitioned by Corporate Governance Scores Quintiles

Quintile	N	Event Years					
		-3	-2	-1	0	1	2
1st	568	0.09	0.37*	0.42*	0.07	0.19	0.14
2nd	463	0.51*	-0.11	-0.18	0.69	-0.48	-0.37
3rd	369	1.41	0.17	0.04	0.01	0.03	0.10
4th	346	1.05***	0.57***	0.16	0.21	0.43**	0.89***
5th	297	-0.08	0.24	0.16	0.30**	0.32***	0.64**

Additional Checks

- ***Sample Selection Criterion***
  - We tune up the exercise criterion in the sample selection procedure and require that the sample firms must have all event years from year -3 to year +1. The unreported results are qualitatively similar to the main findings.

- ***Market Model***
  - To ensure our results are not driven by the bias in the estimation of abnormal returns, we re-perform the work based on market model developed by Sharpe (1964) and Fama-French three factor model. The unreported results remain qualitatively similar.

Conclusion

- We find that executives tend to exploit dividend policies in their decision of timing ESOs Exercise in addition to earnings management.

- Specifically, we find that managers of poorly governed firms tend to opportunistically earn cash payout in their ESOs exercises through earnings management.

- Managers of well governed firms tend to largely exercise their stock options in the first year the firm has high dividend yield.


Thank you