Stock Option Grants and Firm Value When Directors Cannot Behave Opportunistically[*]

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Abstract

Most studies of the price impact of option grants issued by US firms are confounded by the potential for opportunistic behavior on the part of granting firms, such as backdating of awards or favourable timing of information releases. In Australia, such practices are limited, so a cleaner test of the wealth effects of option grants is possible. We find that the market reacts positively on average to the announcement of option grants, and particularly so for grants to non-executive directors that are not accompanied by an increase in fees. We also investigate the decision to award options to non-executive directors – a practice contrary to the Australian corporate governance guidelines – and find that firms with smaller size, higher risk, lower liquidity and higher cash balances are more likely to make such awards.

Key words: option grants, executive and non-executive directors, director fees

1. Introduction

Agency theory predicts that well designed compensation schemes should align the interests of managers and shareholders and encourage managers to make decisions consistent with increasing shareholder wealth (e.g., Jensen and Murphy, 1990). Many United States (US) studies have tested this prediction by estimating the impact of option grants on shareholder wealth. Consistent with the agency framework view, Brickley, Bhagat and Lease (1985), Defusco, Johnson and Zorn (1990), Yermack (1997), Aboody and Kasznik (2000), and Morgan and Poulsen (2001) all report significant increases in shareholder wealth around the time of option grant announcements. On the other hand, Chauvin and Shenoy (2001), Lie (2005), Narayanan and Seyhun (2007), and Heron and Lie (2007) all find that shareholder returns are abnormally *low* during the period immediately prior to the grant announcements. They conclude that the abnormal share price increase associated with option grant announcements is due not to the market recognizing and rewarding a long-term alignment of incentives, but rather to firms engaging in various kinds of opportunistic behaviour, such as the backdating of grants and/or the timing of information releases.[1] As a result, this literature is uncertain about whether the price reaction associated with option grant announcements is due to the market interpreting such announcements as a positive signal about future performance or to option-granting firms choosing the timing of option awards to coincide with anticipated stock price increases.

In this paper, we exploit a unique feature of the Australian investment environment that

[1] Narayanan and Seyhun (2007) argue that the major overhaul of US executive compensation disclosure rules announced by the SEC in July 2006 will make it more difficult for US firms to engage in these practices in future.

allows us to distinguish between these two alternatives. In Australia, listing rules require that changes to the remuneration of executive and non-executive directors be approved in advance by shareholders at the annual general meeting (AGM), where items needing approval include the terms of any option grants, such as the award date and the exercise price. By reducing the scope for opportunistic behavior in the granting of options, such a setting is ideal for estimating the valuation impact of the announcement of such grants and for determining market perceptions about their role in reducing moral hazard.

With the exception of Fich and Shivdasani (2005), prior studies have focused on grants to executive directors only, but we pay special attention to grants made to non-executive directors. The Australian Stock Exchange Corporate Governance Council's (ASXCGC) Principles and Recommendations states that non-executive directors should not participate in stock option plans, yet a number of firms in our sample regularly include them in option awards. We therefore investigate the determinants of the decision to grant options to non-executive directors and thus shed light on why some firms act contrary to the ASXCGC recommendations. .

The next section describes our data sample and its essential properties. In section 3, we first examine the price reaction to the announcement of option grants, including the difference between executive director and non-executive director grants, and then consider the interaction of option grants with increases in director fees. Section 4 investigates the determinants of the decision to include non-executive directors in option grants. Some concluding remarks appear in section 5.

2. Data and Sample

In this section, we describe the sample selection procedure and the principal characteristics of our sample. Option grants announced between 1998 and 2006 by Australian public companies listed on the Australian Stock Exchange (ASX) constitute our primary source of data. We obtain information about these announcements from three databases: Aspect FinAnalysis, Connect 4 and IRESS. The announcement dates of grants are obtained from Aspect FinAnalysis. The Connect 4 and IRESS databases provide the exercise price and the total number of share options granted to executive and non-executive directors.[2] .

Our initial sample contains 1,240 option grants. From this, we exclude (see Table 1 for details) issues that were announced simultaneously with mergers, takeovers, equity offering, debt offerings, buybacks, stock dividends/splits, and the issuance of convertible bonds, convertible preference shares, and warrants. In addition, we delete grants made by companies suspended from official listing on the ASX at the time of the grant announcement. This leaves us with a final sample of 633 option grant announcements. Each of these announcements is classified according to whether it applies to executive directors (ED) only, to non-executive directors (NED) only, or to both.

INSERT TABLE 1 ABOUT HERE

Table 2 presents a summary of the composition of our sample, with Panel A providing the

[2] These latter two databases are also used to verify the announcement date.

yearly breakdown and Panel B providing a categorization by industry. Overall, option grants are most commonly made in the most recent years of our sample (47.2% in 2005-06), solely or jointly to EDs (84.2%), and in the materials industry (31.3%). For NEDs, options are predominantly issued by companies operating in the materials, health care and financial sectors.

INSERT TABLE 2 ABOUT HERE

For each option grant, we use Datastream to obtain (i) daily share price data (adjusted for dividends) from one year prior to the date of the notice of the AGM (that identifies option grants for approval at the AGM) to the day after the AGM, (ii) the market capitalization of equity one month prior to the option grant announcement and (iii) the balance sheet date immediately prior to the option grant announcement. In addition, we use the Aspect FinAnalysis database to source (at the balance sheet date immediately prior to the option grant announcement) various accounting characteristics of the granting firms. Full definitions of all these variables appear in Table 3.

INSERT TABLE 3 ABOUT HERE

Table 4 presents sample mean and median values for these financial variables and provides some basic non-parametric univariate tests (Kruskal-Wallis and Mann Whitney) for the difference in median values across the various director sub-groups. Perhaps most strikingly, companies that issue option grants to non-executive directors are smaller, carry less debt, have higher idiosyncratic

risk, and are less profitable than those that issue option grants to executive directors only.

INSERT TABLE 4 ABOUT HERE

3 Wealth effects of option grants

We use the event study framework to examine the impact of option grant announcements on share prices. The daily returns are measured in logarithmic form adjusted for dividends. Abnormal returns are generated for various event windows: the day before announcement date to day after the announcement, where the day of the notice of the AGM is A0 (day –A1 to day A1); the day before the AGM date to the day after the AGM (day –C1 to day C1); and the day before the notice of AGM to the day after the AGM (day -A1 to day C1). We use the market model to estimate expected returns, based on an estimation period of 260 days prior to the announcement day to 61 days before the announcement day (day –A260 to day –A61). The market portfolio proxy is the Australian All Ordinaries Share Index, a broadly-based index comprising approximately the Top 300 stocks ranked by market capitalisation. To determine the precision of estimated abnormal returns, we use the standardised residual test statistic.

Panel A of Table 5 reports the abnormal returns for the full sample and for each of the director sub-groups. With regard to the full sample, the average abnormal return is significantly positive (1% level) at 1.14% for the three-day announcement period around the notice of the AGM; is significantly positive (1% level) at 0.82% for the period from the day before the AGM to the day after the AGM (day –C1 to day C1); and is significantly positive (1% level) at 3.56% for the day before the notice of AGM to the day after the AGM (day –A1 to day C1). These results suggest that

in the absence of any ability for directors to behave opportunistically with respect to the timing of option grants, the increased sensitivity of remuneration to performance implied by such grants is interpreted as a positive signal about future firm performance.

In the director sub-group samples, the price reaction is uniformly and significantly positive for all sub-groups for all event windows reported. That is, the market reacts positively to option grants irrespective of the executive versus non-executive classification. However, the magnitude is much greater (by between two and four times) for the grants made to NEDs only. This is perhaps surprising considering that ASXCGC recommends against issuing options to NEDs.

INSERT TABLE 5 ABOUT HERE

Panel B of Table 5 reports the results from partitioning the ED sub-sample according to whether or not there is a corresponding increase in NED fees. When there is no corresponding change in NED fees, the average price reaction for the three event windows is strongly positive at the 1% significance level. By contrast, when there is an increase in NED fees, the price reaction is significantly negative for the event windows day –C1 to day C1 and day –A1 to day +C1 and insignificantly negative for the event window day –A1 to day +A1. Similarly, the differences between the two subgroups are significant at the 10% level or better. These results suggest that the market views the incentive-alignment potential of any ED option grant as at least partly dependent on its packaging with other director remuneration components.

Panel C of Table 5 contains the results from partitioning the NED sub-sample according to whether or not there is a corresponding increase in NED fees. When there is no corresponding

change in NED fees, the average market reaction is significantly positive (at the 1% level) for all event windows. However, the reaction is less marked when NED fees rise simultaneously: now the price reaction is significantly positive only for the event widow day –A1 to day A1. Moreover, the difference in abnormal returns between the two fee change subgroups is statistically insignificant for all event windows.

Finally, panel D of Table 5 repeats the analysis of panels B and C for the sub-sample of option grants made to both EDs and NEDs simultaneously. When there is no change in NED fees, the average market reaction is significantly positive (at the 1% level) for all event windows. By contrast, when NED fees rise, the price reaction is significantly negative for the event widow day –A1 to day C1 and insignificantly different from zero for other event windows day –C1 to day +C1 and day –A1 to day +A1 for the subgroup with increase in non-executive directors fees.

Overall, Table 5 has three principal implications. First, in a setting where directors are unable to behave opportunistically, the strongly positive reaction to option grant announcements suggests that the market does indeed see such grants as assisting with the alignment of incentives. In turn, this implies that stock options can indeed be an important part of board remuneration packages in the right circumstances. Second, the market apparently sees greater incentive-alignment emanating from grants to NEDs than from grants to EDs. This outcome is interesting insofar as the ASXCGC recommends against issuing option grants to NEDs. Third, the extra value created by the incentive-alignment properties of options is significantly tempered if accompanied by increases in director fees. This suggests that investors see potential problems in a 'have-their-cake-and-eat-it-too' approach to director remuneration.

4 The issuance of stock options to non-executive directors

The previous section produced the surprising finding that the market values option grants to NEDs more highly than grants to EDs. This raises an obvious question – why don't more firms grant options to EDs? To make a preliminary stab at addressing this question, we examine the factors determining the issuance choice of option plans to non-executive directors using a logistic regression framework. The dependent variable is the issue choice which takes a value of zero for an option plans issued to executive directors only and unity otherwise. The regressor set is determined on the basis of the key economic variables discussed in Section 2.

The set of independent variables used are *LMV*: is the natural logarithm of the market value of the company (which would be associated with higher monitoring costs), *RUNUP*: raw return for the one-year period prior to the announcement date (return from -260 to day -2); *LBM:* the natural logarithm of book to market ratio (a variable reflecting growth potential), CASH/TA: cash to total assets ratio; LNPREPBAN1YR: average proportionate bid-ask spread for an year prior to the announcement of option plan; LDEBTR: long term debt ratio; ;NPAT/TA: net profit after tax to total assets; and IDYRISK (idiosyncratic risk).

Estimation results for various structural specifications of the logistic regression models are reported in Table 6. In general, small and risky firms with little long-term debt are significantly more likely to issue options to NEDs, suggesting that such firms have more to gain from such grants. Of course, the interesting question is whether such company attributes can help explain the abnormal return premium associated with grants to NEDs, a topic we intend to address in a subsequent version of this paper.

INSERT TABLE 6 ABOUT HERE

5. Concluding Remarks

This paper investigates the shareholder wealth effects of option grant announcements. We examine 633 option grants announced between 1998 and 2006 by Australian listed public companies. We find that market react positively to option grant announcements. Comparing the price reactions based on the recipients being executive directors only, non-executive directors only and both executive directors and non-executive directors, we find that price reaction is significantly positive for all sub-groups for all event windows. This suggests that the favourable view of option grants is independent of the grant recipients. However, the market reacts more positively to option grants to non-executive directors only relative to executive directors only. We also partition the subsample of option grants to executive directors, non executive directors and both, based on increase in non-executive directors' fees versus no change in non-executive directors' fees simultaneously with the grant. We find that market prefers option grants to NEDs than increase in their fees.

One interesting feature of our sample is the relatively high – although still fairly uncommon – incidence of grants to NEDs. We find that firms with higher information asymmetry (smaller size, lower liquidity, lower debt ratio, lower profitability and higher growth opportunity) issue option grants to NEDs violating ASXCGC recommendations.

We conclude that despite concerns raised about the excessiveness of executive option awards and the dysfunctional behaviour that they may encourage, the market participants value their role in inducing directors to act in shareholders best interests. Our results suggest that the market

discriminates between option grant announcements to NEDs that are more efficient in aligning managers-shareholders interest and remuneration to performance.

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Table 1: Summary of Sample Selection and Exclusions

Reason for sample exclusion		
Initial sample of option grants before exclusions		1239
Less exclusions		
Announced simultaneously with equity offerings/debt offerings	398	
Announced simultaneously issue of options (warrants)	10	
Announced simultaneously issue of convertible notes/stocks	23	
Announced simultaneously with buyback or stock split or share consolidation	67	
Announced simultaneously with dividend re-investment plan or share purchase plan or disposal of marketable shares	29	
Announced simultaneously with merger or acquisition, joint venture, alliance or expansion announcement	27	
Share price/accounting data not available for the estimation period	40	
Resolution not passed	3	
Delisted/Trading Halt	9	
Total exclusions		606
Final sample of option grants		633

Table 2: Distribution of Australian Option Grants: 1998 to 2006

This table provides the annual (panel A) and industry (panel B) breakdowns of option grantes by Australian firms between 1998 and 2006.

Panel A: Classification based on years

Year	All Categories	ED only	NED only	Both ED and NED
1998	24	16	3	5
1999	33	22	2	9
2000	36	19	2	15
2001	50	32	4	14
2002	42	26	6	10
2003	53	33	9	11
2004	96	44	18	34
2005	131	68	21	42
2006	168	69	35	64
Total	633	329	100	204

Panel B: Classification based on industry sectors

Industry Sector	All Categories	ED only	NED only	Both ED and NED
Energy	77	31	7	39
Materials	198	96	32	70
Consumer Discretionary	69	46	6	17
Financial	60	34	15	11
Industrials	55	31	10	14
Consumer Staples	31	29	-	2
Health Care	87	41	17	29
Information Technology	44	14	10	20
Telecommunication Services	8	4	3	1
Utilities	4	3	-	1
Total	633	329	100	204

Table 3: Definition of the variables used in this study

Variable Name	Definition
AGMMMN1P1	is three-day abnormal price movement from the day before the general meeting to the day after.
BM	is the book to market ratio at the B/S date prior to the option grant announcement.
BH	is the proportion of shares owned by blockholders of 5% or more at the B/S date prior to the option grant announcement.
CASH/TA	Cash or cash equivalents to total assets at the B/S date prior to the option grant announcement.
DED	is a dummy variable takes a value of unity if options are issued to executive directors only and zero other wise.
DEDNED	is a dummy variable takes a value of unity if options are issued to both executive directors and non-executive directors and zero other wise.
DNED	is a dummy variable takes a value of unity if options are issued to non-executive directors only and zero other wise.
DEBTR	is the ratio of total debt to total assets at the B/S date prior to the option grant announcement.
EPTOSPN2	is the ratio of the highest exercise price to pre-announcement price (pre-announcement price = price at two days prior to the notice of general meeting).
IDYRISK	is the idiosyncratic risk measured as the standard error of the market model regression of daily stock returns over the period from day –260 to day –61 for each issuing company
LDEBTR	is the ratio of long term debt to total assets at the B/S date prior to the option grant announcement.
LEPGD (in years)	is the difference between the expiry date of the grant and the grant date.
LMV	is the natural logarithm of the market value of the company, a potential quality proxy, one month prior to the option grant announcement.
LNPREPBAN1YR	is the natural logarithm of the average daily Proportionate Bid-Ask Spread for a year prior to the announcement date;
NGMMMN1P1	is three-day abnormal price movement from the day before the notice of general meeting to the day after.
NGAGMMMN1P1	is the market reaction over the period from the day before the notice of general meeting to the day after AGM
PREPBAN1YR	is the average daily proportionate Bid-Ask Spread for a year prior to the announcement date;
RUNUP	is raw return for the one-year period prior to the announcement date (return from -260 to day -2).
TOP1	is the proportion of shares held by the top one shareholder relative to total shares outstanding at the balance sheet date immediately prior to the option announcement, a concentration measure.
TOP20	is the proportion of shares held by the top twenty shareholders relative to total shares outstanding at the balance sheet date immediately prior to the option announcement, a concentration measure.
VESTP	is the difference between earliest exercise date and grant date in years (initial vesting period).

Table 4 Financial Characteristics

This table compares financial characteristics across three groups: executive directors only (column (1)); non executive directors only (column (2)); both executive directors and non- executive directors (column (3)). All characteristics are defined in Table 4.The table also provides non-parametric, Kruskal–Wallis (KW) and Mann-Whitney (M-W) test statistics for the difference in median values across the different groupings. * Significantly different from zero at the 10% level, ** significantly different from zero at the 5% level, and *** significantly different from zero at the 1% level.

	ED only (1)	NED only (2)	Both ED and NED (3)	KW test	MW test (2) vs (3)
Market value (millions of dollars)					
Mean	1353.99	69.06	130.37	85.80***	1.11
Median	109.94	21.52	24.15		
Book-to-market ratio (BM)					
Mean	0.69	0.69	0.62	10.73***	0.80
Median	0.69	0.61	0.56		
Total assets (millions of dollars)					
Mean	6766.49	50.06	201.81	95.11***	0.15
Median	73.09	13.67	13.70		
Debt ratio (DEBTR)					
Mean (percent)	15.18	7.44	7.66	46.93***	0.40
Median (percent)	8.72	0.02	0.24		
Long term debt ratio (LDEBTR)					
Mean (percent)	11.00	3.87	5.00	52.91***	1.23
Median (percent)	3.20	0.00	0.00		
NPAT/TA					
Mean (percent)	-8.69	-19.37	-22.84	38.14***	0.16
Median (percent)	1.11	-8.15	-7.17		
CASH/TA					
Mean (percent)	22.14	32.66	31.96	37.83***	0.73
Median (percent)	10.77	25.61	24.03		
RUNUP					
Mean (percent)	22.97	30.85	66.95	3.07	1.60
Median (percent)	10.43	0.28	12.92		
IDYRISK					
Mean (percent)	3.31	5.19	4.99	106.22***	0.59
Median (percent)	2.88	4.55	4.58		
PREPBAN1YR					
Mean (percent)	3.53	6.48	5.72	84.35***	1.60
Median (percent)	2.07	4.85	4.13		
LEPGD (years)					
Mean	4.68	3.73	4.15	25.37***	1.40
Median	5.00	3.29	4.44		
Sample size	329	100	204		

Table 5: Price reaction to Option Grant Announcements

Panel A of this table provides price reaction to option announcements across three groups: executive directors only (ED); non executive directors only (NED); both executive directors and non- executive directors (EDNED) around the announcement of notice of AGM, around the AGM date where issuance options are approved by shareholders; and from the day before notice of AGM to day after the AGM date. Panels B/C/D provide price reaction partitioning the sample of ED, NED and EDNED categories into those announced with increase in NED fees and no announcement of NED fees. ED = Executive Directors and NED = Non Executive Directors

Panel A – ED only versus NED only versus both ED and NED Option Grants						
		All	ED Only	NED Only	Both ED and NED	ANOVA-test
Three day window around Notice of AGM (-A1 to A1)	MEAN (%)	1.14	0.96	2.43	0.80	1.46
	MEDIAN (%)	0.27	0.30	0.75	0.21	
	SRT	(7.05)***	(4.07)***	(3.60)***	(4.74)***	
Three day window around AGM (-C1 to C1)	MEAN (%)	0.82	0.74	1.33	0.71	0.25
	MEDIAN (%)	0.64	0.60	0.82	0.58	
	SRT	(5.26)***	(2.74)***	(2.53)**	(4.03)***	
Day before the Notice to day after the AGM (-A1 to C1)	MEAN (%)	3.56	2.45	9.84	2.29	5.67***
	MEDIAN (%)	2.58	1.56	5.38	3.00	
	SRT	(16.74)***	(7.34)***	(16.78)***	(8.41)***	
Sample Size		633	329	100	204	

Panel B – Executive directors only: No changes in /NED fees versus increase in NED fees				
		No information on changes in fees	Increase in NEDs fees	
Three day window around Notice of AGM (-A1 to A1)	MEAN (%)	1.22	0.09	1.68*
	MEDIAN (%)	0.51	-0.04	
	SRT	(4.56)***	(0.14)	
Three day window around AGM (-C1 to C1)	MEAN (%)	1.08	-0.40	1.89*
	MEDIAN (%)	0.76	-0.14	
	SRT	(4.41)***	(-2.34)**	
Day before the Notice to day after the AGM (-A1 to C1)	MEAN (%)	4.02	-2.81	3.79***
	MEDIAN (%)	2.97	-2.23	
	SRT	(14.44)***	(-11.07)***	
Sample Size		253	76	

Panel C – Non-Executive directors only: No changes in NED fees versus increase in NED fees				
		No changes in NED fees	Increase in NED fees	*t*-test
Three day window around Notice of AGM (-A1 to A1)	MEAN (%)	2.32	2.86	-0.30
	MEDIAN (%)	0.41	2.10	
	SRT	(2.70)**	(2.66)**	
Three day window around AGM (-C1 to C1)	MEAN (%)	1.73	-0.29	0.96
	MEDIAN (%)	1.01	0.07	
	SRT	(2.81)***	(-0.01)	
Day before the Notice to day after the AGM (-A1 to C1)	MEAN (%)	11.44	3.42	1.09
	MEDIAN (%)	6.00	-5.06	
	SRT	(18.38)***	(0.75)	
Sample Size		80	20	

Panel D –Options to ED and NED: No changes in NED fees versus increase in NED fees				
		No changes in NED fees	Increase in NED fees	
Three day window around Notice of AGM (-A1 to A1)	MEAN (%)	1.13	-0.66	1.26
	MEDIAN (%)	0.20	-0.66	
	SRT	(5.76)***	(-1.06)	
Three day window around AGM (-C1 to C1)	MEAN (%)	0.98	-0.45	1.32
	MEDIAN (%)	0.62	0.22	
	SRT	(4.73)***	(-0.56)	
Day before the Notice to day after the AGM (-A1 to C1)	MEAN (%)	3.10	-1.23	1.89*
	MEDIAN (%)	3.06	-0.25	
	SRT	(6.71)***	(-2.21)**	
Sample Size		166	38	

Table 6: Decision to Issue of Options to Non-Executive directors - Logistic Regression Analysis

The dependent variable is DINED which takes the value of unity if option plan is issued to non-executive directors or both and zero for issuance of option to executive directors only. Independent variables used are *LMV*: is the natural logarithm of the market value of the company (which would be associated with higher monitoring costs), *RUNUP*: raw return for the one-year period prior to the announcement date (return from -260 to day -2); *LBM:* the natural logarithm of book to market ratio (a variable reflecting growth potential), CASH/TA: cash to total assets ratio; LNPREPBAN1YR: average proportionate bid-ask spread for an year prior to the announcement of option plan; LDEBTR: long term debt ratio; ;NPAT/TA: net profit after tax to total assets; and IDYRISK (idiosyncratic risk).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13
Constant	0.0232 (0.03)	-0.1113 (-0.16)	0.2277 (0.53)	0.5014 (0.78)	0.5161 (0.760	0.0276 (0.06)	0.3783 (0.58)	-0.4865 (-4.16)***	-0.1542 (-1.83)*	-0.1995 (-2.31)**	2.9310 (8.06)***	1.7711 (8.02)***	-1.8197 (-8.62)***
LMV	-0.4428 (-3.44)***	-0.4041 (-3.23)***	-0.2974 (-4.44)***			-0.2418 (-3.83)***						-0.4614 (-8.82)***	
IDYRISK	0.2440 (3.75)***	0.2302 (3.76)***	0.2300 (4.06)***	0.2527 (4.02)***	0.2449 (3.82)***	0.2411 (3.95)***	0.2549 (3.93)***						0.4310 (8.78)***
LDEBTR	-0.9501 (-1.10)	-0.8543 (-1.03)	-1.3790 (-1.70)*	-1.9946 (-2.49)**		-1.6787 (-2.10)**	-2.1225 (-2.66)***						
LNPREPBAN1YR	-0.1695 (-0.68)	-0.1613 (-0.65)		0.4298 (3.23)***	0.5235 (3.73)***		0.3856 (2.94)***				0.8652 (8.44)***		
RUNUP	0.3615 (2.23)**	0.3990 (2.58)***	0.4242 (2.91)***	0.3166 (2.19)**	0.1883 (1.88)*				0.2160 (3.06)***				
CASH/TA	-0.3141 (-0.73)							1.1765 (3.48)***					
NPAT/TA	0.3164 (1.04)							-0.6480 (-2.66)***		-0.7437 (-3.56)***			
LBM	-0.3784 (-2.30)**	-0.2532 (-1.82)*			-0.2657 (-1.99)**								
χ^2	106.98	109.72	107.70	95.29	123.17	101.24	89.55	31.01	9.36	14.07	87.32	99.02	102.72
p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0022	0.0002	0.0000	0.0000	0.0000
Pseudo R^2	0.1614	0.1591	0.1534	0.1427	0.1412	0.1438	0.1372	0.0354	0.0106	0.0160	0.1001	0.1130	0.1172
% correctly classified	68.9	69.2	69.2	67.8	69.0	68.1	67.8	59.1	56.2	58.1	65.6	65.9	67.5