CEO MANIPULATION OF STOCK-OPTION GRANTS: EVIDENCE FROM CANADIAN PUBLIC FIRMS

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ABSTRACT

Using a sample of unscheduled stock options granted to CEOs of large Canadian firms, we find reliable evidence of option grants manipulation. Our results show that the introduction of the two-day filing requirement following the Sarbanes-Oxley Act (SOX) has eliminated backdating practice by Canadian firms cross-listed in the U.S. stock market. Further, we find that SOX has altered the way Canadian domestic firms manipulate stock option grants. Most importantly, we find that cross-listed firms are likely to set stock option grants in harmony with the day-of-the-week effect. Our study suggests that Canadian regulators should at least adopt the SEC-initiated change and should also introduce new regulations that enhance the monitoring role of board of directors.

JEL classification: J22; M52

KEYWORDS: Executive stock option grants, backdating, cross-listing.

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INTRODUCTION

In the wake of earnings manipulation scandals and criticisms of excessive compensation packages in major firms such as Enron and WorldCom, executive stock options continue to be a much discussed topic. Recently, the U.S. Securities and Exchange Commission (SEC) has launched an investigation of several American companies on suspicion that they have been manipulating their stock option grants prices. As of September 4, 2007 about 130 public companies were under SEC scrutiny for past stock option grants ("Option Scorecard", The Wall Street Journal).[2] The stock option grants scandal that has swept through the United States has prompted a similar investigation in Canada. In fact, following the U.S. SEC, the Ontario Security Commission (OSC) has announced that it is investigating the stock option awards practices of several Canadian companies, while many other firms have launched their own internal investigations (McKenna, 2006). Although Canadian regulation with respect to stock option awards is considered to be tougher than in the U.S., we do not know to what extent, if any, this regulation would deter Canadian CEOs from manipulating their stock option awards.

Lie (2005) was the one who prompted those investigations, yet Yermack (1997) was the first to point out the issue of stock-option manipulation by opportunistic managers, showing that stock prices exhibit positive abnormal returns immediately after a CEO option grant date. Yermack interprets his findings as CEOs opportunistically *timing stock-option grants* to benefit from positive corporate news (e.g. strong earnings) that would drive up company's stock prices, and

[2] The investment and media community has also started their own investigations and have uncovered numerous cases of backdating, forcing several executives to resign (see for instance Forelle and Bandler, 2006, and Bandler and Scannell, 2006).

consequently the value of their stock options. Consistent with Yermack (1997), Aboody and Kasznik (2000) find positive abnormal returns after a grant date of scheduled CEOs' stock option grants. Chauvin and Shenoy (2001) document negative abnormal returns prior to CEOs' option grant dates. Aboody and Kasznik (2000) and Chauvin and Shenoy (2001) interpret these results as evidence that CEOs opportunistically *time information disclosure* around option grants, as opposed to Yermack's (1997) *timing of option grants* argument. More precisely, CEOs would delay any grant just after the disclosure of bad news and/or accelerate a grant shortly after the release of good news.

Unlike the timing of information disclosure, the timing of option grants relative to future market returns ascribes to opportunistic CEOs with an outstanding ability to forecast future market movements. Although some studies, such as Lakonishok and Lee (2001) and Narayanan and Seyhun (2007), provide evidence consistent with the view that some CEOs are capable of forecasting future market movements, the large and increasing number of companies currently under SEC investigation for possible manipulation of their option grants casts some doubt on this view. In fact, Lie (2005) provides a new explanation that requires much lower skills than market forecasting. Lie (2005) reports negative abnormal returns before a grant's date and positive abnormal returns afterward. While the author documents the same returns pattern for both unscheduled and scheduled option grants, he finds significantly stronger (negative and positive) returns for the former. Lie interprets these results as evidence that CEOs influence the compensation committee to time option grants retroactively by choosing a date when their share price was low, a practice known as *backdating*. The results of Lie (2005) do not, however, rule out *the timing of information disclosure* and *the timing of option grant* dates explanations. In other words, Lie's findings do not tell to what extent backdating explains abnormal returns

pattern around stock options grants. Heron and Lie (2007) investigate this issue and find that backdating explains most of the abnormal returns pattern around stock option grant dates. Heron and Lie (2006) report that 23.0% of unscheduled CEOs stock options granted before the two-day filing requirement that took effect on August 29, 2002, were backdated or otherwise manipulated and 10.0% afterward.

Another stream of studies looks at the underlying causes of backdating practice in the U.S and show that weaker corporate governance encourages opportunistic and powerful CEOs to engage in such rent extraction behavior. For instance, Collins, Gong and Li (2007) show that backdating firms are more likely to have boards dominated by dependent and gray directors, a higher proportion of outside directors appointed by the incumbent CEO, and higher incidence of the CEO serving also as a chairman of the board. Bizjak, Lemmon and Whitby (2007) and Collins, Gong and Li (2007) suggest that interlocking boards play a major role in the spreading of the backdating practice across U.S. public firms. Bebchuk, Grinstein and Peyer (2006) find that the documented practice of CEOs' stock option grant manipulations is also prevalent among outside directors' option grants. Heron and Lie (2006, 2007) document evidence of backdating even after the endorsement of the Sarbanes-Oxley Act (SOX), which emerged to fix several critical deficiencies in the U.S. corporate governance practices, including the stock option grant manipulation.

The widespread practice of backdating in the U.S. stock market and the fact that CEOs manage to extract private benefits in a legal system known to offer the world's best protection of shareholders' rights raises several important questions that are not addressed in the extant literature. For instance, is backdating restricted to U.S. firms or it is also a common practice among other public firms around the world? Is backdating more prevalent in countries with a

weaker legal system and corporate governance? Do foreign firms that choose to cross-list on the U.S. stock market engage in backdating practices? If yes, did they stop doing so after the two-day filing requirement took effect?

To answer these questions, we examined stock options grants using a sample of large Canadian public firms. Canadian regulations and corporate governance provide weaker protection of shareholders' rights than do those of the U.S. Moreover, Canadian securities represent the largest group of stocks listed in the U.S. from a single country where they are listed as ordinary shares whereas European or Asian companies are usually listed as American Depository Receipts (Eun and Sabherwal, 2003). Section two provides further details showing the importance of choosing the Canadian context to examine the stock option grants manipulation.

This paper contributes to the literature in several ways. First, to the best of our knowledge, this is the first study to examine the manipulation of option grants outside the U.S. context. Existing literature is built only on the U.S. market and hence does not tell whether such practice prevails also among public firms outside the U.S. If this turns out to be the case, then regulators will have to introduce effective measures to curb such corporate abuse.

Second, we add to the growing literature on the effect of cross-border listing on corporate practice by examining stock options granted to CEOs of Canadian firms listed on both Canadian and U.S. stock exchanges. The extant literature shows that cross-listing of foreign firms in U.S. stock exchanges enhances the protection of minority investors, increases analysts' following of a firm's stock, and constrains the consumption of private benefits of control (Baker, Nofsinger and Weaver, 2002; Doidge, Karolyi and Stulz, 2004; Karolyi et al., 2007 and Sabherwal, 2007,

among others).[3] Canadian firms cross-listed in U.S. stock exchanges have to meet the requirements of Canadian as well as the U.S. regulations. Hence, cross-listed firms will have to disclose stock option awards within two business days after the grant date instead of 10 days. In this paper, we test Lie's (2005) backdating hypothesis by examining stock returns of cross-listed firms around CEOs' option grant dates before and after the two-day filing requirement that took effect on August 29, 2002. If backdating is the origin of excessive abnormal returns around CEO stock option grants then we should document a significant reduction of excess return after the August 29, 2002. Heron and Lie (2006, 2007) results suggest that the new SEC regulation has reduced but did not eliminate backdating in U.S. firms. Our analysis will show whether the new SEC regulation is effective in curbing backdating practice in cross-listed firms.

Third, we take a closer look at the timing of stock options after August 29, 2002. The new legislation change should discourage backdating practices since the ability to backdate option grants on days where the stock price is low is substantially weakened. Given the new regulations, we argue that cross-listed firms will set grant dates consistent with the day-of-the-week effect. [4] No study, to our knowledge, has examined whether CEOs target a particular day of the week to

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[3] Baker, Powell, and Weaver (1999) and Baker, Nofsinger, and Weaver (2002) show that firms listed on the London Stock Exchange or New York Stock Exchange (NYSE) benefit from an increase in visibility measured by analysts' coverage. Reese and Weisbach (2002), Doidge (2004), Doidge, Karolyi, and Stulz (2004) and Karolyi et al. (2007) show that cross-listing on U.S. stock exchanges reduces the consumption of private benefits by controlling shareholders.

[4] This so-called 'day-of-the-week' anomaly has been empirically established for by, for example, French (1980), Gibbons and Hess (1981), Agrawal and Tandon (1994), Siegel (1998), Koh and Wong (2000). The main result is that average Monday rate of return is less than that for other days of the week.

set the grant date. There is abundant evidence that stock returns are statistically different across days of the week. If CEOs are manipulating stock option grant prices, they would probably set the grant date on the day where the stock market tends to be low and avoid the day on which the market is high. To test this hypothesis, we examine the day-of-the-week effect on the mean level for the S&P/TSX Canadian return index (using univariate and multivariate analyses). Once we identify the days on which the market returns are, on average, at their lowest and highest levels, we compute the percentage of stock options granted for each of the week-days. Evidence in support of this hypothesis is a significant contribution to the growing literature on manipulation of CEOs' stock option grants.

The remainder of the paper is organized as follows. Section two motivates the choice of the Canadian stock market. Section three describes our sample and research methodology. Section four discusses our empirical findings and section five concludes the paper.

1. Why Canada?

The Canadian market presents a special case to examine potential manipulation of stock option grants. Canadian and the U.S. regulations differ in some important aspects with respect to stock option awards. For instance, since the end of 1999, Canadian firms are required to disclose stock option awards within 10 days of the grant date.[5] In the U.S., the Sarbanes-Oxley corporate-governance act (effective August 29, 2002) has reduced the reporting of option grants from 45 days after the company's fiscal year-end to 2 business days after the grant date. Moreover, public firms in Canada are not allowed to issue in-the-money stock options as opposed to the U.S.

[5] Until 1999, Canadian firms had to report stock option grants within 10 days of the end of the month of the grant.

where there is no clear prohibition of this practice as long as proper accounting charges were taken.

Canada and the U.S. differ in several features of corporate governance as well. Ownership is highly concentrated in Canadian public firms but widely diffused in U.S. public firms. In Canada, a remarkably small group of large blockholders, or affiliated group of investors dominate the ownership scene, where wealthy families maintain some influence over public officials. In fact, Morck, Stangeland and Yeung (2000) report that 254 of the 500 largest Canadian companies represent privately held firms. The remaining 246 are public firms of which only 53 have broad ownership. Attig and Gadhoum (2003) extend Morck et al.'s analysis and find that more than 80% of all Canadian public firms have controlling shareholders with 40% controlled by wealthy families' groups. Attig and Gadhoum also report that 33% of public firms are controlled through pyramidal structures while 16% are controlled through shares with superior voting rights. These control mechanisms and the resulting excess of control enables the ultimate owners to internalize only a part of the financial costs related to their expropriation behavior. Yet they are able to gain the larger part of the generated private benefits.

Recent allegations of corporate wrongdoings in Canada such as Hollinger Inc. and Royal Group Technologies Inc. typify the use of control pyramids and multiple-class shares in expropriating minority shareholders. These governance failures allegedly involved related-party transactions and large fund transfers in the form of management agreements and improper "non-compete" fees from affiliated firms to their ultimate owners. Clearly, the corporate ownership and control structure in Canada is quite the opposite of the freestanding widely-held firm prototype

customary in the U.S and U.K.[6] Furthermore, while the U.S. corporate governance regime is mandatory, the Canadian regime is largely voluntary (see Anand, 2005).[7] High concentration of ownership coupled with the voluntary aspect of Canadian corporate governance may exacerbate managerial opportunism reflected, in our study, in greater manipulation of CEO stock option price.[8] It is noteworthy that high ownership concentration is a norm rather than an exception around the world, *which makes the present study of a general interest as well.*

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[6] Morck, Daniels and Yeung (2004) examine evolution of corporate ownership in Canada during the twentieth century and report that the emergence of family-controlled pyramidal groups is the outcome of government policies through the limitation of competition and introduction of generous tax reform favoring wealthy families. Morck et al. (2004) show that the absence of inter-corporate dividend taxation coupled with the abolition of inheritance taxes in the early 1970s led to the reemergence of family pyramids in the 1970s which virtually disappeared by the mid of the century. Morck (2003) argue that inter-corporate dividend taxation is a major obstacle to the formation of pyramidal groups citing the example of the U.S. being the only country among a sample of 33 countries to introduce such tax reform.

[7] Under Sarbanes-Oxley Act, several aspects of the U.S. regime have become mandatory. In Canada, however, the corporate governance regime (effective since 1995) consists of a list of best practice guidelines issued by Toronto Stock Exchange (TSX) that firms may but are not obliged to adopt (see Guidelines, in Toronto Stock Exchange, TSX Company Manual § 473, 2004). All listed firms, however, are required to disclose, in the proxy circular or annual report, the extent of their compliance with the guidelines and where its governance system differs from it. The TSX best practice guidelines addressed issues dealing with the board's mandate; board independence and composition (including minority shareholder representation); independence of board committees; board approval; procedures for recruiting new directors and assessing board performance; measures for receiving shareholder feedback; and the board's expectations of management.

[8] Anand, Milne and Purda (2006) examine the governance practices of Canadian firms listed on the Toronto Stock Exchange from 1999 to 2003, and find that the presence of executive block holder or a majority shareholder is negatively associated with voluntary adoption.

2. Sample and Research Methodology

2.1. Sample

We obtained our sample of CEOs' stock option grants from proxy statements of 196 large Canadian firms which are members of the S&P/TSX index. About 43% of the firms in our sample are cross-listed in the U.S. The sample covers the period starting from January 2000 to December 2004. Our original sample includes 632 option awards to CEOs. Although firms are not required to disclose the exact grant dates in their proxy statements, these dates can be inferred from the expiration dates in combination with information about the start of the fiscal year and the assumption that the maturities of the options are in whole years (see Lie, 2005 and Yermack, 1997).

Table 1 below presents the classification of option grants in our original sample. We can see that 85% of stock option awards are granted at-the-money while only 7.76% are granted out-of-the money. Interestingly, despite the fact that Canadian legislation prohibits companies from issuing in-the-money stock option grants, 6.32% of the grants in our original sample are in-the-money. This clear violation of Canadian regulations raises concerns about the effectiveness of corporate governance in particular boards of directors to ensure that the issuer prices options appropriately and discloses them properly. This is consistent with high concentration of ownership and control that characterizes Canadian public firms. In fact, a large number of Canadian public firms are controlled by wealthy families where the CEO is also a member of the family. Results from Table 1 also cast doubt about the ability of Canadian regulators (Ontario Securities Commission and Canadian Securities Administrators) to detect such infringements. This is in line with a recent paper by Dyck, Morse and Zingales (2007) showing that the SEC is much less effective than media, employees and non-financial market regulators in detecting corporate frauds.

The existing studies classify stock option grants into scheduled and unscheduled grants. Aboody and Kasznik (2000) define a grant to be scheduled if it occurs within one week of the one-year anniversary of a prior grant date. However, Lie (2005) and Heron and Lie (2007) point out that Aboody and Kasznik's classification overestimates backdating practice and abnormal returns around grant dates. Following Lie (2005), we define a scheduled stock option grant as a grant that occurs within one day of the one-year anniversary of the prior year's grant date and an unscheduled grant as stock option grant that does not occur within one day of this anniversary or if no stock options were granted during the prior year. We excluded option grants for which we were unable to identify the grant date. A grant is left unclassified if no information is available to classify it as scheduled or unscheduled. Following Lie (2005) and Heron and Lie (2007) we only examined unscheduled grants, since opportunistic timing of option grants is less likely to occur when grants are scheduled.

We examined stock returns 30 days before to 30 days after the grant date and computed abnormal returns using the market-adjusted model. We excluded grants relating to firms with missing returns around the inferred grant date (i.e. grants for which we do not have sufficient stock price data to estimate abnormal stock returns around the grant date). Finally, for firms cross-listed on U.S. stock exchanges, we excluded stock options granted between July 30, 2002 and August 29, 2002. This is because the SOX Act was signed into law on July 30, 2002, but became effective only starting from August 29, 2002 (see Section 403-b of the Act). Our final sample is composed of 443 unscheduled stock option grants.

Table 1 about here

2.2. Examining whether stock option grant dates after the SOX are set in accordance with day-of-the-week effect.

Having only two business days to report stock options grants, cross-listed firms' ability to backdate has diminished after the SOX. Given the legislation change, we investigated whether cross-listed firms had set grant dates on a particular day of the week when the stock market is at its lowest level and avoided setting grants when the stock market is at its highest level. We argue that opportunistic managers may try to compensate for the reduction in reporting period by setting grant dates in harmony with the day-of-the-week effect. We tested the day-of-the-week based explanation as follows: First, we examined the day-of-the-week effect on the mean level of a large sample of the S&P/TSX Canadian return index, to determine the day on which Canadian market is likely to be low and the day on it is likely to be high. Second, we computed the percentage of grant dates for each of the week-days to see whether the highest percentage and lowest percentage of grant dates corresponds to the week-day on which the Canadian market tends to be at its lowest and highest levels, respectively.

The data consist of the daily returns for the S&P/TSX composite price index from the Toronto Stock Exchange - Canadian Financial Markets Research Center (CFMRC) database. The data cover the period from January 3, 1977, through March 31, 2002.[9] We computed daily return as the natural logarithmic first difference of the S&P/TSX composite index daily price. To reduce

[9] Data on S&P/TSX index are available starting from January 3, 1977. On May 1, 2002, the Toronto Stock Exchange changed its acronym from TSE to TSX and renamed its TSE 300 Composite Index as the S&P/TSX Composite Index to reflect changes to the guidelines used in selecting and retaining companies for the index. To overcome any contamination effect due to the change in the composition of the TSX's main index, we use a sample that ends a month before the event.

potential outlier problems, we excluded 10 daily observations from the sample before and after the October 19, 1987 and October 27, 1997 stock market crashes as well as the September 11, 2001 event.

We employed univariate and multivariate analysis to examine the day-of-the-week effect in the Canadian market. In the univariate analysis, we started by testing for the homogeneity of variances across the days of a week. Then, based on Brown-Forsythe, we used the corresponding test to compare the mean of each day to the mean of each of the remaining days. The Brown-Forsythe test was developed to estimate whether more than two groups are homoscedastic.[10] In the multivariate analysis, we estimated the day-of-the-week effect with the following return model:

$$R_t = \alpha + B_M D_{Mt} + B_W D_{Wt} + B_H D_{Ht} + B_F D_{Ft} + \sum_{i=1}^{K} Return_{t-1} + \varepsilon_t \qquad (1)$$

where R_t is the daily return at time t, α is a constant term, and $D_{Mt}, D_{Wt}, D_{Ht}, \text{and } D_{Ft}$ are the dummy variables for Monday, Wednesday, Thursday, and Friday, respectively. The choice of the lag length (k) is based on the lowest Akaike Information Criterion (AIC). According to Hsieh (1991), linear dependence can be ruled out by prior fitting of AIC-minimizing autoregressive moving average (ARMA) model or AR(k) model to take out all the linearity in the series. An

[10] Although there are numerous tests for equal variances, Box (1953) notes that many appear to be sensitive to departures from normality. Researchers propose using several tests to deal with this problem. For example, Conover, Johnson and Johnson (1981) compare 60 methods for testing the homogeneity of variance assumption and show that the test by Brown and Forsythe (1974) outperforms all procedures that are robust to normality.

advantage of using the residuals of AR(*k*) model is that it reduces the effect of thin and non-synchronous trading.[11]

We estimated Equation (1) with a GARCH (p,q) type model. We chose the best GARCH (p,q) that fits the data series on the basis of Maximum Likelihood, AIC, and BIC criteria. Empirical studies estimating GARCH type models typically assume a normal error distribution (e.g. Hsieh, 1991; Bhattacharya, Sarkar, and Mukhopadhyay 2003, and Saadi, Gandhi, and Dutta, 2006). However, financial time series have fatter tails. Therefore, we used the generalized error distribution (GED) proposed by Nelson (1991) that better fits financial time series.[12] Nelson recommends GED in order to capture the fat tails usually observed in the distribution of financial time series. For purposes of comparison, we report the estimations of GARCH (p, q) with a normal error distribution as well.

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[11] To proxy for the true but unobserved index returns, Stoll and Whaley (1990) use the residuals from an ARMA regression. Lo and Mackinlay (1990) show that non-synchronous trading causes a deviation of the observed index returns from the true index returns.

[12] If a random variable X_t has a *GED* with mean zero and unit variance, the probability density function of X_t is given by: $f(X_t) = \frac{\upsilon^{-(1/2)|X_t/\lambda|^{\upsilon}}}{\lambda \cdot 2^{(\upsilon+1)/\upsilon}\Gamma(1/\upsilon)}$ where $\Gamma(\,)$ is the gamma function, υ is a positive parameter governing the thickness of the tails of the distribution λ is a constant given by $\lambda = \left[\frac{2^{-2/\upsilon}\Gamma(1/\upsilon)}{\Gamma(3/\upsilon)}\right]^{1/2}$

For υ = 2 and constant λ = 1, the GED is the standard normal distribution. Hamilton (1994) provides additional details about the generalized error distribution.

3. Results

3.1. Abnormal returns around unscheduled stock option grants

We calculated abnormal returns around 443 unscheduled CEOs' stock option grants using the market-adjusted model. Figure 1 displays the cumulative abnormal returns (CARs) from 30 days before through 30 days after option grant dates. Clearly, the average stock price begins to fall approximately 30 days before the grant dates; however, the stock price movement is reversed immediately after the grant date, starting an increase that lasts for at least 30 days after. The V-shaped pattern around the option grant date displayed in Figure 1 suggests that CEOs are granted stock options on the day when stock price is at its lowest level. Since the strike price of the option is often equal to the stock price at the grant date, CEOs receive stock options with a low strike price making the options 'in-the-money' immediately after the grant date.

Table 2 presents statistically reliable evidence of negative cumulative abnormal returns before grant dates and positive cumulative abnormal returns afterwards. CARs for 30, 20, 10 and 5 days following (before) grant dates are positive (negative) and significantly different from zero at the 1% levels. For instance, the abnormal return is approximately 1.5% or 18% over the market return annualized during the 30-day periods after the option grant date. Although negative, CAR for one day before grant date is statistically insignificant. For robustness check, we repeated the event study using mean-adjusted returns instead of the market-adjusted returns, the results (not tabulated here) remain qualitatively similar.

The above findings suggest that opportunistic timing of stock option grants is not limited to U.S. firms. It seems that borders do not matter when it comes to corporate wrong-doing. Our results show also that the Canadian regulations with respect to stock option grants did not discourage

Canadian firms from engaging in opportunistic behavior. Hence, in contrast to the view of Canadian regulators, we should expect a high portion of Canadian firms involved in stock option grant manipulation.

Table 2 about here

Figure 1 about here

3.2. Testing the backdating explanation

The results reported in subsection (4.1) suggest some sort of manipulation of stock options granted to CEOs of Canadian public firms but do not explain the reasons behind this. As expressed earlier, the extant literature proposes three explanations: (1) *opportunistic timing of option grants* (Yermack, 1997), (2) *opportunistic timing of information disclosure* (Aboody and Kaznik, 2000), and (3) *backdating* (Lie, 2005). Recent studies, however, attribute the vast majority of stock returns scheduled around grant dates to backdating (Heron and Lie, 2006, 2007). Similar to Heron and Lie (2007), we exploit a recent change in SEC reporting requirements to test the backdating explanation. We do so using a set of grants from Canadian public firms cross-listed on U.S. stock exchanges. Under the new reporting regime, firms will have to disclose stock option awards within two business days after the grant date. If backdating is the origin of excessive abnormal returns around option grants then we should document a significant reduction of excess return after the August 29, 2002. Before August 29, 2002, U.S. firms had to report option grants within 45 days after the company's fiscal year end; however, Canadian firms which are cross-listed in the U.S. have to report option grants within 10 calendar days after receiving the grant. With longer period to report, U.S. firms should be more tempted to involve into backdating practice than Canadian firms. Therefore, we should expect a less

pronounced impact of the change in reporting requirement on stock returns pattern around grants in the Canadian context than in the American setting.

Table 3 presents the cumulative abnormal returns for various periods around unscheduled stock options granted to CEOs of cross-listed firms before and after SOX. Column 3 shows the CARs before SOX. We note that, although negative, cumulative abnormal returns before the grant dates are not significantly different from zero. After the grant dates, however, CARs are positive and significant at the 5 % level, except from day +1 through day +5 where CAR is positive but not significant. CARs before SOX are evidence of stock option manipulation but we do not know whether backdating is the reason. The CARs after SOX, reported in Column 6, provide the answer. Interestingly, after SOX the positive CARs after grant date disappeared. Two important observations emerge from the results in Table 3: First, evidence of stock option manipulation in cross-listed firms is due to backdating practice. Second, while SOX failed to eliminate backdating in U.S based firms, it succeeded to do so in Canadian firms cross-listed in the U.S.

Besides the legal costs and investment-banking fees associated with U.S. listing, a firm has to endure the costs of SEC reporting and compliance requirements if it chooses to list its shares on U.S. markets. Despite these costs Adjaoud and Ckhir (2004) document a steady increase in the percentage of public Canadian firms listing on U.S. markets. This trend, which started from early 1990's, could be explained by the perception that the costs associated with U.S. listing are smaller than the benefits that come with it: higher visibility, lower cost of capital, easier access to foreign capital markets and higher market value and stock liquidity (Mittoo, 1992; Fanto and Karmel, 1997; Doidge, Karolyi and Stulz, 2004). Since our sample consists of the largest Canadian firms that are members of the S&P/TSX index, with 43% are cross-listed in the U.S., it will be interesting to examine the effect of SOX on domestic Canadian firms. Given the benefits

associated with a potential listing on U.S. markets and the negative market reaction to the wave of corporate scandals in Canada and the U.S., we expect SOX to curb or at least lessen stock option grant manipulations by domestic Canadian firms.

Table 4 reports CARs for various periods around unscheduled stock option granted to CEOs of domestic firms before and after SOX. Column 3 shows the CARs before SOX, while Column 6 presents the CARs after SOX. Several interesting observations emerge. Over the post-SOX period, CARs have the same overall pattern as CARs of cross-listed firms; positive and significant after grant dates but negative and insignificant before grant dates. After SOX, however, CARs of domestic firms become positive and insignificant after grant dates but negative and significant before grant dates, at 1% level. Chauvin and Shenoy (2001) report negative abnormal returns prior to a CEO option grant date and interpret their results as evidence that CEOs delay any grant just after the disclosure of bad news. Our results suggest that domestic firms continue to manipulate CEO stock options grants after the SOX. More importantly, they have switched from backdating to opportunistically timing grants after the disclosure of bad news. This is a very interesting observation showing how firms adopt their manipulation practices to the new market and legal environment. Such capabilities raise again concerns about the effectiveness of boards of directors and the influence of powerful CEOs who are usually members of the controlling family or group.

To examine whether our results are driven by choice of the method of computing the abnormal returns, we repeated the event studies analysis using the mean-adjusted returns, the results remain qualitatively similar to the results obtained with market-adjusted returns.

Table 3 about here

Table 4 about here

3.3. Following the SOX: Do Cross-listed firm choose a particular day of the week to set grant date?

In this subsection we investigate whether, following the SOX, cross-listed firms set grant dates on a particular day of the week when the stock market is at its lowest level and avoid setting grants when the stock market is at its highest level. Table 5 presents descriptive statistics involving daily returns. The average daily return is lowest on Monday (which is the only day with a negative return) and highest on Friday. Daily returns typically increase each day from Monday to Friday. The daily returns are negatively skewed and fat-tailed, except for Monday when the estimated kurtosis is close to 3. An implication of these statistics is that the data series is non-normally distributed.

We used several commonly known tests to validate the initial observations from the statistics in Table 5. We started by testing for the homogeneity or constancy of variances across the days of the week. Given that the statistics in Table 5 show a non-normal distribution of average daily returns, we used the Brown-Forsythe test, which is robust to departures from normality. The results from applying this test show an F-statistic equal to 4.479, which is statistically significant at the 1% level. Thus, we reject the null hypothesis that the variance is the same across different days of the week.

Given results from Brown-Forsythe test, to compare the mean of each day to the means of remaining days, we used the Games-Howell test for multiple pair-wise comparisons. Unlike several other tests such as Bonferroni, the Games-Howell test does not assume homogeneity of variance. Table 6 provides the results from Games-Howell test. These results reject the null

hypothesis that the daily mean return is constant over the week. Specifically, the Monday mean return differs from the Wednesday and Thursday mean returns at the 5% level and from the Friday mean return at the 1% level. Table 6 exhibits no significant differences between the Tuesday mean return and the return for any other day of the week.

Besides the univariate analysis, we employ regression analysis to identify the day with the lowest returns and the one with the highest returns. Table 7 reports results of the GARCH (1,1) under the normal error distribution. First, similar to the results from Table 6, evidence from Table 7 supports the presence of the day-of-the-week effect with Monday having the lowest average return and Friday having the highest. When compared to the average return on Tuesday, the average return on Friday is 0.04% higher while that for Monday is 0.08% lower. The average return for Wednesday is 0.03% higher than for Tuesday, which differs significantly at the 10% level. However, there is no evidence to suggest that the average return for Thursday differs from Tuesday because the respective dummy variables are not statistically significant. To check robustness, we re-estimated the GARCH (1,1) assuming generalized error distribution (GED) as recommended by proposed by Nelson (1991). The results presented in Table 7 are qualitative similar to those with normal error distribution.[13]

The results of the diagnostic tests show that all the GARCH models are correctly specified. The Ljung-Box statistics up to lag 50 could not reject the null hypothesis of no autocorrelation. Lagrange multiplier tests are also significant, indicating that the two GARCH processes are successful at modeling the conditional volatility. The sum of the parameters estimated by the

[13] Since 43% of firms in our sample are also listed in the U.S. market, it is noteworthy that similar pattern of daily returns was reported for the U.S. as well (see for instance French, 1980; Bessembinder and Hertzel, 1993 and Siegel, 1998).

variance equation is close to one. A sum of λ_1 and θ_1 near one is an indication of a covariance stationary model with a high degree of persistence and a long memory in the conditional variance. The sum of λ_1 and θ_1 is also an estimation of the rate at which the response function decays on a daily basis. Since these rates are quite high, the response functions to shocks are likely to die slowly.

Table 5 about here

Table 6 about here

Table 7 about here

In a nutshell, the descriptive statistics, Games-Howell test, and regression analysis all suggest the existence of a day-of-the-week effect with the highest average return on Friday and lowest average return on Monday. Therefore, if firms are deliberately setting stock option grants on days on which stock prices are low on average, we should observe more grants set on Mondays than on Fridays. Row two of Table 8 presents the distribution of all the grants over the weekdays. The results are consistent with our prediction. Indeed, 24.2% of grants are set on Mondays, while only 13.3% of grants are set on Fridays. It is noteworthy that the number of grants per week-day decreases steadily from its peak on Monday until it reaches its lowest level on Friday.

Nevertheless, if our reasoning holds, then we should observe more persistent day-of-the-week-consistent distribution of grants after SOX than before SOX and this in particular for cross-listed firms. Table 8 presents the distribution of all the grants over the weekdays for domestic and cross-listed firms. Consistent with our prediction, the distribution of grants over the trading days is more consistent with day-of-the-week effect after SOX than before SOX. Moreover, the trend is more pronounced for cross-listed firms than for domestic firms. For instance, the proportions

of grants occurring on Monday before SOX for domestic and cross-listed firms are 20.5% and 17.9%, respectively; however, after SOX the proportions of grants occurring on Monday are 22.4% and 27.8%, an increase of 9.3% for domestic firms and 55.3% for cross-listed firms.

Although the above results seem sound and coherent, they may suffer from a potential bias associated with the results of day-of-the-week effect reported in Tables 5, 6, and 7. In fact, though the overall market is low on Monday and high on Friday, this may not be the case of each company taken individually. Nevertheless, the fact that all firms in our sample are members of the stock market index should lessen this concern. One way to test the robustness of our results is to find the percentage of grants that occur on the day where stock prices are the lowest during the same week and then compare them with the distribution of all the grants over the weekdays as reported in Table 8. To do so, for each grant date, we collected the stock prices over the week in which the stock option was granted and compared them with the stock prices on the grant date. The stock prices were collected from CFMRC data base. We associated a value of 1 if the stock price on the grant date was the lowest during the same week and 0 otherwise. The results for the whole sample are presented in Table 9. We also partitioned our sample by domestic versus cross-listed firms as well as by before and after SOX. The results confirm our earlier prediction. In fact, the stock option grants are likely to be granted on a day where the price is at its lowest week level. This trend seems to be more persistent after SOX and in particular for cross-listed firms. Indeed, the likelihood of a grant occurring on Monday increased from 24.49% before SOX to 29.17% after SOX for domestic firms while it increased from 21.82% to 29.41% for cross-listed firms. Interestingly, the likelihood of a grant occurring on the day with the lowest stock price during the week is consistent with the day-of-the-week effect: highest on Monday and lowest on Friday.

Table 8 about here

Table 9 about here

4. Conclusions

The concerns over U.S. public firms manipulating CEOs' stock option grants have spread over Canadian markets. Nonetheless, while several papers investigated the U.S. market, no study has done so for the Canadian market. This paper fills this gap in the literature by investigating a sample of unscheduled stock options granted to CEOs of 196 large Canadian firms which are members of the S&P/TSX index. The Canadian context presents a special case to examine potential manipulation of stock options grants. Canadian and the U.S. regulations differ in some important aspects with respect to stock option awards and in several features of corporate governance as well. Our findings contribute to the extant literature in several ways. First, we find that the opportunistic timing of CEOs' stock option grants is not limited to U.S. firms but it also prevalent in Canadian firms. Second, we find that most of the abnormal returns documented before and after grant dates are due to backdating practices. Third, we show that the introduction of the two-day filing requirement following the Sarbanes-Oxley Act (SOX) has eliminated backdating practice by Canadian firms cross-listed in U.S. stock markets, although it did not do so for U.S. domestic firms as reported by Heron and Lie (2007). Fourth, we find that SOX has altered the way Canadian domestic firms manipulate stock option grants. Fifth, we find that, following SOX, with only two business days to report grants, cross-listed firms seem to set stock option grants on the day with the lowest stock price over the same week.

Our overall results suggest that Canadian regulators should at the least adopt the SEC-initiated change and should also introduce new regulations that enhance the monitoring role of boards of

directors. For instance, instead of recommending the independence of boards of directors, Canadian regulators should make independence of boards mandatory.

In this paper we have investigated stock options granted by the largest Canadian public firms. However, smaller firms are more likely to engage in opportunistic timing of stock option grants since they are less followed by media and security analysts, which we refer to as size-effect. In fact, Atiase (1985) shows that the business press publishes fewer items for small firms than for large firms. Future research may also examine the size-effect. Future research may also look at other markets beside those in North America to better understand the dynamic of stock option grant manipulations under different corporate governance and legal systems.

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Tables and Figures

Table1. Classification of Stock Option Grants.

This table provides classification of option grants in our original sample composed of 632 stock options granted to CEOs between 01/01/2000 and 12/31/2004. The grant dates are taken from firm's proxy statements.

	Option Classification		
	At-the-Money	Out-of-the-Money	In-the-Money
Number of Grants	543	49	40
Percentage (%)	85.92	7.76	6.32

Figure 1. Cumulative Abnormal Stock Returns around Unscheduled Stock Option Grant Dates.

This figure displays the cumulative abnormal returns (CAR) from 30 days before through 30 days after unscheduled stock options granted to CEOs between 01/01/2001 and 12/31/2004. Abnormal returns are estimated using the market-adjusted model. Stock prices are taken from CFMRC data base while grant dates are taken from firm's proxy statements.

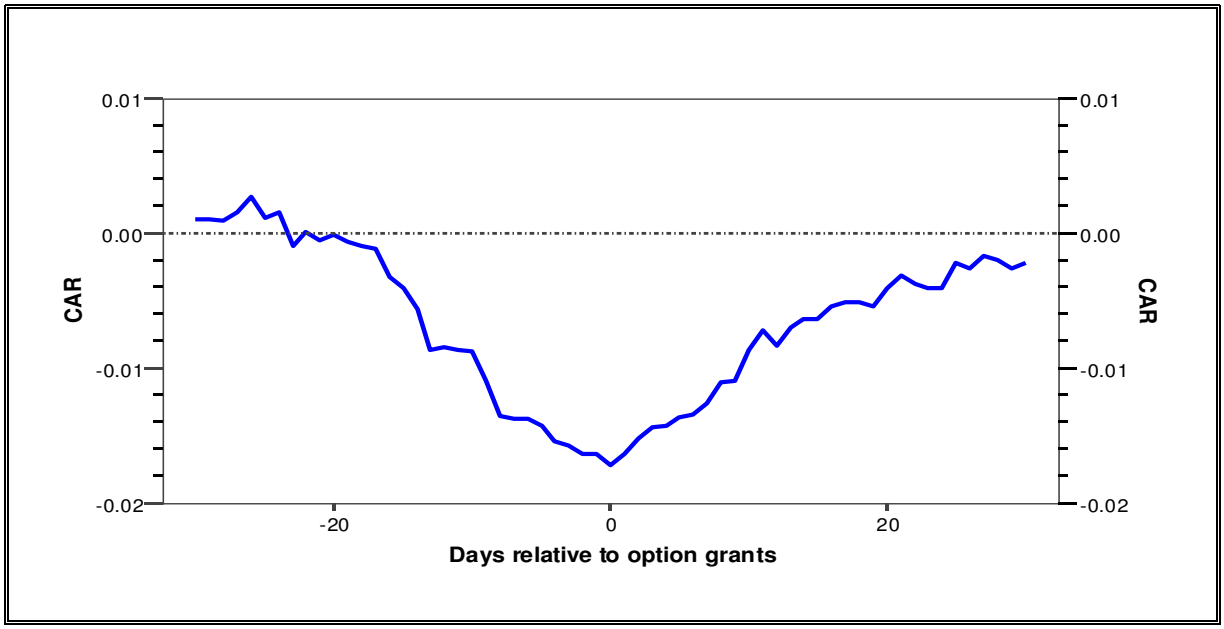

Table 2. Cumulative Abnormal Returns around Unscheduled Stock Option Grant Dates.

This table presents the cumulative abnormal returns (CAR) around unscheduled stock options granted to CEOs between 01/01/2000 and 12/31/2004. Abnormal returns are estimated using the market-adjusted model. Stock prices are taken from CFMRC data base while grant dates are taken from firm's proxy statements. *, **, *** Significantly different from zero at the 10%, 5%, and 1% level, respectively.

Days	Number of Days	CAR (%)	p-value	N
(-30 to 0)	31	-1.721 ***	0.006	443
(-20 to 0)	21	-1.668 ***	0.001	443
(-10 to 0)	11	-0.851 ***	0.010	443
(-5 to 0)	6	-0.339 ***	0.006	443
(-1 to 0)	2	-0.084	0.233	443
(1 to 5)	5	0.352 ***	0.006	443
(1 to 10)	10	0.848 ***	0.002	443
(1 to 20)	20	1.311 ***	0.001	443
(1 to 30)	30	1.500 ***	0.002	443

Table 3: Cumulative Abnormal Returns around Stock Option Grants to CEOs of Cross-listed firms before and since 8/29/2002.

This table presents the cumulative abnormal returns (CAR) around unscheduled stock option to CEOs of cross-listed firms before and since 8/29/2002. Abnormal returns are estimated using the market-adjusted model. Stock prices are taken from CFMRC data base while grant dates are taken from firm's proxy statements. *, **, *** Significantly different from zero at the 10%, 5%, and 1% level, respectively.

Period	Number of	Before 8/29/2002			Since 8/29/2002		
	Days	CAR (%)	p-value	N	CAR (%)	p-value	N
(-30 to 0)	31	-1.069	0.510	106	-1.492	0.262	108
(-20 to 0)	21	-1.648	0.151	106	-1.458	0.193	108
(-10 to 0)	11	-0.786	0.407	106	-0.028	0.950	108
(-5 to 0)	6	-0.190	0.783	106	-0.096	0.794	108
(-1 to 0)	2	-0.121	0.705	106	0.099	0.811	108
(1 to 5)	5	1.015	0.201	106	-0.182	0.720	108
(1 to 10)	10	1.837 **	0.043	106	-0.319	0.674	108
(1 to 20)	20	2.897 **	0.028	106	-1.146	0.280	108
(1 to 30)	30	3.036 **	0.049	106	-0.517	0.663	108

Table 4: Cumulative Abnormal Returns around Stock Option Grants to CEOs of Domestic firms before and since 8/29/2002.

This table presents the cumulative abnormal returns (CAR) around unscheduled stock option to CEOs of domestic firms before and since 8/29/2002. Abnormal returns are estimated using the market-adjusted model. Stock prices are taken from CFMRC data base while grant dates are taken from firm's proxy statements. *, **, *** Significantly different from zero at the 10%, 5%, and 1% level, respectively.

Period	Number of	Before 8/29/2002			Since 8/29/2002		
	Days	CAR (%)	p-value	N	CAR (%)	p-value	N
(-30 to 0)	31	-0.903	0.547	122	-5.556 ***	0.000	107
(-20 to 0)	21	-0.877	0.536	122	-4.768 ***	0.000	107
(-10 to 0)	11	-0.004	0.996	122	-2.702 ***	0.001	107
(-5 to 0)	6	-0.741	0.289	122	-1.944 ***	0.000	107
(-1 to 0)	2	0.121	0.767	122	-0.453 ***	0.007	107
(1 to 5)	5	0.982 **	0.043	122	-0.268	0.393	107
(1 to 10)	10	2.479 ***	0.007	122	0.378	0.211	107
(1 to 20)	20	4.143 ***	0.001	122	0.776	0.279	107
(1 to 30)	30	5.136 ***	0.000	122	1.095	0.212	107

Table 5. Summary Statistic for Daily S&P/TSX Composite Index Returns

This table presents descriptive statistics involving daily return for the S&P/TSX composite price index between January 3, 1977 and March 31, 2002. To reduce potential outlier problems, the data set excludes 10 daily observations from the sample before and after the October 19, 1987 and October 27, 1997 stock market crashes as well as the September 11, 2001 event.

	Mean	Median	Std. Deviation	Skewness	Kurtosis	N
Monday	-0.0004	-0.0002	0.0082	-0.64	3.19	1168
Tuesday	0.0002	0.0005	0.0083	-0.10	4.08	1286
Wednesday	0.0006	0.0007	0.0082	-0.87	11.09	1290
Thursday	0.0006	0.0009	0.0081	-0.66	7.48	1293
Friday	0.0009	0.0013	0.0081	-0.87	10.15	1260
All days	0.0004	0.0007	0.0082	-0.62	7.09	6297

Table 6. Testing Day-of-the-Week Effect in Mean of the S&P/TSX Daily using Games-Howell test

This table shows the results of the Games-Howell test, which is used to compare the mean of each day to the remaining days. *, **, *** Significantly different from zero at the 10%, 5%, and 1% level, respectively.

(I) Weekday	(J) Weekday	Mean Difference (I - J)	Standard Error	P-value
Monday	Tuesday	-0.0005	0.0003	0.545
	Wednesday	-0.0009 **	0.0003	0.043
	Thursday	-0.0009 **	0.0003	0.038
	Friday	-0.0013 ***	0.0003	0.001
Tuesday	Monday	0.0005	0.0003	0.545
	Wednesday	-0.0004	0.0003	0.713
	Thursday	-0.0004	0.0003	0.692
	Friday	-0.0008	0.0003	0.104
Wednesday	Monday	0.0009 **	0.0003	0.043
	Tuesday	0.0004	0.0003	0.713
	Thursday	-0.0001	0.0003	1.000
	Friday	-0.0004	0.0003	0.756
Thursday	Monday	0.0009 **	0.0003	0.038
	Tuesday	0.0004	0.0003	0.692
	Wednesday	0.0001	0.0003	1.000
	Friday	-0.0004	0.0003	0.770
Friday	Monday	0.0013 ***	0.0003	0.001
	Tuesday	0.0008	0.0003	0.104
	Wednesday	0.0004	0.0003	0.756
	Thursday	0.0004	0.0003	0.770

Table 7. Testing Day-of-the-Week Effect in Mean of the S&P/TSX Daily using a GARCH model.

This table reports results of the GARCH(1,1) for the normal and GED error distributions:

$$R_t = \alpha + B_M D_{Mt} + B_T D_{Tt} + B_W D_{Wt} + B_H D_{Ht} + \sum_{i=1}^{k} Return_{t-1} + \varepsilon_t, \sigma_t^2 = \eta + \lambda\, \omega_t^2 + \theta\, \sigma_t^2,$$

where R_t is the daily return at time t, α is a constant term, $D_{Mt}, D_{Ft}, D_{Wt}, D_{Ht}$ are the dummy variables for Monday, Wednesday, Thursday and Friday respectively. λ and θ are the ARCH and GARCH parameters. *, **, *** Significantly different from zero at the 10%, 5%, and 1% level, respectively.

	GARCH(1,1) with Normal Error Distribution			GARCH(1,1) with GED		
Coefficients	Value	Std. Error	P-value	Value	Std. Error	P-value
α	0.0003 **	0.0002	0.0459	0.0004 ***	0.0002	0.007
Monday	-0.0008 ***	0.0002	0.0001	-0.0008 ***	0.0002	0.000
Wednesday	0.0003 *	0.0002	0.0763	0.0002	0.0002	0.192
Thursday	0.0002	0.0002	0.2131	0.0001	0.0002	0.269
Friday	0.0004 **	0.0002	0.0264	0.0005 ***	0.0002	0.007
η	0.0000 ***	0.0000	0.0000	0.0000 ***	0.0000	0.000
λ	0.0784 ***	0.0045	0.0000	0.0781 ***	0.0070	0.000
θ	0.9102 ***	0.0044	0.0000	0.9097 ***	0.0072	0.000
Jarque-Bera	1586 ***		0.0000	1721 ***		0.000
Ljung-Box (20)	5.70		0.9992	8.25		0.990
Ljung-Box (30)	15.89		0.9836	19.02		0.940
Ljung-Box (40)	21.97		0.9908	25.07		0.969
Ljung-Box (50)	39.58		0.8546	42.82		0.754
Lagrange-Multiplier	12.09		0.4383	11.58		0.480
F-Statistic	1.10		0.4683	1.06		0.508
Log Likelihood	22573			22635		
AIC	-45088			-45370		
BIC	-44893			-45168		

Table 8. Distribution of CEO Stock Option Grant Day over the Weekdays.

This table provides distribution of unscheduled option grants over weekdays. The sample is partitioned by cross-listed versus domestic firms. For each category we partition the sample by number of stock options granted before SOX and after SOX.

	N	Monday	Tuesday	Wednesday	Thursday	Friday
Unscheduled	443	24.2%	23.0%	21.7%	17.8%	13.3%
Before 8/29/2002	228	19.3%	22.8%	23.7%	21.1%	13.2%
After 8/29/2002	215	25.1%	23.7%	19.5%	17.2%	14.4%
Domestic firms	229	21.4%	19.7%	22.3%	24.0%	12.7%
Before 8/29/2002	122	20.5%	17.2%	23.8%	27.0%	11.5%
After 8/29/2002	107	22.4%	22.4%	20.6%	20.6%	14.0%
Cross-listed firms	214	22.9%	27.1%	21.0%	15.0%	14.0%
Before 8/29/2002	106	17.9%	29.2%	23.6%	15.1%	14.2%
After 8/29/2002	108	27.8%	25.0%	18.5%	14.8%	13.9%

Table 9. Distribution of CEO Stock Option Grant-Day Price over the Week-days.

This table reports the percentage of grants that occur on the day with the lowest stock price during the week. The sample is partitioned by cross-listed versus domestic firms. For each category we partition the sample by number of stock options granted before SOX and after SOX.

	N	Monday	Tuesday	Wednesday	Thursday	Friday
Unscheduled	443	26.36%	19.55%	20.91%	18.64%	14.55%
Before 8/29/2002	228	23.08%	19.23%	25.00%	22.12%	10.58%
After 8/29/2002	215	29.31%	19.83%	17.24%	15.52%	18.10%
Domestic firms	229	26.80%	20.62%	20.62%	16.49%	15.46%
Before 8/29/2002	122	24.49%	22.45%	20.41%	20.41%	12.24%
After 8/29/2002	107	29.17%	18.75%	20.83%	12.50%	18.75%
Cross-listed firms	214	26.36%	19.55%	20.91%	18.64%	14.55%
Before 8/29/2002	106	21.82%	16.36%	29.09%	23.64%	9.09%
After 8/29/2002	108	29.41%	20.59%	14.71%	17.65%	17.65%