

**Stock-based CEO Compensation and IFRS Adoption:  
Evidence from Canada**

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**Abstract**

Prior literature does not address changes in stock-based compensation around mandatory IFRS adoption, likely because IFRS adoption preceded the subsequently more detailed disclosures regarding stock-based compensation, such as options and stock. In Canada, however, more detailed stock-based compensation disclosures have been available since 2008, which preceded the mandatory adoption of IFRS in Canada in 2011. As a result, Canada allows investigation of the consequences of change in accounting standards to IFRS on the use and strength of equity-linked incentives. We document significant increases in the level of total compensation and both cash and equity components, and a significant increase in the proportion of stock-based compensation in the post-IFRS period. Specifically, this effect is concentrated in firms with greater declines in value relevance and above median changes in stock return and earnings volatility. Overall, our results expand our understanding of how accounting standards affect contracting between firms and their CEO.

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## 1. INTRODUCTION

We investigate the effect of a mandatory change to International Financial Reporting Standards (IFRS) on total CEO compensation and its cash and equity-based components. Specifically, we explore changes in both cash and stock-based compensation around IFRS adoption by Canadian firms in 2011. Consistent with predictions about efficient contracting from standard moral hazard models, we provide evidence suggesting that corporate boards make trade-offs between common categories of compensation (including salary, short-term bonuses that are typically linked to accounting performance measures, and stock-based compensation). Our empirical-archival study of the full breadth of CEO compensation awards is arguably only feasible in Canada, which expanded its compensation disclosures three years prior to its adoption of IFRS to include details of stock-based compensation while expanded compensation disclosures for most developed IFRS-adopting countries were not available at the time of IFRS adoption.

Accounting standards are critical in the determination of both earnings and stock prices. Prior literature documents that IFRS adoption affects both the valuation and contracting roles of accounting. Regarding the valuation role, research documents that IFRS adoption affects the value relevance of accounting information and thus the relation between earnings and stock prices (e.g., Ashbaugh and Olsson (2002), Barth et al. (2008) and Cormier and Magnan (2016), among others). Regarding the contracting role of accounting, studies observe the impact of IFRS adoption on various aspects of contracting with executives and debt holders and the nature of the use of accounting measures in contracting.<sup>1</sup> A large fraction of executive compensation is performance-based, using both accounting and stock-based performance measures, and is composed of both

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<sup>1</sup> Including Wu and Zhang (2009, 2018), Ozkan, Singer, and You (2012), Voulgaris, Stathopoulos, and Walker (2014), and Ball, Li, and Shivakumar (2015).

cash and stock-based compensation. Our study acknowledges the interplay between reported earnings and stock prices and how the changes in underlying information content resulting from IFRS adoption may differ for valuation and contracting purposes.

We argue that IFRS adoption can affect optimal CEO compensation in several ways. Our motivation is informed by the extensive evidence in prior literature that the properties of accounting earnings and the value relevance of accounting information changes around IFRS adoption. Given that value relevance changes around IFRS adoption, informativeness of stock prices and, hence, the use of stock-based compensation may also change around IFRS adoption. In one scenario, if value relevance increases due to increased alignment of accounting principles with market-based valuation (i.e., fair value accounting), we might expect boards to have greater challenges in measuring the executives contribution to value due to both the loss of distinct information from the two performance measures and the greater amount of noise in earnings with respect to managerial actions. This in turn suggests that the extent of use of stock-based compensation may shift after IFRS adoption. In an alternative scenario, if IFRS decreases the ability of earnings to capture information about managerial contributions to value, then investors have stronger incentives to gather insights about managerial actions from alternative sources. This in turn suggests that stock prices contain greater amounts of private information about executive effort not reflected in earnings leading to decreased value relevance of earnings, but improvements in the informational value of the firms' performance signals. Given the difficulty of directly observing changes in earnings' ability to capture information about manager's contribution to value, the impact on the level and structure of compensation grants becomes an empirical question. Our primary analyses investigate whether and how IFRS adoption impacts the level and structure of CEO compensation awards. We also conduct analyses to explore variation in changes in

properties of earnings and stock price as potential proxies for changes in their ability to measure managers' contribution to value.

We begin our analysis by examining annual compensation grants to CEOs of the largest 200 firms listed on the Toronto Stock Exchange (TSX) in 2010. Our sample spans from 2008 to 2015, and since Canadian firms were required to adopt IFRS for fiscal years beginning after January 1, 2011, this sample period allows for a three-year period of analysis in both the pre- and post-IFRS adoption.

The setting of the mandatory adoption of IFRS in Canada has several appealing features for exploring the issue of a change in accounting standards on the contracting process. First, the Canadian setting offers a unique opportunity to probe the impact of a mandatory change in accounting standards on contracting with executives. Canada revised its compensation disclosure requirements and mandated firms to provide tabulated remuneration information along with comprehensive compensation disclosures starting in 2008 (Form 51-102F6). The structure and scope of the compensation disclosures Canadian firms provide, are comparable to U.S. firms.<sup>2</sup> In 2011 when Canada adopted IFRS, public Canadian firms were required to disclose detailed compensation information, while in other IFRS adopting countries, IFRS adoption precedes the time when comprehensive compensation disclosures were available.<sup>3</sup> IFRS adoption *per se* did not change the details or the form of compensation disclosures in Canada, thus, the compensation information disclosed is consistent before and after IFRS adoption. Hence, Canada offers a setting

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<sup>2</sup> The U.S. Securities and Exchange Commission (SEC) mandates compensation disclosure requirements that combine broad-based tabular disclosure presentation with an extended narrative disclosure (SEC 2013). In 2006 the SEC fixed the compensation table to clarify whether dollar value of options are (i) Options granted in the current year or, (ii) Options vested in the current year. Since firms that are traded on U.S. markets provide detailed compensation information since 2006, prior research often focuses on these markets for studying executive compensation.

<sup>3</sup> In 2005, when large economies such as Australia, EU and UK adopted IFRS, the scope and form of compensation disclosures in these countries were less detailed and structured than the compensation disclosure requirements introduced by the SEC in 2006.

where detailed compensation information such as the dollar values of stock and option-based compensation is directly observable both before and after IFRS adoption.<sup>4</sup> Using the expanded Canadian compensation disclosures available at the time of IFRS adoption, we are able to examine the overall compensation packages of executives to fully explore the trade-offs in compensation contracts involving both cash and stock-based compensation.

Further, IFRS adoption by Canadian firms provides an opportunity to examine the impact of switching from a more rules-based accounting standard to more principles-based accounting standards on executive compensation. Pre-IFRS Canadian GAAP was very close to U.S. GAAP (Bandyopadhyay, Hanna, and Richardson 1994; Cormier and Magnan 2016) and more rules-based than IFRS. After Canada adopted IFRS in 2011, Canadian IFRS-reporting firms' financial statements became less comparable to U.S. GAAP reporting firms, but more comparable to IFRS-reporting firms in other countries. The similarity of pre-IFRS Canadian GAAP and U.S. GAAP, along with other similarities in the legal and economic environments of the two countries, may provide insights on how contracting in the U.S. might be affected by the introduction of more principles-based standards and fair value accounting.

We first examine the level of total compensation and its components using a standard compensation model allowing for the level and proportion of compensation to differ in the post-IFRS period. We document an increase in total compensation and both cash and equity components after IFRS adoption. We also provide evidence of a significant shift in the structure of compensation from cash to stock-based compensation with the decline in cash component due primarily to a smaller percentage of salary and the increase in the equity component due to a higher proportion of stock rather than options. The higher level and increased proportion of equity

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<sup>4</sup> Other recent IFRS adopting countries include Brazil and Mexico but they arguably exhibit institutional features that differ more from more developed countries that previously adopted IFRS.

compensation are consistent with a decline in the relative informational value of earnings with respect to managerial actions. In turn, the higher level of total compensation is consistent with more at-risk compensation for which the CEOs receive increased risk premiums.

We next acknowledge that IFRS adoption affects individual firms to varying degrees and explore cross-sectional variation in properties of accounting and stock price performance measures that are arguably linked with their ability to measure executives' contribution to value. Accordingly, we explore variation in several key properties of performance measures to examine whether those firms with a greater impact of IFRS experience a greater shift in their compensation grants post-IFRS. The characteristics we examine are the change in value relevance of earnings with respect to stock prices and the changes in volatility of both earnings and stock returns from the pre- to the post-IFRS period. We create High and Low change partitions of our sample for each of these three characteristics and estimate separate regressions for our compensation level and composition variables for each panel to assess differential affects for firms more impacted by IFRS on these dimensions. Our findings suggest that the increase in total compensation is driven by firms that experience higher changes in earnings and stock return volatility post-IFRS adoption. These firms also appear to increase the fraction of equity-based compensation such as stock grants and reduce the fraction of cash-based compensation. Firms with lower changes in value relevance post-IFRS adoption, exhibit similar patterns. These firms increase total compensation and the fraction of stock-based pay. Overall, since average value relevance and stock return volatility decreased, we interpret these results as consistent with a reduction in the ability of earnings to reflect managers' contributions to value. This reduction leads to an increase in the relative contract informativeness of stock prices, suggesting a shift toward more equity compensation in the post-IFRS period.

We next examine Canadian firms whose securities are also listed on exchanges in the U.S. Canadian firms that have cross-listed their securities in U.S. had the choice to use Canadian GAAP or U.S. GAAP prior to IFRS adoption. After Canada adopted IFRS, these firms were permitted to use IFRS or U.S. GAAP. We focus on the sample of Canadian cross-listed firms that switched from Canadian GAAP to IFRS. These firms may differ from those in our primary sample in a number of ways. First, they chose to seek access to an expanded capital base by cross listing in U.S which may suggest they have better growth opportunities and corporate governance than non-cross-listed Canadian firms. Also, given their access to U.S. markets, the properties of their performance measures may differ from non-cross-listed Canadian firms due to additional oversight from the SEC (Burnett et al. 2019) and investors' scrutiny, as well as higher litigation risk. Lastly, Canadian cross-listed firms have more operations and assets in the U.S., compared to non-cross listed firms. Overall, these firms likely operate in a more informationally efficient environment and have lower exposure to other local events and processes that shape executive compensation and that might have coincided with IFRS adoption in Canada. We find that total compensation and stock-based compensation increased for Canadian cross-listed firms around IFRS adoption, and the fraction of equity-based compensation increased.

As for the variation in properties of performance measures, we find that total compensation is increasing for cross-listed firms with lower value relevance and lower earnings volatility. These firms use more equity-based compensation compared to firms with higher value relevance and earnings volatility, consistent with stock prices containing more information relative to the information in earnings. We also document that firms with greater changes in value relevance and earnings volatility, and lower changes in stock return volatility from the pre- to post-IFRS adoption

period, increase the size of stock grants while decreasing the size usage of options grants, such that overall, total compensation does not change.

In addition to providing the first evidence on how IFRS adoption impacts the use of equity-based compensation grants, our study also contributes to the literature exploring the valuation and stewardship roles of accounting information. Prior theoretical and empirical studies explore the nature and existence of a connection between the dual roles of accounting information.<sup>5</sup> Our study documents that the exogenous shift in financial reporting initiated by the mandatory IFRS adoption which altered the rules underlying reported earnings measures, resulted in changes in board-initiated compensation awards. These findings suggest that boards of directors consider not only the information content of reported earnings, but also how a shift in the link between earnings and stock prices can alter the information content and value of both performance measures. In doing so, our study can inform deliberations of standard setters who arguably place a greater focus on the valuation role of accounting information with potentially costly or unintended consequences for contracting.

The paper proceeds as follows. Section 2 provides institutional information about the financial reporting requirements and executive compensation disclosures in Canadian firms and reviews related literature. We develop our theoretical motivation and hypotheses in Section 3. Section 4 describes our data while section 5 presents our research design and results. We conclude and describe intended additional analyses in Section 6.

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<sup>5</sup> Paul (1992), Lambert (2001) and Bushman, Engel and Smith (2006), for example.



## 2. BACKGROUND AND MOTIVATION

### 2.1 Institutional setting of Canada

#### *Corporate Governance and Executive Compensation Disclosures*

Corporate governance in Canada is largely principles based (Anand, Milne and Purday 2012), which allows public firms flexibility in their corporate governance practices and disclosures. Under this approach, Canadian companies are required to "disclose or explain", that is, companies publicly disclose the extent of their compliance with suggested best practices and explain when they diverge from these practices (Broshko and Li 2006). For companies traded on the TSX, much of the disclosures and corporate governance practices are based on guidelines issued by the TSX and on disclosure requirements by the Ontario Securities Commission (OSC).

Executive compensation information was not widely available for Canadian firms until 1993, when the OSC amended regulation 638 and required public firms to start disclosing information concerning executive compensation and compensation practices. Specifically, this amendment required all TSX firms to disclose the amount and composition of the compensation of the five highest paid executives, for the current-year and prior two years. These compensation disclosures were similar to those required at the time by the U.S. SEC.

In 2008, the Canadian Securities Administrators (CSA)<sup>6</sup> introduce new amendments that required firms to provide more detailed and standardized disclosures of executive compensation and compensation practices. The CSA specified a tabulated presentation that required firms to separately disclose the executives' base salary, share-based awards, option-based awards, non-equity incentive plan compensation, which separates annual incentive plans from

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<sup>6</sup> The Canadian Securities Administrators (CSA) is an informal body that was created by the provincial and territorial Canadian regulators. The CSA is responsible for developing a harmonized approach to securities regulation in Canada, allowing the provincial and territorial regulators to coordinate and collaborate on rules, regulations, and other programs.

long-term incentive plans, pension value, all other compensation and total compensation (Form 51-102F6 Statement of Executive Compensation). Firms were required to implement the new disclosure regulations for financial years ending on or after December 31, 2008.<sup>7</sup>

### *IFRS Adoption in Canada*

Financial accounting and reporting standards for Canadian companies are established by Canada's Accounting Standards Board (AcSB). In 2006, the AcSB announced that Canada would switch its reporting standards from Canadian GAAP to IFRS. It was subsequently determined that Canadian firms will be required to report using IFRS for fiscal years starting on or after January 1, 2011.

Prior to 2011, most Canadian public firms reported using Canadian GAAP, which was closer to U.S. GAAP than to IFRS, as it provided more detailed guidance, examples, and bright line rules than IFRS. Moreover, until 2004 the AcSB was actively implementing a strategy of harmonizing Canadian GAAP with U.S. GAAP.<sup>8</sup>

Canada has developed stock markets and strong investor protection and legal institutions (La Porta et al.1998). Moreover, IFRS adoption in Canada took place after the introduction of strengthened corporate governance requirements, such as the National Instrument 52-109 which became effective in Canada in 2008 (Lu et al. 2011) and the Sarbanes-Oxley Act of 2002 (SOX), in the U.S., which was effective for Canadian firms cross-listed in the U.S. from 2007.<sup>9</sup>

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<sup>7</sup> The Canadian Securities Administrators (CSA) amended Form 51-102F6 in 2011 by requiring firms to provide additional clarifications regarding their performance-based compensation policy and risk management. Nevertheless, overall, the disclosure requirements did not change substantially or in a manner that was likely to influence board decisions on compensation awards.

<sup>8</sup> Each year the AcSB reviewed U.S.-cross-listed firms' reconciliations between Canadian GAAP and U.S. GAAP and revised standards to minimize these differences.

<sup>9</sup> Some Canadian U.S. cross-listed firms as well as non-cross-listed firms voluntarily adopted the terms of SOX prior to 2007 (Anand, Milne and Purday 2012).

Our sample period has consistently high levels of enforcement throughout. Moreover, executive compensation disclosure requirements for Canadian firms are consistent, detailed and standardized over our entire sample period. We are unaware of any significant changes to enforcement, regulation or disclosure of executive compensation that coincide with IFRS adoption in Canada.

## 2.2 Related literature

### *IFRS and the Properties of Earnings*

Numerous studies have explored various properties of earnings surrounding both the voluntary and mandatory adoption of IFRS by firms. Studies of voluntary adoption largely agree that overall accounting quality and information content of earnings for valuation purposes increased after IFRS adoption (Barth, Landsman and Lang 2008, Hung and Subramanyan 2007). Studies of mandatory adoption offer more mixed implications for earnings properties across the various adopting countries and earnings and financial reporting characteristics of interest.<sup>10</sup> Perhaps most relevant to our paper, two studies focus on earnings properties after the mandatory shift away from Canadian GAAP. Cormier and Magnan (2016) documents an increase in value relevance for firms shifting from Canadian GAAP to IFRS with the impact concentrated in U.S. cross-listed firms. Burnett et al. (2015) document that U.S. cross-listed firms, which have the choice to switch to either IFRS or U.S. GAAP do not experience a change in earnings quality when shifting from Canadian GAAP to either IFRS or U.S. GAAP. While collectively prior studies provide mixed

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<sup>10</sup> Clarkson et al. (2011), Ahmed, Neel and Wang (2012), Horton, Serafeim and Serafeim (2013) and Christensen et al. (2015) among others probe the impact of IFRS on various properties of earnings, earnings quality and the information environment surrounding the firm. Collectively, the results from the prior studies across firms in multiple countries that mandated IFRS adoption suggest both improvements and declines in the various attributes of earnings implying that these effects vary by features of the various jurisdictions.

evidence of IFRS impacts on countries around the globe, it is likely that issues of changes in earnings and reporting attributes would require boards to evaluate how they might best modify performance assessment in light of new reporting outcomes.

### *IFRS and performance evaluation*

The issue of whether and how the adoption of IFRS or a change in accounting standard links with management contracting is a question that is distinct from valuation or contracting with other stakeholders. While the valuation and stewardship roles of accounting information are not likely perfectly aligned (e.g., Gjesdal, 1981; Lambert, 2001; Paul, 1992), studies by Bushman, Engel and Smith (2006) and Banker, Huang and Natarajan (2009) document a theoretical and empirical association between the use of earnings in these two settings. Several studies explore the implications of IFRS adoption for performance evaluation and contracting, primarily focused on the 2005 widespread adoption of IFRS. Specific aspects of internal performance evaluation explored include post-IFRS changes in the sensitivity of cash compensation awards and CEO dismissal decisions to earnings documenting a greater sensitivity of earnings in executive cash compensation. Wu and Zhang (2009, 2018) find an increase in the sensitivity of CEO turnover to earnings in settings of voluntary and mandatory IFRS adoption. The evidence on the relation between earnings and cash compensation awards is more mixed with Ozkan, Singer and You (2012) documenting a weak increase in pay-performance sensitivity after IFRS adoption and DeFond et al. (2020) providing evidence of decrease in the earnings-cash compensation relation in IFRS fair value provisions, but an increase in non-fair value provisions. Voulgaris, Stathopoulos and Walker (2014) find evidence of a decrease in the use of earnings targets in the vesting provisions for equity compensation. Due to the timing of the widespread adoption of IFRS in 2005 that is the focus of most prior studies and the more recent availability of comprehensive

compensation disclosures in some countries, none of the existing studies is able to evaluate the impact of IFRS on the CEO's entire compensation package. Canada's IFRS adoption in 2011 therefore offers a compelling experimental setting for investigating the consequences of IFRS adoption on the breadth of the compensation package – both cash and equity components for a more complete analysis of the impact of IFRS on CEO compensation levels and structure.

### *Compensation of Canadian CEOs*

The amount of research on compensation plans of Canadian CEOs is limited. Several studies provide comparisons of the compensation of Canadian and U.S. firms. Zhou (2000) studies CEO pay in the 1991-1995 period and highlights several differences in the compensation of Canadian and U.S. CEOs, including a dramatically lower level of pay, a lower proportion of stock-based pay and a positive pay-for-performance sensitivity concentrated in large firms. Fernandes et al. (2013) conducts a study of CEO pay in 14 countries over the 2003-2008 period and finds no significant difference in total pay of Canadian and U.S. CEOs. In a study of the impact of institutional activism and Canadian CEO pay structure in 87 firms listed on the TSX from 1995 to 2002, Chowdhury and Wang (2009) document greater amounts of contingent CEO compensation for firms with more active institutions. Our study expands this literature by examining a more recent period in which the disclosures of Canadian CEO pay are available in a standardized and comprehensive format and specifically explores the impact of mandatory IFRS adoption on the level and structure of CEO pay.

### 3. THEORY DEVELOPMENT AND HYPOTHESES

Principal-agent theory predicts that the use of performance measures for contracting depends crucially on their informativeness about managerial actions. Since stock prices are readily available performance measures for publicly traded firms, one might surmise that stock-based compensation is critical for efficient contracting between the CEO and the board. However, stock prices are not sufficient for contracting for multiple reasons.

First, for a CEO that focuses time and effort on a single task, i.e., has limited span of control, the relative use of accounting and stock-based performance measures should be determined by their relative signal-to-noise ratio (Sloan, 1993). However, Baker (2002) argues that CEOs have multiple tasks which necessitates the use of multiple performance measures to guide the CEO's allocation of time and effort across these tasks. This argument suggests that firms are more likely to use multiple, accounting and stock-based, performance measures when the CEO has a larger span of control. In this case, the relative use of accounting and stock-based performance measures is *ex ante* undeterminable and an empirical question.

Second, Baker (1992) argues that even if the shareholders want to motivate the CEO to maximize long run firm value, stock prices may deviate from long-run firm value due to manipulation or selective disclosures by managers. The use of stock-based compensation therefore depends on the degree of noise, or distortion, in stock prices relative to long-run firm value. A performance measure with more noise or distortion is used less intensely for contracting. Paul (1992) argues that boards can use other performance measures such as current earnings to rinse out noise in stock prices, which reduces the CEO's compensation risk. Therefore, the use of stock-based compensation is predicted to change if IFRS adoption affects the noise or distortion in prices

relative to long run firm value. If IFRS decreases the noise in stock prices, the fraction of equity-based compensation is expected to increase.

Holmström and Tirole (1993), among others, argue that the use of stock-based compensation is affected by the liquidity of the firm's stock. Illiquidity of stock implies that information about the manager's actions are revealed less rapidly and managers granted stock based compensation require a premium for illiquidity risk. Related, Baiman and Verrecchia (1995) predict that the relative use of accounting and stock-based compensation depends on the degree of informed trading. They show that if the CEO can engage in profitable insider trading due to access to private information, then the board anticipates the trading profits and reduces explicit compensation from the firm up front, at the time of contracting. Gao, Jiang, and Zhang (2019) specifically model two effects from IFRS adoption related to liquidity. First, IFRS adoption can change the informativeness of stock prices about managerial actions. Second, IFRS can have a network effect between firms that use the same accounting standard because investors can apply their accounting expertise to multiple stocks to interpret managers' performance. This latter effect is arguably particularly important for U.S.-cross-listed Canadian firms that switch from Canadian GAAP to IFRS because their U.S. peers use U.S. GAAP which is more similar to Canadian GAAP and less similar to IFRS. As a result, U.S.-cross-listed Canadian firms that adopt IFRS are predicted to experience a negative network effect that is absent for non-cross-listed Canadian firm. This suggests that U.S. cross-listed firms may experience a decline in the informativeness and liquidity of their stocks, which in turn may reduce the usage of equity-based compensation and increase cash payments, to compensate for the additional illiquidity risk.

Early analytical literature of contracting and moral hazard within firms considers settings where the CEO controls a single task and is rewarded based on a single noisy performance

measure. Holmström (1979) shows that an additional performance measure improves contracting if it is informative, helps better inferences about the CEO's unobservable choice. To illustrate, while earnings are an audited performance measure, the historical cost basis applied by accounting standards suggests that stock prices likely contain additional forward-looking information relevant for contracting. Conversely, while stock prices reflect and aggregate information from dispersed investors' diverse information sources, temporary deviations from fundamentals due to investor sentiment suggest that earnings likely contain additional reliable information that can be used as an anchor for contracting.

Consistent with this key prediction, CEO compensation uses both earnings and stock-based performance measures in practice, albeit with weaker pay-to-performance relations than expected. In fact, some argue that CEOs are "paid like bureaucrats". Motivated by the use of lower-powered incentives in practice, analytical models proposed a multi-task moral hazard model where the CEO controls a multitude of diverse tasks.<sup>11</sup> When the board has a restricted set of performance measures, the reliance on the available performance measures gives the CEO incentives to neglect those tasks that cannot be measured. To ensure effort allocation across all tasks, the board may be better off with imposing weaker incentives, or even ignoring some performance measures. In his Nobel prize speech, Holmström (2017) notes that "within firms, high-powered financial incentives can be very dysfunctional and attempts to bring the market inside the firm are generally misguided. Typically, it is best to avoid high-powered incentives and sometimes not use pay for performance at all." The null hypothesis of no pay-to-performance sensitivity is therefore credible.

A second key prediction from the early analytical contracting literature is that the strength of incentives declines in the noise in performance measures. To illustrate, firms with low earnings

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<sup>11</sup> See Holmström and Milgrom (1991), Feltham and Xie (1994), Datar, Kulp, and Lambert (2001), and Baker (2002).



quality rely less heavily on earnings as a performance measure and, *ceteris paribus*, rely more heavily on stock price when contracting with the CEO. Conversely, boards should rely less on stock-based performance measures when stock markets are subject to sentiment or bubbles and, *ceteris paribus*, rely more on accounting-based performance measures. The prediction that higher risk leads to a lower pay-to-performance is predicated on a setting where noise is additive and exogenous to CEO effort. Nevertheless, this prediction can be evaluated empirically by sorting firms based on the risk in the performance measures.

However, finding that firms with high volatility in either earnings or stock returns changes CEO compensation and its components as predicted is not automatic. Prendergast (2002) reviews empirical compensation literature and finds mixed support for the prediction that high uncertainty leads to lower powered incentives in CEO contracts.<sup>12</sup> Prendergast (2002) offers an analytical reasoning for a positive association between risk and strength of incentives based on the observation that some risk is not merely additive noise, but instead multiplicative noise from information that the CEO can exploit when selecting efforts.

Our discussion of value relevance in the introduction acknowledges that the variability in earnings and the variability in stock prices are related. Stock prices reflect earnings news and prior literature uses value relevance, the percentage of variation in stock prices explained by earnings, as a market-based earnings attribute. This suggests that variability in earnings may mechanically spillover into variability in stock prices. Given that stock prices also aggregates other information

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<sup>12</sup> Prendergast (2002), p. 1075, notes that: “Specifically, if multitasking concerns are greater in uncertain environments, then the results described above can reverse in that the standard negative trade-off can now be attained.... If the extent to which accounts can be manipulated does not vary between Canada and Armenia, the qualitative results of the basic model are unchanged: multitasking makes output-based contracting less desirable, but there are no qualitative implications for how uncertainty affects the trade-off between input and output monitoring. But if it is easier to distort performance measures in more uncertain environments (e.g., since accounting methods in Armenia are nonstandard), then the results can reverse in that a negative trade-off is now possible. The reason for this reversal is that there is now a countervailing effect whereby output-based contracts become increasingly distorted in uncertain settings.”

collected by investors and traders, stock price variability has a component that is separate from earnings variability.

Our empirical research setting uses Canadian firms' IFRS adoption as a plausible exogenous shock to contracting. One channel through which the shock transmits to compensation contracts is through financial reporting outcomes. Since IFRS adoption affects value relevance, earnings volatility, and stock return volatility, we investigate how changes in these three financial reporting related outcomes affect CEO compensation around IFRS adoption.

### *Hypotheses*

Based on the theoretical arguments above, we now state formal hypotheses.

Changes in financial reporting outcomes are expected to change stock prices and their information content. This leads to our first hypothesis:

**H1:** *The level and fraction of stock-based CEO compensation do not change around IFRS adoption.*

If performance-based compensation changes around IFRS adoption then the risk premium required to compensate CEOs may also change. This would change total compensation:

**H2:** *The level of total CEO compensation does not change around IFRS adoption.*

We also make cross-sectional predictions regarding the effect of IFRS on executive compensation based on changes in earnings attributes and stock market outcomes.

**H3:** *The change around IFRS adoption in the level and fraction of components of CEO compensation is not moderated by changes in (i) value relevance, (ii) earnings volatility, or (iii) stock return volatility.*

Collectively, rejection of these null hypotheses support our contention that mandatory IFRS adoption affects the use of stock-based compensation of executives.

#### 4. DATA AND DESCRIPTIVE INFORMATION

##### *Sample and data*

AcSB required all publicly accountable enterprises to apply IFRS for fiscal years beginning on or after January 1, 2011. We begin our sample formation with Canadian firms in Compustat listed on the TSX with data two years before and two years after the mandatory implementation of IFRS. We focus on the largest 200 firm by market capitalization. For these firms that are only listed in Canada, we hand-collected compensation data and CEO characteristics data from the firms' annual proxy circulars. For the remaining firms that are cross-listed in U.S., we used compensation data from the Canadian Centre for Policy Alternatives (CCPA), which was supplemented with hand-collected compensation and CEO characteristics data from proxy circulars.

The sample spans the years 2008 through 2015 to capture CEO compensation for three years before IFRS adoption and three years after IFRS adoption, excluding the adoption year. Firms with fiscal year ends from December 31 to May 31 adopted IFRS in fiscal year 2011, therefore, for these firms the pre-IFRS adoption period covers fiscal years 2008 – 2010, and the post-IFRS adoption period cover fiscal years 2012 – 2014. Firms with fiscal year ends from June 1 to December 30 adopted IFRS in fiscal year 2012, such that the pre-IFRS adoption period covers fiscal years 2009 – 2011 and the post-IFRS adoption period covers fiscal years 2013 – 2015.

Table 1 Panel A details our sample formation process. We begin with 200 firms listed on TSX with Compustat data for two years before and two years after IFRS adoption. From the non-cross-listed firms, we exclude three firms that adopt IFRS early to avoid introducing any self-selection

bias from firms' choice to voluntarily adopt IFRS. We also exclude one firm that obtained special approval to adopt U.S. GAAP.<sup>13</sup>

The AcSB requirement affected also Canadian firms cross-listed in the U.S.. Prior to IFRS implementation, Canadian firms cross-listed in the U.S. were permitted to choose between Canadian GAAP and U.S. GAAP. After Canada implemented IFRS, these cross-listed firms were permitted to use IFRS or U.S. GAAP for preparing their financial statements.<sup>14</sup> Since our study focuses on firms that switched from Canadian GAAP to IFRS, we exclude from our sample four cross-listed firms that adopted U.S. GAAP and ten cross-listed firms that reported under U.S. GAAP prior to 2011, including three that switched from U.S. GAAP to IFRS. These exclusions result in a preliminary sample of 182 firms that adopted IFRS. Of these, 122 are listed only in Canada, and 60 are cross-listed in the U.S..

Table 1 Panel B details the firm-years sample formation. Our sample is not constant. After excluding firm-years observations with zero total compensation, co-CEOs, CEO turnover, and firm-years where it was the CEO's first year in office, we have 679 firm-years observations for firms that are listed only in Canada and 362 firm-years observations for U.S. cross-listed firms. Next, we exclude the IFRS adoption year and observation with missing market or CEO characteristics. Our final sample include 546 firm-years observations for firms only listed in Canada and 297 firm-years observations for firms also cross-listed in U.S..

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<sup>13</sup> When Canada adopted IFRS in 2011, some rate-regulated and insurance companies obtained special permission to delay IFRS adoption and adopt U.S. GAAP instead, since there was no IFRS standard for rate-regulated and insurance at the time.

<sup>14</sup> Under the Multi-Jurisdictional Disclosure System adopted in 1991, Canadian (U.S.) firms can access U.S. (Canadian) capital markets using prospectuses prepared in accordance with Canadian (U.S.) disclosure requirements. Hence, Canadian firms can access U.S. capital markets with limited oversight from the SEC and without additional disclosure requirements or reconciliation to U.S. GAAP (Burnett et al. 2017).

### *Descriptive statistics*

Table 2 presents descriptive information of our sample compensation and controls variables for firms not cross-listed in the U.S. for all sample years (Panel A) and separately for the periods before and after IFRS adoption (Panel B). From Panel A we observe that the average CEO compensation during the sample period is 3.482 million Canadian dollars. A substantial portion of total compensation is comprised of stocks and options. Equity-based compensation accounts for 40% of the CEO total compensation, while salary accounts for 31% and short-term incentive pay (STIP) accounts for 27% over the sample period. When comparing compensation level and components before and after IFRS adoption, we observe an increase in the average level of total compensation, attributable to an increase in average salary, STIP and stock compensation. Nevertheless, the proportion of salary to total compensation decreased from 33% on average before IFRS adoption to 28% on average after IFRS adoption, while the proportion of stock increased from 18% on average before IFRS adoption to 25% on average after IFRS adoption. These changes are statistically significant.

As for firm characteristics, average and median total assets increase from the pre- to post-IFRS adoption periods. We note that stock returns appear to decrease from 28.3% on average in the pre-IFRS period to 9.7% in the post-IFRS period. ROA volatility also decreases post-IFRS adoption.

Figure 1 presents additional information about the distribution of CEO compensation and its components. Figure 1A presents a histogram of salary paid to CEOs of non-cross-listed firms. The histogram is based on all firm-years observations and from casual inspection it appears to present three patterns that are consistent with prior U.S. evidence. First, figure 1A reveals that a small fraction of CEOs receive zero salary (2.38% of the observations), consistent with Hamm,

Jung and Wang (2015) and Loureiro, Makhija, and Zhang (2020).<sup>15</sup> Second, the salary histogram exhibit a peak at one million dollar salary (3.51%) consistent with Rose and Wolfram (2000, 2002). Third, we observe other peaks in the salary histogram at round numbers divisible by 100,000, consistent with heaping of executive compensation, see Jorgensen, Patrick, and Soderstrom (2020).

Figure 1B present a histogram of bonus payments to CEOs, which reveals that 15.59% of firm-observations receive no bonus while for 13.06% of firm-observations, the bonus amount was larger than 1.5 million Canadian Dollars. Figures 1C and 1D present histograms of stock grants and option grants to CEOs. In 43.11% (37.78%) of firm-years observations the CEO does not receive any stock (option) grants. The histograms of bonus payments, stock grants and option grants exhibit peaks at round numbers, similar to the histogram of CEO salary. Overall, we observe significant variation in the components and size of CEO compensation.

## 5. RESEARCH DESIGN AND RESULTS

We begin by examining whether and how CEO total compensation and its components were affected by the mandatory adoption of IFRS by Canadian public firms. We create a compensation model that includes standard economic predictors, CEO characteristics, firm fixed effects and an indicator variable capturing the Post-IFRS period.

$$\begin{aligned} \text{Compensation}_{i,t} = & \alpha + \beta_1 \text{Post\_IFRS}_{i,t} + \beta_j \text{EconomicPredictors}_{j,t} \\ & + \beta_k \sum \text{CEO Characteristics}_{k,t} + \beta_m \sum \text{FirmFE} + \varepsilon \end{aligned} \quad (1)$$

We estimate this model with several measures of *Compensation* including the log of total compensation, its cash and equity components and the proportions of cash and equity to total

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<sup>15</sup> To illustrate, James H. T. Riddell, CEO of Trilogy Energy Corp., received no salary in 2010, but was granted both shares and options. Similarly, Sam Kolias, CEO of Boardwalk Real Estate Trust, received no compensation of any kind, but maintains substantial equity ownership.

compensation. Economic predictors include firm size (*Assets*), accounting and stock performance (*ROA* and *Stock Return*), accounting and stock return variance (*Earnings Volatility* and *Stock Volatility*) and market-to-book ratio (*MTB*). CEO characteristics include CEO age (*CEO Age*), CEO tenure (*CEO Tenure*), an indicator of whether the CEO holds the role of board chair (*Dual*), and an indicator of whether the CEO is a founder of the firm or founding family (*Founder*). All variables are defined in the Appendix. We estimate the model firm fixed effects (FE) and report robust standard errors clustered by firm.

Our main variable of interest, *Post\_IFRS*, is equal to one for years after the mandator adoption of IFRS (i.e., 2012 through 2014 for firms that adopted IFRS in fiscal year 2011). A significant coefficient on *Post\_IFRS* in the estimation would suggest a change in the level of total CEO compensation or its components or in the structure of the annual compensation (i.e., the proportion of equity compensation grants to total compensation) after firms are adopt IFRS.

We report the results of the estimation of Equation (1) in Table 3. In Panel A, we document a significant increase in total compensation and in its cash and equity components for firm-years after IFRS adoption (i.e., the coefficient on *Post\_IFRS* is statistically significant). Panel B indicates that the increase in post-IFRS cash compensation is driven by the salary component while both restricted stock and stock options exhibit a significant increase. Interestingly, we do not observe a significant relation between annual short-term compensation and either ROA or stock return performance and in fact observe a negative relation between ROA and both salary and grants of stock. Despite a uniformly strong relation between bonus compensation and earnings in most studies of CEO compensation in the U.S., the lack of a performance relation in our sample is consistent with prior studies reporting weak, if any, pay-for-performance sensitivity of Canadian CEO cash compensation to earnings and stock returns (Zhou, 2000). Our results using the cash

and equity components of compensation (Panel C) document a significant shift in the structure of compensation from cash components to stock-based compensation with the decline in cash component due primarily to a smaller percentage of salary (-6.5%) and the increase in the equity component (4.0%) due primarily to a higher proportion of stock (6.2%). All results are robust to the inclusion of year fixed effects and pseudo-event date.

Overall, the results are consistent with changes in financial reporting outcomes due to IFRS adoption, which alters the informational content of stock prices and leads to an increase in stock-based compensation (H1) and total compensation (H2).

We next consider whether the impact of IFRS implementation differs across firms for which IFRS adoption (a) had a large impact on the relationship between earnings and stock prices and (b) was associated with greater changes in the variability in both earnings and stock prices. We argue that these are characteristics of the performance measures that are likely linked with their ability to capture executive's contribution to value. Specifically, we examine the change in value relevance of earnings with respect to stock prices and the change in volatility of both stock returns and earnings from the pre- to the post-IFRS period.

We partition our sample to capture the magnitude of the impact of IFRS on properties of the firms' performance measures. In our first set of partitions, we consider the extent of the change in the value relevance of earnings with respect to stock prices. Since firms may balance accounting and stock-based performance measures when determining annual compensation, we expect that firms which experience a greater change in the association between earnings and stock prices around the IFRS adoption period, experience a greater change in CEO compensation and its components. We measure the value relevance (VR) of earnings with respect to stock returns using the R-squared from firm specific regressions of quarterly stock returns on year-over-year quarterly



changes in earnings (scaled by price) for both the three year period before and after IFRS adoption.<sup>16</sup> We use the median change in firm-specific R-squared from the pre-IFRS to the post-IFRS periods to classify firms as High Change in VR (above median) or Low Change in VR (below median). We separately estimate equation (1) for the two subsamples and test whether differences in compensation and level and structure are larger for High Change in VR firms relative to Low Change in VR firms.

Next we consider the magnitude of the change in both stock price and accounting performance volatility over the IFRS adoption period. Performance measure variability may impact executive compensation and incentives in several ways. First, accounting and stock-based performance measures become less prominent in compensation when contain more noise. Second, if stock-based compensation and executives' equity holdings experience more variability, the riskiness of the compensation package increases, which may result in changes in the level and structure of compensation grants. We examine whether firms that experience larger increases in stock return and return on asset (ROA) volatility after IFRS adoption also have larger shifts in their compensation level and structure in the post-IFRS adoption period. We measure stock return volatility in the pre (post) IFRS adoption for each firm using the standard deviation of daily stock returns over the 3 year period before (after) IFRS adoption. ROA volatility is similarly computed using the standard of quarterly stock returns in the 3 years before and after IFRS adoption. We compute the change in stock price and ROA volatility as volatility in the post-IFRS period minus the volatility in the pre-IFRS period. We classify those firms with above median changes in stock return and ROA volatility as High Change in Stock Return Variability and High Change in ROA

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<sup>16</sup> The use of R-squared from the regression of stock returns on earnings as a measure of the value relevance is similar to that in numerous studies including Collins et al. (1997) and Francis and Schipper (1999), among others. We require each firm to be present for at least two years prior to and two years after the 2011 switch from Canadian GAAP to IFRS for estimation.

Variability and those with below median changes in stock price and ROA volatility as Low Change in Stock Return Volatility and Low Change in ROA Volatility. We separately estimate equation (1) for the subsamples and test whether differences in compensation and level and structure are larger for High Change in Stock Return Volatility (High Change in ROA Volatility) firms relative to Low Change in Stock Return Volatility (Low Change in ROA Volatility) firms.

We report the descriptive information about the partitions in Table 4. Panel A documents that the mean (median) level of value relevance has declined (increased) from the pre- to post-IFRS period. Panel B reveals that both mean and median stock return volatility has declined, while mean and median ROA volatility has increased from the pre- to the post-IFRS period. Panel C compares our key model variables over high and low partitions for the three characteristics in the pre-IFRS period to note whether there exist significant differences on the partitioning variables in the pre-IFRS period. We observe the high value relevant firms are slightly smaller, have higher MTB ratios and higher performance in the pre-IFRS period, while the firm characteristics do not significantly differ across either volatility partition prior to IFRS adoption. For stock return volatility and ROA volatility, we observe some differences in CEO characteristics in the pre-IFRS period. We continue to control for these characteristics in our regression models.

To test H3, we separately estimate equation (1) for the high and low partitions with the level and fraction of total compensation and its key components as dependent variables. We report the results of the coefficient estimates on Post-IFRS by partition in Table 5 along with tests of the equality of the Post-IFRS coefficients between the partitions. A significant p-value of the test of equality indicates that the change in the level (or percentage) of compensation between the pre and post-IFRS periods differ between the high and low change partitions.

The first panel of Table 5 reveals that firms with below median changes value relevance have higher total compensation, cash based compensation and larger fraction of compensation based on equity post IFRS adoption. We note that change in value relevance moderates the effect of IFRS adoption. Specifically, the firms that experience a greater change in value relevance have a less pronounced effect from IFRS adoption than firms that experience below the median value relevance change, although in the same direction. Since average value relevance decrease, we interpret these results as consistent with a reduction in the ability of earnings to reflect managers' contributions to value. This reduction leads to an increase in the relative contract informativeness of stock prices, suggesting a shift toward more equity compensation in the post-IFRS period. The greater amount of at-risk pay (i.e., stock-based compensation) is consistent with the observed increases in the total level of compensation reflecting a necessary risk premium.

Our analyses of the stock return and earnings volatility suggest that the increase in total compensation and its cash and equity components is concentrated in firms that experience higher changes in stock return and earnings volatility over the IFRS implementation period. These firms also display a significantly higher fraction of equity-based compensation driven largely by an increase percentage of stock grants, rather than option grants and a reduction in the fraction of cash-based compensation. Recall from Table 4 Panel A that the average change in stock volatility declined while the average change in ROA volatility was neutral. Consistent with theory, when stock-based (earnings) performance measures become relatively less (more) noisy, the less noisy performance measure will receive more emphasis. The results using the change in stock return and ROA volatility partitions, suggest that the higher levels of compensation and a shift from cash to equity compensation in the post-IFRS period are concentrated in the firms with greater changes in volatility of these two key performance measures. We find no evidence of significant changes

in CEO compensation levels or a significant shift from cash to equity compensation for firms with low changes in stock return and low change in ROA volatility around IFRS adoption.

*Canadian Firms Cross-listed in the U.S.*

Table 6 presents descriptive information of CEO compensation and control variables for the sample of U.S.-cross-listed Canadian firms, for all sample years (Panel A) and separately for the periods before and after IFRS adoption (Panel B). From Panel A we observe that the average CEO compensation during the sample period is 6.510 million Canadian dollars, substantially higher than the average compensation of a CEO of a non U.S.-cross-listed Canadian firm. The higher total compensation for CEOs of cross-listed firms is consistent with cross-listed firms having more assets and higher exposure to litigation risk from the U.S. market. Panel A also indicated that cross-listed firms use more equity-based compensation than non-cross-listed firms. Equity-based compensation accounts for 50% of total CEO compensation, while salary and bonus account for only 23% and 18% of total CEO compensation, respectively.

Similar to firms exclusively listed in Canada, the CEO compensation level and components change around IFRS adoption. The average and mean levels of total compensation and stock grants increase significantly. However, when analyzing the components of compensation, it appears that the proportion of salary to total compensation decreases from 36% before IFRS adoption to 20% after IFRS adoption. The fraction of equity compensation increases from 50% to 56% after IFRS adoption. We also note that ROA and stock return significantly decline around IFRS implementation. Overall, Panel B suggests that the level and structure of CEO compensation change around IFRS adoption.

We report the results of the estimation of Equation (1) for U.S.-cross-listed Canadian firms in Table 7. In Panel A, we document a significant increase in total compensation for firm-years after

IFRS adoption (i.e., the coefficient on *Post\_IFRS* is statistically significant). Similar to Table 3 and consistent with Zhou (2000), we do not observe a significant positive relation between CEO compensation and performance measured by either ROA or stock returns. The smaller sample size of U.S.-cross-listed firms could potentially reduce the power of our tests and our ability to reject the null hypothesis.

As for the components of compensation (Panel C), we document a significant shift in the structure of compensation as the fraction of salary decreases (-3.7%) while the fraction of the equity component increases (6.6%). Nevertheless, it appears that the components of equity-based compensation are also readjusted after IFRS adoption, as the share of stock grants out of total compensation rise by 13.8% and the share of options decline by 7.2%. All results reported in Table 7 are robust to using a pseudo-event date.

We report the descriptive information about the partitions for firms cross-listed in the U.S. in Table 8. Panel A documents that the mean and median levels of change in value relevance and change in stock volatility have declined from the pre-to-post-IFRS period. Panel B reveals that most of the firms in our sample exhibit a decrease in stock volatility from the pre-to-post-IFRS period. Panel C indicated that some of our key model variables differ across the high and low partitions in the pre-IFRS period. Consistent with our observations for the non-cross-listed firms, high value relevant firms are slightly smaller and have a lower median MTB in the pre-IFRS period. Moreover, the average and mean CEO age are higher for firms with higher change in value relevance. Firms with higher change in stock volatility have lower stock returns on average and their CEOs' tenure is longer. Lastly, firms with an above the median change in ROA volatility are larger, have lower MTB ratios and appear to have more CEOs that also serve as chair of the board

in the pre-IFRS period. Overall, firm characteristics in the pre-IFRS period slightly differ between the high and low partitions. We continue to control for these characteristics in our analysis.

Table 9 presents the regressions estimations using the partitions for firms cross-listed in the U.S.. The first partition indicates that firms with below median change in value relevance have higher total compensation and cash based compensation, as well as an increase in the fraction of equity-based compensation after IFRS adoption, consistent with the results observed for Canadian firms that are not cross-listed in the U.S.. Firms with a low, below the median change in value relevance experience a decline in value relevance around IFRS adoption. The decline in value relevance is consistent with stock prices containing more information relative to the information in earnings. Thus, our finding of a higher increase in equity-based compensation along with an increase in cash-based compensation around IFRS adoption for the low change in value relevance firms, is as expected.

As described in Table 8, firms above the median change in stock volatility, experience a decline in stock return volatility. The prediction is that with less noise in stock returns, CEOs may receive more stocks-based compensation. Table 9 indicate that the increase in stock grants around IFRS adoption is larger for firms with greater decline in stock volatility (8% for firms above the median and 18.3% for firms below median). Furthermore, firms below the median, with greater decline in stock volatility, shift within stock-based compensation from options to equity,<sup>17</sup> consistent with non-cross-listed firms with below the median stock volatility.

Lastly, we note that firms with increasing ROA volatility (above the median) also shift CEO compensation from options to equity. CEOs are paid less and receive a lower fraction of their pay

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<sup>17</sup> This realignment could happen if past options grants are out the money and have lost their incentive effect due to decreased return volatility. The board could then reestablish incentives by granting more equity.

in in stock-based compensation in firms with increasing earnings volatility relative to firms with decreasing earnings volatility (below the median).

Collectively, our analysis of firms cross-listed in the U.S. indicate that CEO compensation changes around IFRS adoption. The fraction of stock based CEO compensation appears to increase and so does the level of CEO total compensation. Moreover, the effect of IFRS adoption on CEO compensation appears to be moderated with the changes in financial reporting outcomes.

## 6. CONCLUSION

We investigate changes in CEO compensation around IFRS adoption, with a contribution focused on stock-based compensation. The study is set in Canada, which adopted IFRS in 2011 and mandated detailed disclosures of stock-based compensation awards beginning in 2008. In contrast, other countries and jurisdictions that imposed mandatory IFRS earlier than Canada did so before requiring disclosures of stock-based compensation. Thus, the Canadian setting offers a unique opportunity to probe the impact of a mandatory change in accounting standards on contracting with executives.

We document significant increases in the level of total compensation and both cash and equity components with a corresponding significant increase in the proportion of stock-based compensation. We further provide evidence that the increase in cash and equity compensation levels and the proportion of equity compensation is greater when the change in value relevance surrounding IFRS is lower, and the volatility of earnings and stock returns is higher. We observe that these effects are consistent with a movement toward stock-based compensation when earnings are relatively less able to provide insights about managerial contributions to the value of the firm.

We plan to expand our analysis in several directions. First, we plan to conduct difference-in-difference analyses comparing U.S.-cross-listed Canadian firms that adopted IFRS to U.S.-cross-listed Canadian firms that reported using US GAAP throughout our sample period to highlight the compensation effects in Canadian firms that switched to IFRS. Second, we intend to explore whether there exists variation in the effect of IFRS adoption on CEO compensation with forms of ownership structure and across the major industries that are prominent in Canada. Third, we plan to analyze whether and how incentive intensity or pay-performance sensitivity was impacted by IFRS adoption and corresponding adjustments to stock-based awards to ‘rebalance’ the level of incentives in the CEOs portfolio.

A direction for future research might be to estimate common measures of excess compensation from the U.S. compensation debate (Bebchuk, Cremers, and Peyer 2011; Core, Holthausen and Larcker 1999). Such estimates would allow investigation of excess compensation in Canada, how it is affected by IFRS adoption, and whether the impact of corporate governance characteristics differ between Canada and the U.S..



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## APPENDIX

### Variable Definitions

<u>Variables</u>	<u>Description</u>	<u>Source</u>
<i>Total compensation</i>	Dollar value of total compensation from the annual compensation table	Hand collection/ CCPA
<i>Salary</i>	Dollar value of salary from annual compensation table	Hand collection/ CCPA
<i>STIP</i>	Dollar value of Short-term Investment Plan (STIP) from annual compensation table	Hand collection/ CCPA
<i>LTIP</i>	Dollar value of Long-term Investment Plan (LTIP ) from annual compensation table	Hand collection/ CCPA
<i>Stock</i>	Dollar value of stocks grants from annual compensation table	Hand collection/ CCPA
<i>Option</i>	Dollar value of options grants from annual compensation table	Hand collection/ CCPA
<i>Pension</i>	Dollar value of pension from annual compensation table	Hand collection/ CCPA
<i>Other</i>	Dollar value of other compensation payments from annual compensation table	Hand collection/ CCPA
<i>Bonus</i>	Dollar value of the sum of STIP and LTIP; the dollar value of bonus from the annual compensation table for U.S. cross-listed Canadian firms	Hand collection/ CCPA
<i>Equity</i>	Dollar value of the sum of stock grants and option grants.	Hand collection/ CCPA
<i>%Salary</i>	Dollar value of salary divided by dollar value of total compensation	Hand collection/ CCPA
<i>%STIP</i>	Dollar value of STIP divided by dollar value of total compensation	Hand collection/ CCPA
<i>%LTIP</i>	Dollar value of LTIP divided by dollar value of total compensation	Hand collection/ CCPA
<i>%Bonus</i>	Dollar value of bonus divided by dollar value of total compensation	
<i>%Stock</i>	Dollar value of stock grants divided by dollar value of total compensation	Hand collection/ CCPA
<i>%Option</i>	Dollar value of options grants divided by dollar value of total compensation	Hand collection/ CCPA
<i>%Equity</i>	Dollar value of equity divided by dollar value of total compensation	Hand collection/ CCPA

*(continued on next page)*

<i>Post_IFRS</i>	A year dummy set equal to one for fiscal years after IFRS adoption in Canada, and zero otherwise.	
<i>Assets</i>	Natural log of total assets (AT).	Compustat fundamentals
<i>ROA</i>	Net income (IB) divided by lagged total assets (AT).	Compustat fundamentals
<i>Stock Return</i>	Market-adjusted 12-month stock returns	Compustat security daily
<i>ROA Volatility</i>	Standard deviation of quarterly ROA over the prior 3-year period.	Compustat fundamentals
<i>Stock Volatility</i>	The standard deviation of daily stock returns over the prior twelve months	Compustat security daily
<i>MTB</i>	Market-to-book ratio as measured as market value of equity (CSHO*PRCC_F) divided by book value of equity (CEQ).	Compustat fundamentals
<i>CEO Age</i>	The CEO age	Hand collection
<i>CEO Tenure</i>	The length of time the CEO has been with the current firm.	Hand collection
<i>Dual</i>	Indicator variable taking the value of one if the CEO is also the Chairman of the Board, and zero otherwise	Hand collection
<i>Founder</i>	Indicator variable taking the value of one if the CEO is founder of the firm or founding family, and zero otherwise	Hand collection
<i>Change in Value Relevance (VR)</i>	The change in the R-squared from a regression of stock returns on earnings from before IFRS adoption and after IFRS adoption. We conduct the regression estimation at the firm level, using quarterly stock returns on year-over-year quarterly changes in earnings (scaled by price) for both the three year period before and after IFRS adoption. We require each firm to have quarterly stock returns, earnings, and price for at least eight quarters before and after IFRS adoption.	Compustat fundamentals Compustat security daily
<i>Change in Stock Volatility</i>	The change in the standard deviation of quarterly ROA over the 3-year period from before IFRS adoption and after IFRS adoption.	Compustat fundamentals
<i>Change in ROA Volatility</i>	The change in the standard deviation of daily stock returns over 36 months from before IFRS adoption and after IFRS adoption.	<i>Compustat security daily</i>

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**TABLE 1**  
**Sample Formation**

**Panel A: Canadian Firms that Adopted IFRS**

	<b>Not Cross- listed in U.S.</b>	<b>Cross-listed in U.S.</b>	<b>Total</b>
Canadian firms listed on the TSX in 2010	126	74	200
Firms that adopted IFRS early	-3	0	-3
Firms that obtain special approval to adopt U.S. GAAP	-1	NA	-1
Firms that adopt U.S. GAAP	NA	-4	-4
Firms that previously reported under U.S. GAAP	NA	-7	-7
Firms that previously reported under U.S. GAAP and adopted IFRS	NA	-3	-3
No. of firms	122	60	182

**Panel B: Firm-years observation with required data**

No. of firm-years with non-zero compensation data	679	362	1,041
Excluding adoption year	-104	-54	-158
Excluding firm-years with missing market and CEO characteristics data	-29	-11	-40
No. of firm-years with required data	546	297	843

Panel A reports the sample selection of Canadian firms in COMPUSTAT that were listed on the Toronto Stock Exchange with financial data for at least two years before and after IFRS adoption. Panel B reports the sample formation. We require firm-years with available CEO compensation data, daily stock prices from COMPUSTAT and corporate governance data. We exclude firm-years observations with co-CEOs, CEO turnover and first year in office.

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**TABLE 2**

**Descriptive Statistics**

**Panel A: Firms Not Cross-listed in the U.S., All Sample Years**

*Level of Chief Executive Officer (CEO) Compensation ('000 Canadian Dollars)*

<i>Variables</i>	<i>N</i>	<i>Mean</i>	<i>Std. Dev.</i>	<b>25th percentile</b>	<b>50th percentile</b>	<b>75th percentile</b>
Total compensation	546	3,482.48	4,546.17	1,739.87	2,728.38	3,987.96
Salary	546	699.21	458.33	485.33	650.00	840.00
STIP	546	946.97	1,831.08	271.55	650.00	1,026.10
LTIP	546	75.25	442.97	0.00	0.00	0.00
Stock	546	768.17	1,313.98	0.00	322.91	1,113.71
Option	546	745.11	2,935.82	0.00	287.23	720.59
Pension	546	131.78	406.35	0.00	0.00	111.60
Other	546	116.74	434.94	0.00	22.72	79.32
<i>Percentage of CEO Compensation</i>						
%Salary	546	0.31	0.20	0.19	0.26	0.36
%STIP	546	0.27	0.14	0.14	0.26	0.37
%LTIP	546	0.02	0.09	0.00	0.00	0.00
%Stock	546	0.21	0.23	0.00	0.18	0.35
%Option	546	0.19	0.21	0.00	0.14	0.31
%Equity	546	0.40	0.25	0.23	0.42	0.57
<i>Other Variables</i>						
Assets	546	8.060	1.232	7.371	7.952	8.676
ROA	546	0.035	0.006	0.006	0.038	0.072
Stock Return	546	0.203	0.683	-0.069	0.129	0.348
ROA Volatility	546	0.022	0.032	0.005	0.011	0.024
Stock Volatility	546	0.045	0.412	0.016	0.023	0.034
MTB	546	2.023	1.494	1.183	1.755	2.484
CEO Age	546	54.66	7.92	49.00	54.00	59.00
CEO Tenure	546	10.05	8.27	4.00	8.00	14.00
Dual	546	0.20	0.40	0.00	0.00	0.00
Founder	546	0.28	0.45	0.00	0.00	1.00

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**Panel B: Pre-and Post- IFRS Adoption**

*Chief Executive Officer (CEO) Compensation ('000 Canadian Dollars)*

	Pre IFRS adoption			Post IFRS adoption				
	N	Mean	Median	N	Mean		Median	
Total compensation	309	3,034.10	2,417.25	237	4,067.08	***	3,204.66	***
Salary	309	651.59	600.00	237	761.29	***	710.50	***
STIP	309	802.74	550.80	237	1,135.02	**	712.96	***
LTIP	309	61.83	0.00	237	92.75		0.00	*
Stock	309	641.38	29.09	237	933.49	***	611.90	***
Option	309	674.16	206.38	237	837.63		385.57	**
Pension	309	123.35	0.00	237	142.78		0.00	
Other	309	81.11	17.00	237	163.19	**	34.24	***
<i>% of CEO Compensation</i>								
%Salary	309	0.33	0.29	237	0.28	***	0.24	***
%STIP	309	0.27	0.25	237	0.27		0.26	
%LTIP	309	0.02	0.00	237	0.03	**	0.00	**
%Stock	309	0.18	0.01	237	0.25	***	0.25	***
%Option	309	0.20	0.10	237	0.17		0.14	
%Equity	309	0.38	0.41	237	0.42		0.44	
<i>Other Variables</i>								
Assets	309	7.889	7.857	237	8.283	*	8.038	***
ROA	309	0.040	0.039	237	0.030		0.037	
Stock Return	309	0.283	0.156	237	0.097	***	0.109	*
ROA Volatility	309	0.025	0.013	237	0.017	***	0.01	***
Stock Volatility	309	0.028	0.024	237	0.068		0.02	
MTB	309	1.938	1.718	237	2.133		1.797	
CEO Age	309	53.71	53.00	237	55.89	***	56.00	***
CEO Tenure	309	9.49	7.00	237	10.78	*	8.00	*
Dual	309	0.22	0.00	237	0.17		0.00	
Founder	309	0.29	0.00	237	0.25		0.00	

Panel A presents summary statistics for the variables used in the analysis over the entire sample period. Panel B presents summary statistics for the variables in the pre IFRS adoption period and the post IFRS adoption period. The sample consists of 546 firm-years observations over fiscal years 2008 through 2015 surrounding the adoption of IFRS, which became mandatory for fiscal years starting on or after January 1st, 2011. The pre-IFRS period covers three years before IFRS adoption and the post-IFRS period covers three years after IFRS adoption. All variables are defined in the Appendix. \*, \*\*, and \*\*\* indicate that the mean or median of the variable in the pre- and post-periods is significantly different at the 0.10, 0.05, and 0.01 levels, respectively.

TABLE 3

**Panel A: Regression of the Effect of IFRS Adoption on Level of Chief Executive Officer (CEO) Compensation for Canadian Firms Not Cross-listed in the U.S.**

Variables	1 log(Total compensation)	2 log(Total compensation)	3 log(equity based compensation)	4 log(cash based compensation)
Intercept	11.198*** (0.000)	12.568*** (0.000)	4.442 (0.368)	12.191*** (0.000)
<i>POST_IFRS</i>		0.274*** (0.001)	1.029** (0.013)	0.209*** (0.010)
<i>Assets<sub>t</sub></i>	0.317** (0.023)	0.211* (0.092)	1.264** (0.014)	0.077 (0.563)
<i>ROA<sub>t</sub></i>	-0.253 (0.658)	-0.107 (0.823)	-1.216 (0.555)	-0.005 (0.992)
<i>Stock Return<sub>t</sub></i>	-0.033 (0.387)	-0.002 (0.953)	0.067 (0.789)	-0.031 (0.343)
<i>ROA Volatility<sub>t</sub></i>	1.433 (0.269)	0.836 (0.539)	-2.513 (0.783)	0.530 (0.704)
<i>Stock Volatility<sub>t</sub></i>	-0.306*** (0.000)	-0.319*** (0.000)	-1.430*** (0.000)	0.002 (0.961)
<i>MTB<sub>t</sub></i>	0.107*** (0.005)	0.087** (0.020)	0.424** (0.014)	0.065*** (0.006)
<i>CEO Age<sub>t</sub></i>	0.016 (0.126)	0.004 (0.652)	-0.064 (0.181)	0.017* (0.079)
<i>CEO Tenure<sub>t</sub></i>	0.008 (0.614)	0.003 (0.860)	-0.009 (0.910)	-0.001 (0.928)
<i>Dual<sub>t</sub></i>	-0.673 (0.107)	-0.348 (0.360)	-0.778 (0.626)	-0.353 (0.328)
<i>Founder</i>	-0.201 (0.413)	0.009 (0.965)	-0.811 (0.557)	-0.068 (0.637)
Firm FE	Y	Y	Y	Y
No. of Observations	546	546	546	546
No. of Firms	111	111	111	111
Adjusted R <sup>2</sup>	0.228	0.280	0.120	0.182

The panel presents the regression results of IFRS adoption on the level of CEO compensation for Canadian firms not cross-listed in the U.S. that adopt IFRS. All variables are defined in the Appendix. \*, \*\*, and \*\*\* denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. P-values in parentheses are based on robust standard errors clustered by firm.

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**Panel B: Regression of the Effect of IFRS Adoption on Level of Components of Chief Executive Officer (CEO) Compensation for Canadian Firms Not Cross-listed in the U.S.**

Variables	1 log(Salary)	2 log(Bonus)	3 log(Stocks)	4 log(Options)
Intercept	12.750*** (0.000)	5.144 (0.426)	-3.884 (0.579)	4.155 (0.418)
<i>POST_IFRS</i>	0.158*** (0.001)	0.499 (0.374)	2.097*** (0.000)	1.202** (0.019)
<i>Assets<sub>t</sub></i>	0.042 (0.706)	0.415 (0.372)	2.664*** (0.000)	0.368 (0.532)
<i>ROA<sub>t</sub></i>	-0.661** (0.020)	1.804 (0.482)	-9.648*** (0.001)	2.832 (0.387)
<i>Stock Return<sub>t</sub></i>	-0.022 (0.399)	-0.137 (0.654)	0.057 (0.788)	0.502 (0.128)
<i>ROA Volatility<sub>t</sub></i>	0.144 (0.818)	5.219 (0.642)	23.017** (0.046)	-5.323 (0.669)
<i>Stock Volatility<sub>t</sub></i>	-0.047 (0.119)	0.749*** (0.001)	-2.183*** (0.000)	-0.466* (0.079)
<i>MTB<sub>t</sub></i>	0.019 (0.142)	0.391** (0.020)	0.084 (0.591)	0.525*** (0.009)
<i>CEO Age<sub>t</sub></i>	-0.001 (0.818)	0.078 (0.407)	-0.178** (0.033)	-0.006 (0.933)
<i>CEO Tenure<sub>t</sub></i>	0.013 (0.107)	-0.169 (0.162)	0.053 (0.577)	-0.047 (0.597)
<i>Dual<sub>t</sub></i>	-0.184 (0.231)	-3.103 (0.238)	-1.507 (0.434)	-1.621 (0.381)
<i>Founder</i>	-0.028 (0.758)	0.078 (0.946)	-4.212*** (0.009)	2.311 (0.353)
Firm FE	Y	Y	Y	Y
No. of Observations	546	546	546	546
No. of Firms	111	111	111	111
Adjusted R <sup>2</sup>	0.258	0.087	0.229	0.084

The panel presents the regression results of IFRS adoption on the level of CEO compensation for Canadian firms not cross-listed in the U.S. that adopt IFRS. All variables are defined in the Appendix. \*, \*\*, and \*\*\* denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. P-values in parentheses are based on robust standard errors clustered by firm.

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**Panel C: Regression of the Effect of IFRS Adoption on the Structure of Chief Executive Officer (CEO) Compensation for Canadian Firms Not Cross-listed in the U.S.**

<b>Variables</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>%Salary</b>	<b>%Bonus</b>	<b>%Equity</b>	<b>%Stock</b>	<b>%Option</b>
Intercept	0.532* (0.054)	0.231 (0.356)	0.231 (0.356)	0.035 (0.857)	0.196 (0.320)
<i>POST_IFRS</i>	-0.065** (0.012)	0.025 (0.342)	0.040** (0.043)	0.062*** (0.000)	-0.022 (0.146)
<i>Assets<sub>t</sub></i>	-0.046* (0.079)	-0.015 (0.359)	0.060** (0.014)	0.063*** (0.002)	-0.002 (0.895)
<i>ROA<sub>t</sub></i>	-0.115 (0.319)	0.235** (0.025)	-0.12 (0.299)	-0.256** (0.023)	0.136 (0.282)
<i>Stock Return<sub>t</sub></i>	0.007 (0.699)	-0.008 (0.450)	0.001 (0.921)	0.000 (0.998)	0.001 (0.912)
<i>ROA Volatility<sub>t</sub></i>	0.064 (0.875)	-0.141 (0.743)	0.077 (0.865)	0.517 (0.153)	-0.439 (0.286)
<i>Stock Volatility<sub>t</sub></i>	0.030*** (0.008)	0.044** *	-0.074*** (0.000)	-0.074*** (0.000)	0.000 (0.969)
<i>MTB<sub>t</sub></i>	-0.017** (0.043)	0.010 (0.287)	0.007 (0.523)	-0.014* (0.051)	0.021*** (0.004)
<i>CEO Age<sub>t</sub></i>	0.003 (0.346)	0.004 (0.465)	-0.007** (0.046)	-0.006** (0.015)	-0.001 (0.803)
<i>CEO Tenure<sub>t</sub></i>	0.006 (0.215)	-0.007 (0.208)	0.000 (0.896)	0.001 (0.701)	-0.001 (0.853)
<i>Dual<sub>t</sub></i>	0.015 (0.882)	0.007 (0.949)	-0.022 (0.772)	0.014 (0.864)	-0.035 (0.520)
<i>Founder</i>	-0.095* (0.091)	0.013 (0.788)	0.082 (0.171)	-0.062 (0.427)	0.143** (0.025)
Firm FE	Y	Y	Y	Y	Y
No. of Observations	546	546	546	546	546
No. of Firms	111	111	111	111	111
Adjusted R <sup>2</sup>	0.133	0.091	0.091	0.183	0.07

The table presents the regression results of IFRS adoption on the change in the structure of CEO compensation for Canadian firms not cross-listed in the U.S. that adopt IFRS. All variables are defined in the Appendix. \*, \*\*, and \*\*\* denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. P-values in parentheses are based on robust standard errors clustered by firm

**TABLE 4**  
**Descriptive Statistics**

**Panel A: Change in Performance Measures Around IFRS Adoption for Firms Not Cross-Listed in the U.S.**

<i>Variables</i>	<b>No. of Firms</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>25th percentile</b>	<b>50th percentile</b>	<b>75th percentile</b>
Change in Value Relevance (VR)	91	-0.026	0.222	-0.128	0.009	0.074
Change in Stock Volatility	98	-0.008	0.008	-0.012	-0.009	-0.004
Change in ROA Volatility	96	0.000	0.040	-0.008	0.000	0.006

**Panel B: Change in Performance Measures Around IFRS Adoption by Partition, for Firms Cross-Listed in the U.S.**

<i>Variables</i>	Low				High			
	<b>N</b>	<b>25th percentile</b>	<b>50th percentile</b>	<b>75th percentile</b>	<b>N</b>	<b>25th percentile</b>	<b>50th percentile</b>	<b>75th percentile</b>
Change in VR	45	-0.296	-0.128	-0.041	46	0.022	0.074	0.157
Change in Stock Volatility	49	-0.016	-0.012	-0.010	49	-0.006	-0.004	0.002
Change in ROA Volatility	48	-0.021	-0.008	-0.002	48	0.001	0.006	0.015

**Panel C: Firm characteristics pre-IFRS adoption, for Firms Not Cross-Listed in the U.S.**

<i>Variables</i>	Low Change in VR			High Change in VR		
	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>
Assets	133	8.189	8.135	133	7.649 ***	7.716 ***
ROA	133	0.029	0.028	133	0.044	0.048 *
Stock Return	133	0.276	0.188	133	0.278	0.138
MTB	133	1.801	1.641	133	2.759	2.014 ***
CEO Age	133	52.88	52.00	133	53.92	54.00 *
CEO Tenure	133	10.32	9.00	133	8.92	6.00 **
Dual	133	0.24	0.00	133	0.20	0.00
Founder	133	0.34	0.00	133	0.27	0.00

<i>Variables</i>	Low Change in Stock Volatility			High Change in Stock Volatility		
	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>
Assets	144	7.941	7.843	134	7.894	7.943
ROA	144	0.030	0.024	134	0.046	0.044
Stock Return	144	0.290	0.198	134	0.230	0.109
MTB	144	2.642	1.789	134	1.801	1.636
CEO Age	144	54.40	53.00	134	52.13 **	52.00 **
CEO Tenure	144	9.31	6.00	134	9.43	8.00
Dual	144	0.17	0.00	134	0.25	0.00
Founder	144	0.31	0.00	134	0.27	0.00

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	Low Change in ROA Volatility			High Change in ROA Volatility			
	N	Mean	Median	N	Mean	Median	
Assets	133	7.895	7.730	141	7.900	7.943	
ROA	133	0.041	0.044	141	0.037	0.034	
Stock Return	133	0.297	0.174	141	0.278	0.145	
MTB	133	1.769	1.653	141	2.767	1.767	
CEO Age	133	53.25	53.00	141	53.75	53.00	
CEO Tenure	133	8.23	6.00	141	10.96	9.00	***
Dual	133	0.17	0.00	141	0.28	0.00	**
Founder	133	0.27	0.00	141	0.33	0.00	

Panel A contains summary statistics for the variables used to partition the full sample. Change in value relevance (VR) is the difference between the value relevance before IFRS adoption and after IFRS adoption at the firm level. Change in stock return (ROA) volatility is the difference between the firm's stock return (ROA) volatility before IFRS adoption and after IFRS adoption. Panel B contains summary statistics for the change in the performance measures by partition to high change (above the median change) and low change (below the median change).

Panel C contains summary statistics for the variables in the period before IFRS adoption. The sample is partitioned based on the changes in the performance measures, described in Panel A.

All variables are defined in the Appendix. \*, \*\*, and \*\*\* indicate that mean or median of the variable in the high-and-low sub-samples is significantly different at the 0.10, 0.05, and 0.01 levels, respectively.





TABLE 6

## Descriptive Statistics

## Panel A: Firms Cross-listed in the U.S., All Sample Years

*Level of chief executive officer (CEO) Compensation ('000 Canadian Dollars)*

<i>Variables</i>	<i>N</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>25th percentile</i>	<i>50th percentile</i>	<i>75th percentile</i>
Total compensation	297	6,510.22	4,567.86	2,654.30	5,732.44	9,832.82
Salary	297	962.37	559.74	519.35	950.00	1,281.50
Bonus	297	1,511.76	1,707.73	453.00	1,044.70	2,044.97
<i>Stock</i>	297	1,937.99	1,952.56	0.00	1,400.04	3,035.22
<i>Option</i>	297	1,368.74	1,357.35	107.33	1,016.00	2,224.71
<i>Other</i>	297	325.25	1,614.42	22.52	75.63	167.17
<i>Percentage of CEO Compensation</i>						
%Salary	297	0.23	0.18	0.14	0.17	0.26
%Bonus	297	0.18	0.14	0.14	0.22	0.31
%Stock	297	0.28	0.22	0.00	0.31	0.43
%Option	297	0.24	0.21	0.07	0.23	0.35
%Equity	297	0.53	0.23	0.46	0.57	0.68
<i>Other Variables</i>						
Assets	297	9.311	2.075	7.915	9.186	10.428
ROA	297	0.032	0.006	0.034	0.034	0.067
Stock Return	297	0.135	0.684	-0.189	0.071	0.274
ROA Volatility	297	0.018	0.024	0.004	0.014	0.024
Stock Volatility	297	0.189	2.699	0.020	0.028	0.042
MTB	297	2.030	1.505	1.121	1.632	2.387
CEO Age	297	6.22	6.22	51.00	55.00	59.00
CEO Tenure	297	7.58	5.48	4.00	6.00	10.00
Dual	297	0.08	0.27	0.00	0.00	0.00
Founder	297	0.15	0.36	0.00	0.00	0.00

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**Panel B: Pre-and Post- IFRS Adoption**

*Chief Executive Officer (CEO) Compensation ('000 Canadian Dollars)*

	Pre IFRS adoption			Post IFRS adoption			
	N	Mean	Median	N	Mean	Median	
Total compensation	149	5,842.26	4,797.64	148	7,082.03	**	6,463.27 **
Salary	149	951.12	975.00	148	973.69		918.00
Bonus	149	1,346.85	963.00	148	1,677.79	*	1,215.45
Stock	149	1,403.73	774.80	148	2,475.86	***	2,090.02 ***
Option	149	1,523.70	1,016.00	148	1,212.74	**	990.79
Other	149	410.46	11.77	148	396.37		9.71
<i>% of CEO Compensation</i>							
%Salary	149	0.26	0.20	148	0.20	***	0.16 ***
%Bonus	149	0.25	0.22	148	0.24		0.21
%Stock	149	0.22	0.22	148	0.35	***	0.35 ***
%Option	149	0.28	0.28	148	0.21	***	0.22 ***
%Equity	149	0.50	0.53	148	0.56	**	0.61 **
<i>Other Variables</i>							
Assets	149	9.126	8.964	148	9.498		9.311
ROA	149	0.047	0.044	148	0.017	***	0.018 ***
Stock Return	149	0.262	0.098	148	0.008	***	0.054 **
ROA Volatility	149	0.019	0.018	148	0.018		0.010 ***
Stock Volatility	149	0.040	0.040	148	0.340		0.022 ***
MTB	149	2.345	1.798	148	1.723	***	1.484 ***
CEO Age	149	54.56	54.00	148	55.29		55.50 **
CEO Tenure	149	8.047	7.00	148	7.108		6.00 *
Dual	149	0.081	0.00	148	0.081		0.000
Founder	149	0.181	0.00	148	0.115		0.000

Panel A presents summary statistics for the variables used in the analysis over the entire sample period. Panel B presents summary statistics for the variables in the pre IFRS adoption period and the post IFRS adoption period. The sample consists of 297 firm-years observations over fiscal years 2008 through 2015 surrounding the adoption of IFRS, which became mandatory for fiscal years starting on or after January 1st, 2011. The pre-IFRS period covers three years before IFRS adoption and the post-IFRS period covers three years after IFRS adoption. All variables are defined in the Appendix. \*, \*\*, and \*\*\* indicate that the mean or median of the variable in the pre-and post-periods is significantly different at the 0.10, 0.05, and 0.01 levels, respectively.

TABLE 7

**Panel A: Regression of the Effect of IFRS Adoption on Level of Chief Executive Officer (CEO) Compensation for Canadian Firms Cross-listed in the U.S.**

Variables	1 log(Total compensation)	2 log(Total compensation)	3 log(equity based compensation)	4 log(cash based compensation)
Intercept	12.064*** (0.000)	12.461*** (0.000)	3.058 (0.750)	9.601* (0.070)
<i>POST_IFRS</i>		0.138** (0.025)	0.514 (0.480)	-0.179 (0.438)
<i>Assets<sub>t</sub></i>	0.411*** (0.000)	0.335*** (0.003)	1.389* (0.085)	0.739 (0.175)
<i>ROA<sub>t</sub></i>	-0.019 (0.970)	0.199 (0.669)	-5.679 (0.180)	0.433 (0.699)
<i>Stock Return<sub>t</sub></i>	-0.016 (0.695)	-0.009 (0.829)	0.091 (0.664)	-0.118 (0.443)
<i>ROA Volatility<sub>t</sub></i>	-2.236 (0.457)	-1.787 (0.561)	-49.245** (0.028)	-26.030 (0.164)
<i>Stock Volatility<sub>t</sub></i>	-3.740** (0.043)	-2.207 (0.222)	3.677 (0.770)	-5.038* (0.065)
<i>MTB<sub>t</sub></i>	-0.007 (0.819)	0.007 (0.824)	0.016 (0.959)	0.044 (0.425)
<i>CEO Age<sub>t</sub></i>	0.003 (0.831)	0.001 (0.960)	-0.021 (0.768)	-0.016 (0.128)
<i>CEO Tenure<sub>t</sub></i>	-0.009 (0.211)	-0.005 (0.424)	-0.140 (0.244)	-0.011 (0.572)
<i>Dual<sub>t</sub></i>	-0.021 (0.962)	-0.013 (0.976)	-5.172** (0.021)	-0.291 (0.623)
<i>Founder</i>	1.313*** (0.002)	1.273*** (0.002)	1.287 (0.760)	2.041** (0.018)
Firm FE	Y	Y	Y	Y
No. of Observations	297	297	297	297
No. of Firms	59	59	59	59
Adjusted R <sup>2</sup>	0.235	0.253	0.135	0.179

The panel presents the regression results of IFRS adoption on the level of CEO compensation for Canadian firms cross-listed in the U.S. that adopt IFRS. All variables are defined in the Appendix. \*, \*\*, and \*\*\* denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. P-values in parentheses are based on robust standard errors clustered by firm.

**Panel B: Regression of the Effect of IFRS Adoption on Level of Components of Chief Executive Officer (CEO) Compensation for Canadian Firms Cross-listed in the U.S.**

<b>Variables</b>	<b>1</b> <b>log(Salary)</b>	<b>2</b> <b>log(Bonus)</b>	<b>3</b> <b>log(Stocks)</b>	<b>4</b> <b>log(Options)</b>
Intercept	11.606*** (0.000)	32.319* (0.053)	-1.724 (0.925)	-6.113 (0.768)
<i>POST_IFRS</i>	0.037 (0.252)	0.022 (0.967)	2.199** (0.019)	-1.134 (0.318)
<i>Assets<sub>t</sub></i>	0.247*** (0.000)	0.076 (0.954)	1.900 (0.197)	1.718 (0.353)
<i>ROA<sub>t</sub></i>	-0.454 (0.210)	-5.158 (0.257)	-3.976 (0.470)	-8.756 (0.128)
<i>Stock Return<sub>t</sub></i>	-0.025 (0.253)	0.412 (0.156)	0.019 (0.949)	-0.187 (0.452)
<i>ROA Volatility<sub>t</sub></i>	-4.056 (0.362)	-49.642 (0.112)	11.133 (0.690)	-54.775 (0.115)
<i>Stock Volatility<sub>t</sub></i>	-0.776 (0.457)	-53.580** (0.020)	-12.684 (0.572)	23.683 (0.262)
<i>MTB<sub>t</sub></i>	0.004 (0.864)	-0.239 (0.198)	0.284 (0.291)	-0.140 (0.703)
<i>CEO Age<sub>t</sub></i>	-0.009 (0.491)	-0.168** (0.015)	-0.049 (0.677)	-0.013 (0.855)
<i>CEO Tenure<sub>t</sub></i>	0.005 (0.546)	0.015 (0.851)	-0.198 (0.131)	-0.142 (0.230)
<i>Dual<sub>t</sub></i>	0.115 (0.783)	1.759 (0.540)	1.095 (0.686)	-3.985** (0.039)
<i>Founder</i>	1.181* (0.071)	-1.103 (0.810)	-4.224 (0.329)	3.711 (0.348)
Firm FE	Y	Y	Y	Y
No. of Observations	297	297	297	297
No. of Firms	59	59	59	59
Adjusted R <sup>2</sup>	0.390	0.154	0.229	0.051

The panel presents the regression results of IFRS adoption on the level of CEO compensation for Canadian firms cross-listed in the U.S. that adopt IFRS. All variables are defined in the Appendix. \*, \*\*, and \*\*\* denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. P-values in parentheses are based on robust standard errors clustered by firm.

**Panel C: Regression of the Effect of IFRS Adoption on the Structure of Chief Executive Officer (CEO) Compensation for Canadian Firms Cross-listed in the U.S.**

Variables	1 %Salary	2 %Bonus	3 %Equity	4 %Stock	5 %Option
Intercept	-0.085 (0.805)	1.200** (0.011)	-0.116 (0.813)	-0.177 (0.823)	0.062 (0.917)
<i>POST_IFRS</i>	-0.037** (0.025)	-0.028 (0.197)	0.066** (0.020)	0.138*** (0.000)	-0.072** (0.028)
<i>Assets<sub>t</sub></i>	-0.015 (0.642)	-0.034 (0.355)	0.048 (0.239)	0.037 (0.552)	0.011 (0.840)
<i>ROA<sub>t</sub></i>	0.017 (0.904)	0.063 (0.616)	-0.080 (0.650)	0.034 (0.864)	-0.114 (0.575)
<i>Stock Return<sub>t</sub></i>	-0.017* (0.095)	0.018 (0.209)	-0.001 (0.942)	-0.005 (0.553)	0.004 (0.828)
<i>ROA Volatility<sub>t</sub></i>	1.421 (0.145)	-0.931 (0.290)	-0.490 (0.642)	1.208 (0.283)	-1.698 (0.104)
<i>Stock Volatility<sub>t</sub></i>	0.948** (0.047)	-2.027** (0.012)	1.079 (0.131)	0.286 (0.740)	0.793 (0.247)
<i>MTB<sub>t</sub></i>	0.005 (0.664)	-0.003 (0.654)	-0.002 (0.909)	0.012 (0.234)	-0.013 (0.287)
<i>CEO Age<sub>t</sub></i>	0.004 (0.142)	- (0.005***)	0.001 (0.782)	0.000 (0.963)	0.001 (0.703)
<i>CEO Tenure<sub>t</sub></i>	0.000 (0.931)	0.005 (0.101)	-0.006 (0.135)	-0.002 (0.541)	-0.003 (0.187)
<i>Dual<sub>t</sub></i>	0.119 (0.221)	0.090 (0.193)	-0.208** (0.019)	0.018 (0.853)	-0.226*** (0.000)
<i>Founder</i>	0.071 (0.701)	-0.014 (0.920)	-0.057 (0.690)	-0.209 (0.169)	0.152* (0.089)
Firm FE	Y	Y	Y	Y	Y
No. of Observations	297	297	297	297	297
No. of Firms	59	59	59	59	59
Adjusted R <sup>2</sup>	0.193	0.112	0.148	0.247	0.100

The table presents the regression results of IFRS adoption on the change in the structure of CEO compensation for Canadian firms cross-listed in the U.S. that adopt IFRS. All variables are defined in the Appendix. \*, \*\*, and \*\*\* denote statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. P-values in parentheses are based on robust standard errors clustered by firm.

**TABLE 8**  
**Descriptive Statistics**

**Panel A: Change in Performance Measures Around IFRS Adoption for Firms Cross-Listed in the U.S.**

<i>Variables</i>	<b>No. of Firms</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>25th percentile</b>	<b>50th percentile</b>	<b>75th percentile</b>
Change in Value Relevance (VR)	52	-0.023	0.264	-0.124	-0.015	0.028
Change in Stock Volatility	52	-0.013	0.009	-0.016	-0.014	-0.009
Change in ROA Volatility	52	0.004	0.043	-0.005	-0.001	0.002

**Panel B: Change in Performance Measures Around IFRS Adoption by Partition, for Firms Cross-Listed in the U.S.**

<i>Variables</i>	Low				High			
	<b>N</b>	<b>25th percentile</b>	<b>50th percentile</b>	<b>75th percentile</b>	<b>N</b>	<b>25th percentile</b>	<b>50th percentile</b>	<b>75th percentile</b>
Change in VR	26	-0.263	-0.124	-0.052	26	0.000	0.028	0.132
Change in Stock Volatility	26	-0.021	-0.016	-0.014	26	-0.011	-0.009	-0.003
Change in ROA Volatility	26	-0.016	-0.005	-0.003	26	0.000	0.002	0.019

**Panel C: Firm characteristics pre-IFRS adoption, for Firms Cross-Listed in the U.S.**

<i>Variables</i>	Low Change in VR			High Change in VR			
	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	
Assets	72	9.384	9.193	69	8.947	8.579	*
ROA	72	0.039	0.037	69	0.055	0.053	
Stock Return	72	0.259	0.065	69	0.256	0.174	
MTB	72	2.143	1.705	69	2.482	2.029	**
CEO Age	72	53.17	52.00	69	55.65 ***	55.00	**
CEO Tenure	72	7.63	6.00	69	8.36	7.00	
Dual	72	0.08	0.00	69	0.09	0.00	
Founder	72	0.17	0.00	69	0.19	0.00	

<i>Variables</i>	Low Change in Stock Volatility			High Change in Stock Volatility			
	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	
Assets	70	9.456	9.494	70	8.956	8.955	
ROA	70	0.051	0.045	70	0.049	0.040	
Stock Return	70	0.393	0.174	70	0.116 *	0.071	
MTB	70	2.432	1.840	70	2.335	1.810	
CEO Age	70	53.94	53.00	70	55.00	55.00	
CEO Tenure	70	6.93	6.00	70	9.25 **	8.50	**
Dual	70	0.09	0.00	70	0.07	0.00	
Founder	70	0.17	0.00	70	0.20	0.00	

*(continued on next page)*

	Low Change in ROA Volatility			High Change in ROA Volatility			
	N	Mean	Median	N	Mean	Median	
Assets	71	8.777	8.526	73	9.561	9.239	** *
ROA	71	0.052	0.049	73	0.048	0.037	
Stock Return	71	0.286	0.065	73	0.225	0.132	
MTB	71	2.631	1.822	73	2.121	1.896	*
CEO Age	71	55.07	54.00	73	53.90	53.00	
CEO Tenure	71	8.56	7.00	73	7.55	7.00	
Dual	71	0.04	0.00	73	0.12	0.00	* *
Founder	71	0.18	0.00	73	0.16	0.00	

Panel A contains summary statistics for the variables used to partition the full sample. Change in value relevance is the difference between the value relevance before IFRS adoption and after IFRS adoption at the firm level. Change in stock return (ROA) volatility is the difference between the firm's stock return (ROA) volatility before IFRS adoption and after IFRS adoption.

Panel B contains summary statistics for the change in the performance measures by partition to high change (above the median change) and low change (below the median change).

Panel C contains summary statistics for the variables in the period before IFRS adoption. The sample is partitioned based on the changes in the performance measures, described in Panel A.

All variables are defined in the Appendix. \*, \*\*, and \*\*\* indicate that mean or median of the variable in the high-and-low sub - samples is significantly different at the 0.10, 0.05, and 0.01 levels, respectively.



**TABLE 9**

**Tests Across Sub-samples of the Effect of IFRS Adoption on the Level and Component of Chief Executive Officer (CEO) Compensation for Firms Cross-Listed in the U.S.**

<i>Partition</i>	<b>log(Total compensation)</b>	<b>log(equity based compensation)</b>	<b>log(cash based compensation)</b>	<b>%Salary</b>	<b>%Bonus</b>	<b>%Equity</b>	<b>%Stock</b>	<b>%Option</b>
High Change in VR	-0.006	0.393	-0.847	-0.008	-0.044	0.072**	0.163***	-0.091**
Low Change in VR	0.262***	0.783	0.103***	0.052***	-0.026	0.079*	0.084	-0.005
P-value for test that coefficients on <i>POST_IFRS</i> for the sub-samples are equal	0.0000	0.0015	0.0000	0.0000	0.0000	0.1062	0.0000	0.0000
High Change in Stock Volatility	0.183*	-0.104	0.086	-0.041	0.005	0.046	0.080*	-0.035
Low Change in Stock Volatility	-0.004	1.229	-0.427	-0.035	-0.044	0.080	0.183***	-0.104**
P-value for test that coefficients on <i>POST_IFRS</i> for the sub-samples are equal	0.0000	0.0000	0.0000	0.1254	0.0000	0.0000	0.7227	0.0000
High Change in ROA Volatility	-0.024	-1.051	-0.305	0.002	-0.033	0.032	0.128***	-0.096***
Low Change in ROA Volatility	0.259**	1.416	0.104	-0.033	-0.033	0.066	0.073	-0.007
P-value for test that coefficients on <i>POST_IFRS</i> for the sub-samples are equal	0.0000	0.0000	0.0000	0.0000	0.9310	0.0000	0.0000	0.0000

**Figure 1A - Frequency of salary, Chief Executive Officer ('000 Canadian Dollars)**

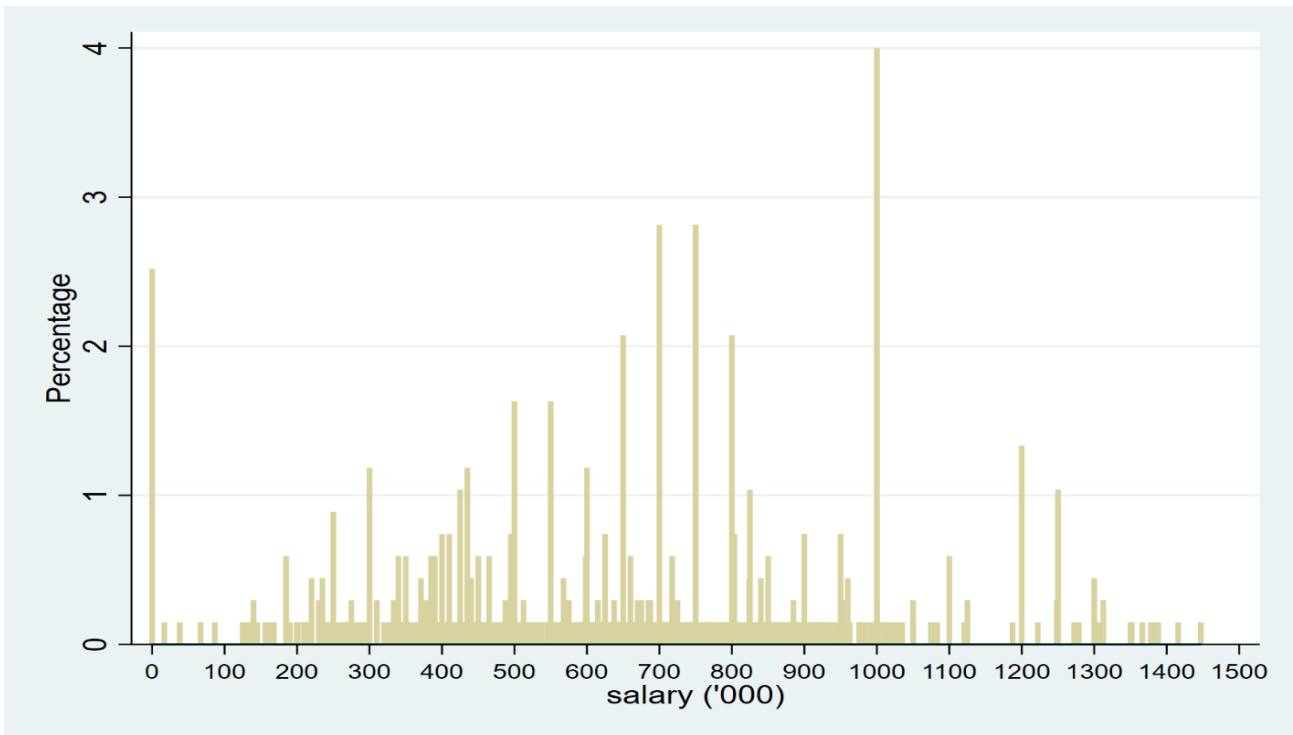


Figure 1A presents the salary paid to the Chief Executive Officer (CEO) as reported in the compensation table in the annual proxy circulars. Histogram is based on all firm-years (712 observations), including two CEOs that received zero pay, two firms with co-CEOs, years with CEO turnovers and first year in office. Sample covers up to seven years for each firm, three years before IFRS adoption, IFRS adoption year, and three years after IFRS adoption. Data is for firms not cross-listed in the U.S.. For presentation purposes, observations in excess of 1.5 Million Canadian Dollars (1.54% of the observations) are curtailed.

**Figure 1B - Frequency of STIP, Chief Executive Officer ('000 Canadian Dollars)**

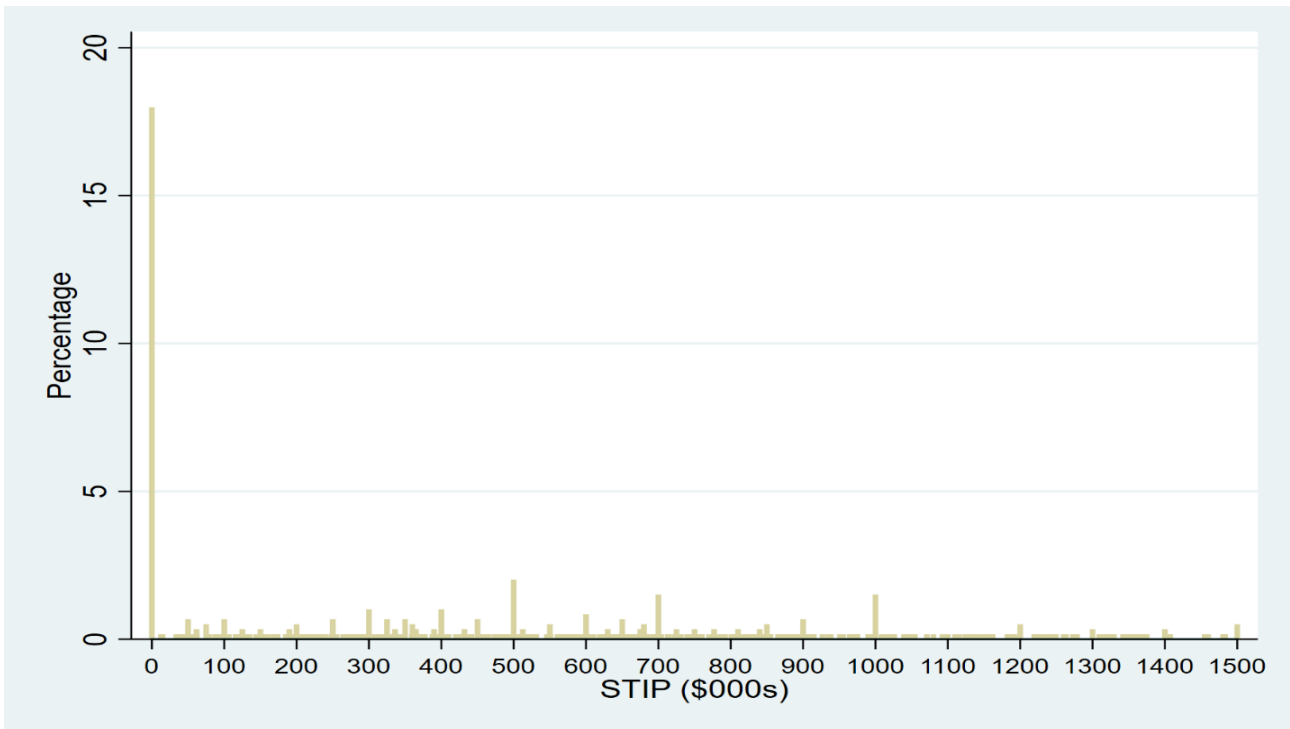


Figure 1A presents the short-term incentive (bonus) paid to the Chief Executive Officer (CEO) as reported in the compensation table in the annual proxy circulars. Histogram is based on all firm-years (712 observations), including two CEOs that received zero pay, two firms with co-CEOs, years with CEO turnovers and first year in office. Sample covers up to seven years for each firm, three years before IFRS adoption, IFRS adoption year, and three years after IFRS adoption. Data is for firms not cross-listed in the U.S.. For presentation purposes, observations in excess of 1.5 Million Canadian Dollars (13.06% of the observations) are curtailed.

**Figure 1C – Frequency of stock grants, Chief Executive Officer ('000 Canadian Dollars)**

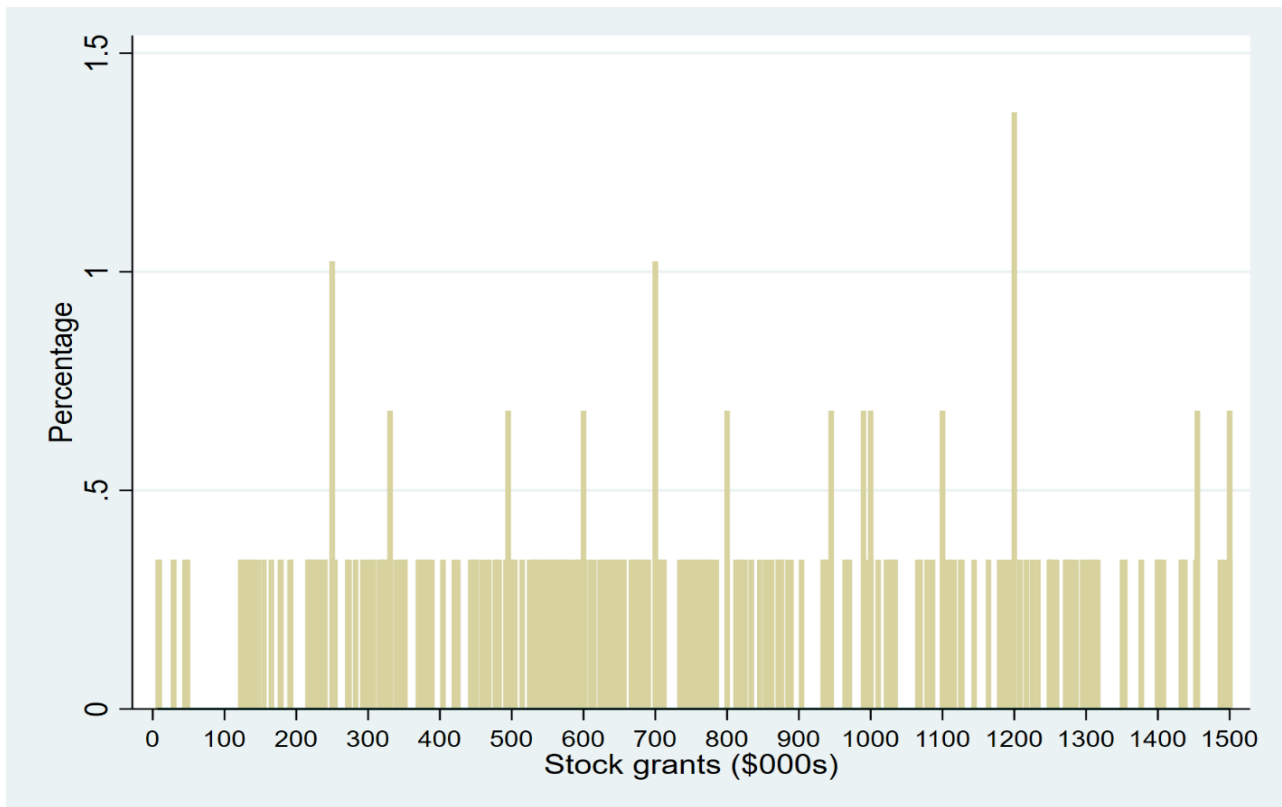


Figure 1C presents the value of stock grants given to the Chief Executive Officer (CEO) as reported in the compensation table in the annual proxy circulars. Histogram is based on all firm-years (712 observations), including two CEOs that received zero pay, two firms with co-CEOs, years with CEO turnovers and first year in office. Sample covers up to seven years for each firm, three years before IFRS adoption, IFRS adoption year, and three years after IFRS adoption. Data is for firms not cross-listed in the U.S.. For presentation purposes, observations with zero option grants (43.11% of the observations) or option grants in excess of 1.5 Million Canadian Dollars (14.6% of the observations) are curtailed.

**Figure 1D – Frequency of option grants, Chief Executive Officer ('000 Canadian Dollars)**

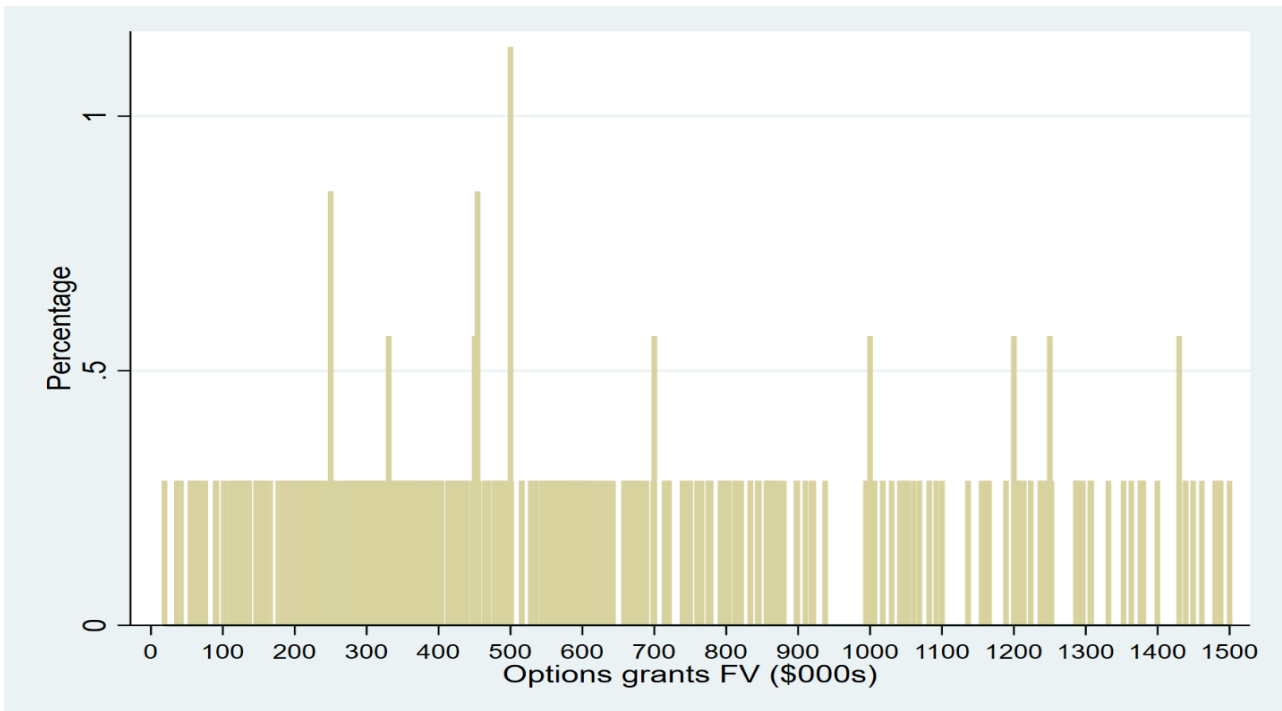


Figure 1D presents the grant date fair value (FV) of option grants paid to the Chief Executive Officer (CEO) as reported in the compensation table in the annual proxy circulars. Histogram is based on all firm-years (712 observations), including two CEOs that received zero pay, two firms with co-CEOs, years with CEO turnovers and first year in office. Sample covers up to seven years for each firm, three years before IFRS adoption, IFRS adoption year, and three years after IFRS adoption. Data is for firms not cross-listed in the U.S.. For presentation purposes, observations with zero option grants (37.78% of the observations) or option grants in excess of 1.5 Million Canadian Dollars (11.65% of the observations) are curtailed.