ESSAYS IN TAX AND FINANCIAL REPORTING

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ABSTRACT

This dissertation consists of three essays. The first two essays study the association between tax aggressiveness and financial reporting aggressiveness. There is an emerging debate about whether firms tradeoff between tax savings and reported earnings. Essay 1 examines this relationship in the Canadian context and finds that tax aggressiveness is negatively associated with financial reporting aggressiveness, suggesting the existence of a tradeoff. However, closely-held firms seem to be making no tradeoffs between tax savings and book income. This essay also finds that closely-held firms are more aggressive in pursuing tax savings compared to other firms.

Essay 2 examines the tradeoff question in the North American context. I find that tax reporting aggressiveness is positively associated with financial reporting aggressiveness for U.S. firms (i.e., U.S. firms in general do not seem to tradeoff between the tax savings and book income), while negatively associated for Canadian firms (i.e., Canadian firms do seem to tradeoff between pursuit of tax savings and book income). Within the U.S. sub-sample, there is no difference in tradeoff behavior between closely-held and widely-held firms. Closely-held firms in Canada do not seem to tradeoff between book income and tax savings, thereby pursuing both tax aggressiveness and financial reporting aggressiveness simultaneously.

Essay 3 focuses on financial reporting and examines the association between IFRS

adoption and executive compensation. More specifically, I examine whether IFRS better reflects firms' and managers' performance. I find that accounting-based pay for performance sensitivity is stronger in the year of IFRS adoption. My results show that CFOs earned approximately $108,000 more in the year of IFRS adoption. In contrast, the chief executive officer's (CEO) compensation did not change significantly in the year of IFRS adoption. I also find CFOs' bonus relative to CEO bonus increased by more than 20% in the year of IFRS adoption.

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ESSAY 1

Tax Aggressiveness and Closely-held Firms: Evidence from Canada

1. Introduction

The gap between book income and taxable income has been increasing over recent years (e.g., Hanlon and Shevlin 2005, Desai 2003). This has given rise to an emerging debate about the causes driving this growing gap. Earlier literature suggested that firms were forced to make tradeoffs between tax savings and reported income (e.g., Klassen 1997; Beatty and Harris 1999; Klassen and Mawani 2000; Mawani 2003; Shackelford and Shevlin 2001). Therefore, the larger book-tax gap could be driven by either increased book income or decreased taxable income, or both. More recent literature (e.g., Frank et al. 2009) suggests that firms can and do pursue both tax reporting aggressiveness and financial reporting aggressiveness simultaneously, thereby implying that firms may not need to choose between doing only one of tax reporting aggressiveness and financial reporting aggressiveness. This finding implies the increasing gap in book and taxable income could be driven by increased book income and decreased taxable income simultaneously.

Tax aggressiveness is defined in the literature as the "downward management of taxable income through tax planning activities that may or may not be considered fraudulent tax reporting" (Frank et al. 2009). Financial reporting aggressiveness is defined as "upward earnings management that may or may not be within the confines of generally accepted accounting principles (GAAP)" (Frank et al. 2009).

The inconclusive empirical evidence in the literature leads me to examine the reasons for these conflicting results. One possible explanation is that there are some types of firms that may engage more or less in this dual aggressive behaviour. More specifically, it is conceivable that some firms are trading off between the two goods (book income and tax savings) while others are not trading off as much, and able to pursuing both goods simultaneously.

Both tax and earnings management literatures suggest concentrated ownership is an important factor that can influence the tax savings and earnings management behavior (e.g., Klassen 1997; Leuz et al. 2003; Ding et al. 2007; Kim and Yi 2006). Closely-held firms may face different financial reporting and tax reporting pressures, and it is possible they behave differently from widely-held firms. My study examines three research questions. First, I examine whether firms trade-off between tax reporting aggressiveness and financial reporting aggressiveness in a Canadian setting. Second, I examine whether closely-held firms tradeoff differently between tax reporting aggressiveness and financial reporting aggressiveness. Finally, I examine whether closely-held firms are more or less aggressive in pursuing tax savings.

I find that the tradeoff between book income and tax savings in general seems to hold across countries, across sample periods and across variations in the specifications of the dependent and independent variables. This study contributes to the tradeoff literature by

finding that some types of firms do behave differently on the tradeoff decision, thereby explaining some of the conflicting empirical findings in the literature.

This study also contributes to the tax aggressiveness literature by introducing a new proxy for tax aggressiveness. Shackelford and Shevlin (2001) suggest that tax research should consider "all parties, all taxes, and all costs." This study emphasizes "all costs" by examining whether firms minimize the sum of taxes paid plus any associated tax fees. Tax aggressive firms are likely to invest on tax planning fees efficiently and minimize the aggregate of the two payments.

To the best of my knowledge, this study is the first to examine the tradeoff between tax and financial reporting aggressiveness in a non-U.S. context. Canadian firms may behave differently from U.S. firms for several reasons. First, Canadian firms tend to be more closely-owned with more concentrated ownership or more dual-class share structures (Ben-Amar and Andre 2006; Morck et al. 2000; Amoaku-Adu and Smith 2001; Smith and Amoaku-Adu 1999). Most of these studies argue that concentrated ownership is associated with less information asymmetry between insiders and outsiders, thereby reducing the pressure to manage reported earnings. Firms facing lower financial reporting pressure could make different tradeoffs (i.e., pursue more tax savings) compared to firms under higher financial reporting pressure (i.e., put more weight on book income). Second, Canadian firms are likely to be less aggressive in their tax

reporting because of more stringent enforcement by Canadian tax authorities compared to U.S. tax authorities. A typical corporation based in Ontario faced a combined federal-provincial tax rate of 26.5% in 2013[1] compared to 35% in the U.S.[2] Despite the lower corporate tax rates in Canada, corporate taxes made up 1.9% of Canada's GDP in 2012 compared to the higher U.S. corporate tax rates making up 1.6% of the U.S. GDP in 2012.[3] This difference may be explained by differences in GDP growth, differences in tax enforcement and differences in tax complexity that may make tax enforcement easier in Canada.

Canadian and U.S. firms may also face different levels of financial reporting pressure due to differences between Canadian GAAP (and more recently IFRS) and U.S. GAAP, or differences in other financial reporting regulation (e.g., Sarbanes-Oxley). Combined with different levels of tax enforcement, firms from different jurisdictions may make different choices regarding the book tax trade-off. The Canadian setting with its higher incidence of closely-owned firms also enables me to examine the impact of ownership concentration and voting rights on the trade-off decision. In Canada, dividends paid to corporate shareholders are entirely tax-free, allowing (family-owned) economic entities

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[1]http://www.ey.com/Publication/vwLUAssets/Tax_Rate_Card_-_2013_Corporate/$FILE/Tax-Rates-Corporate-2013.pdf

[2]http://www.ey.com/Publication/vwLUAssets/Worldwide_corporate_tax_guide_2012/$FILE/WCTG_2012_Worldwide_Corporate_Tax_Guide.pdf

[3] http://www.cato.org/blog/corporate-tax-low-rates-high-revenues

to have complex corporate structures without corresponding tax costs (other than some compliance costs). In contrast, U.S. family firms paying dividends to related corporate shareholders face some level of income tax. The different institutional environments between Canada and the U.S. offer an interesting setting to examine the association between ownership concentration and tradeoff decisions.

I use two proxies for closely-held firms in this study. One proxy is equity ownership concentration measured by the extent of insider and family ownership. The second proxy is concentration of control as measured by the existence and extent of a dual class voting structure.

Although family firms and insider firms are different to some extent, they can share similar attitudes towards tax savings. They both face lower financial reporting costs, and therefore can be expected to pursue more tax savings. I consider the aggregate of insider and family ownership because they are theoretically similar on the important dimension of information asymmetry, which is used to hypothesize such firms' need for engaging in financial and tax reporting aggressiveness.

I investigate tax and financial reporting for the 300 largest firms trading on the Toronto Stock Exchange (TSX 300) for the period from 2005 to 2008, inclusive. I find that tax reporting aggressiveness is negatively associated with financial reporting aggressiveness in Canada. In decomposing my sample into closely-held and non-closely

held firms, I find that firms with higher insider and family ownership make different tradeoffs between the two goods (tax savings and book income) compared to firms with lower insider and family ownership combined. I also find that firms with higher insider and family ownership combined are more aggressive in their tax planning. Similar to findings of closely-held firms, firms with dual class share structures make different tradeoffs between the two goods compared to firms that are non-dual class. Furthermore, dual class firms are also more aggressive in their tax planning. On average, firms with higher insider and family ownership pay a statistically significant 44% less in total taxes and tax fees combined compared to firms that are not closely-held in the univariate test. Closely-held firms also pay $42 million less in total taxes and tax fees compared to firms that are not closely-held after controlling for other factors. Finally, the Cash Effective Tax Rate (Cash ETR) is 1.7 percentage points less on average for firms with higher insider and family ownership (15.2% vs. 16.9%)[4].

My results have important policy and practice implications. First, this study provides insights about financial accounting and tax reporting conformity over time. Second, taxes are material, with firms paying approximately 15% of their pretax income to governments in the form of taxes. They are therefore likely to engage in efforts to

[4] The mean (median) cash effective tax rate (Cash ETR) for firms with higher insider and family ownership is 15.2% (7.2%), while the mean (median) cash ETR for firms with lower insider and family is 16.9% (12.5%). Cash ETR is the cash taxes paid divided by pretax income.

minimize such payments. Tax authorities could benefit from knowing which firms are more likely to be aggressive in tax planning, and thereby target their scarce auditing and monitoring resources more effectively and efficiently. Third, external auditors can also be more effective and efficient by knowing which firms are more likely to be aggressive in their financial reporting. Finally, investors should also be interested in understanding which firms are more likely to be aggressive in financial reporting.

The remainder of this study is organized as follows. Hypotheses are developed in section two after the discussion of literature. In section three, research design and data description are introduced. Section four presents the results from regression analyses and section five summarizes and concludes.

2. Literature review

2.1 Trade-off between tax aggressiveness and financial reporting aggressiveness

A somewhat independent set of rules for computing GAAP income and taxable income allows firms some opportunity to reduce tax costs, report higher income, or both. The book-tax divergence has been steadily growing over time, thereby attracting much research attention (e.g., Guenther et al. 1997; Mills and Newberry 2001; Hanlon et al. 2005). The literature remains silent on whether the divergence is driven more by tax sheltering (tax aggressiveness) or more by earnings management (financial reporting

aggressiveness), or equally by both trends.

Frank et al. (2009) develop a measure of tax aggressiveness that has been widely used in the literature. They find a positive and significant association between tax aggressiveness and financial reporting aggressiveness, suggesting that firms may not be forced to trade-off between the pursuit of book income and tax savings. However, Frank et al. admit that "[e]ven if firms have the ability to be aggressive for both financial and tax reporting purposes, it is not obvious that firms would be willing to engage in both behaviors" (at pg. 471).

Frank et al.'s finding is in contrast with the previous literature that suggests firms are unlikely to be able to minimize tax payments and maximize book income simultaneously due to some interdependence or similarity of rules for computing both. As a result, firms need to tradeoff tax savings and reporting higher book income. The separation of management and ownership creates information asymmetry, and managers use reported earnings as one means to resolve such asymmetry. Managers attempt to meet or exceed shareholders' expectation regarding earnings. Firms that face lower financial reporting costs are arguably able to pursue tax planning more aggressively compared to other firms. Klassen (1997), for example, shows that firms with large insider ownership – a proxy of lower financial reporting costs - report lower gains and/or higher loss. This constitutes evidence that closely-held firms may focus more on saving taxes rather than maximizing

reported earnings. At an extreme, Erickson et al. (2004) found managers engaged in fraudulent financial reporting paid an additional eight cents in taxes to report each additional dollar of fraudulent earnings, confirming a trade-off between reported income and taxable savings. Consistent with Erickson et al. (2004), Lennox et al. (2013) also find that U.S. public firms engaging in tax aggressiveness are less likely to be involved in accounting fraud. All of these studies provide empirical evidence that firms tradeoff between the two goods. In addition, firms are generally reluctant to pursue minimization of taxes payable and maximization of book income simultaneously. Mills (1998) reports that "Internal Revenue Service (IRS) proposed audit adjustments increase as the excess of book income over taxable income increases." Such penalties serve as a brake on aggressive tax planning.

Due to the inconclusive evidence in literature, I do not predict the direction of the relation between tax aggressiveness and financial reporting aggressiveness. I first establish whether Canadian firms tradeoff between the two goods or pursue both goods simultaneously with the following hypothesis (in alternate form):

Hypothesis 1: Ceteris paribus, tax aggressiveness is associated with financial reporting aggressiveness.

2.2 Tradeoff decision and ownership concentration

2.2.1 Tax aggressiveness and ownership concentration

Insider and /or family ownership reduces information asymmetry between management and shareholders, thereby potentially impacting financial reporting aggressiveness. Greater pursuit of financial reporting income, in turn, could lead to reduced emphasis on tax savings to the extent that the two are linked via similar computational rules. A survey by Cloyd et al. (1996) found that (widely held) public firms cared relatively more about financial reporting costs and less about taxes. The survey also found that managers of public firms are less likely to choose conformity between financial and tax reporting compared to managers of private firms, presumably because widely held public firms face higher levels of financial reporting costs. In other words, when forced to trade-off between financial reporting income and tax savings, large public firms (presumably more widely-held than private firms) tend to choose reporting higher financial income while smaller and private firms put more weight on the tax savings. Mills and Newberry (2001) confirm the findings of Cloyd et al. (1996) by documenting that "higher debt levels impose greater non-tax costs on firms that are privately held or more financially distressed."

Similar to public or private ownership, insider and/or family ownership can also impact tax aggressiveness and/or financial reporting aggressiveness. For example, Wolfson (1993) provides evidence that the "financial reporting consequences of tax

planning strategies are relatively less important where business ownership is concentrated in the hands of relatively few investors". This finding is similar to Klassen (1997) who finds firms with larger inside ownership concentration take larger losses or smaller gains when they are highly taxable. These studies document that firms with high concentration of insider and family owners makes them more concerned about reducing their taxes. In contrast, Chen et al. (2010) find that firms owned or managed by founding family members are less tax aggressive compared to non-family firms. They explain their results by claiming that family firms forgo tax savings in order to report higher earnings and thereby avoid potential price discounts imposed by shareholders. According to Chen et al. (2010), these family firms have higher non-tax costs such as reputation costs and potential personal penalties for tax avoidance. Steijvers and Niskanen (2011) extend Chen et al. (2010) to private firms and find that private family firms are less tax aggressive than private non-family firms. However, the overall empirical evidence in this literature is not conclusive about whether insider/family firms are more tax aggressive. One possible reason for the difference in results could be that some studies examine only tax aggressiveness without controlling for financial reporting aggressiveness or financial reporting costs (e.g., Chen et al. 2010).

2.2.2 Financial reporting aggressiveness and ownership concentration

It is not clear whether closely-held firms are more or less aggressive in their financial reporting. Insider and family owned firms are likely to face lower financial reporting costs since there is less information asymmetry between shareholders and managers. This could lead closely-held firms to be less aggressive in their financial reporting. Leuz et al. (2003) argue that shareholders of firms with high ownership concentration attempt to protect their private control benefits, and therefore are less likely to use earnings management to conceal firm performance from outsiders. Furthermore, their incentives to mask firm performance by using earnings management are lower compared to widely-held firms. In other words, the financial reporting aggressiveness in closely-held firms is likely to be lower than in widely-held firms.

On the other hand, insider and family owned firms may need to report higher book income to compensate the potential price discount imposed by outside shareholders (e.g., Chen et al. 2010). Ding et al. (2007) examine 273 privately-owned and state-owned Chinese listed companies and find the relation between earnings management and ownership concentration exhibits a statistically significant non-linear, inverted U-shape pattern known as the "entrenchment versus alignment" effect.

Making tradeoffs implies firms want to purse two goods (book income and tax savings, in this case) but are forced to emphasize on only one (Klassen 1997). Making different tradeoffs includes making no tradeoffs (i.e., firms want to and are able to purse

two goods simultaneously). Making different tradeoffs may also include the possibility that firms are pursuing only one good (e.g., tax savings only), with no significant interest in pursuing the other good. While unlikely, making different tradeoffs does not preclude the possibility that firms are pursing neither goods.

I predict that firms with higher insider and /or family ownership tradeoff differently between tax savings and reported earnings. Due to the conflicting results in literature about whether closely-held firms are more tax aggressive, I do not predict the sign of the association between tax aggressiveness and insider and /or family ownership. I aggregate insider and family ownership for my empirical tests to examine how the combined ownership affects firms' decisions to tradeoff between tax savings and reported earnings. My hypotheses (in alternate form) are as follows:

Hypothesis 2: Ceteris paribus, firms with higher insider/family ownership are likely to make different tradeoffs between tax aggressiveness and financial reporting aggressiveness compared to firms with lower insider/family ownership.

Hypothesis 3: Ceteris paribus, firms with higher insider / family ownership are more or less tax aggressive compared to firms with lower insider / family ownership.

2.3 Trade-off decision and ownership or control concentration

2.3.1 Tax aggressiveness and ownership or control concentration

Canada has a fair number of firms with dual class shares. Dual class firms are firms with more than one class of voting shares. Dual class voting share structures impose agency costs for the firms. If the divergence between cash flow rights and management control rights increases, managers with concentrated ownership may seek to pursue more private benefits (Gompers et al. 2010). One way to pursue such private benefits involves being more aggressive in tax and/or financial reporting compared to firms without the dual class structure if the managers' own personal benefits from this behaviour exceeds the personal cost, regardless of the costs to the firm. Dual class firms are one kind of closely-held firms with concentrated control and/or ownership, and they may make different tradeoff decisions.

Similar to insider and family-owned firms, dual class firms often face lower financial reporting costs. Controlling shareholders have greater inside information about the firm and therefore need to rely less on the GAAP income. Being freed from the pressures of earnings management, dual class firms could therefore be able to pursue tax savings more aggressively. However, there is a competing "quiet life" motivation that suggesting that controlling shareholders may want to enjoy a quiet life and avoid costly activities. In line with this theory, McGuire et al. (2011) find public dual class firms are less aggressive in tax savings than other public firms.

In contrast to McGuire et al. (2011), Thuan and Xu (2011) provide evidence that

dual class structure enables managers to focus on long-term development of firms and ignore short-term earnings pressure. Thuan and Xu (2011) show that firms with dual class shares are less likely to manage their earnings. Pursuit of tax savings is not inconsistent with firms' pursuit of long-term development, and therefore, dual class firms are likely to be more tax aggressive.

2.3.2 Financial reporting aggressiveness and ownership or control concentration

It is not conclusive whether dual class voting structured firms are going to be more or less aggressive in financial reporting. Kim and Yi (2006) studied Korean public and private firms, and they find that as the control-ownership disparity becomes larger (e.g., dual class voting structure), controlling shareholders tend to engage more in opportunistic earnings management.

However, consistent with quiet life view, Zhao and Chen (2008) found that dual class firms are less aggressive in their financial reporting. Based on motivations of avoiding all risks, it is possible that dual class firms may also want to avoid tax aggressiveness simultaneously (McGuire et al. 2011). Therefore, such firms may tradeoff differently (i.e., they don't pursue either good) compared to other firms.

I predict that firms with dual voting structure are likely to make different tradeoffs between tax savings and book income. My hypotheses (in alternate form) are as follows:

Hypothesis 4: Ceteris paribus, dual class firms make different tradeoffs between tax aggressiveness and financial reporting aggressiveness compared to non-dual class firms.

Hypothesis 5: Ceteris paribus, dual class firms are more or less tax aggressive compared to non-dual class firms.

2.4 Total tax costs

Cash taxes payable and book income have different cash flow consequences. Theoretically speaking, insider and family shareholders are more likely to direct their firms to minimize cash outflows instead of maximizing reported earnings when the latter do not necessarily represent cash inflows. As a result, firms with higher insider and family ownership are more likely to be aggressive in their tax planning.

Measures of tax aggressiveness include book-tax differences (e.g., Mills 1996; Jiménez-Angueira 2007), adjusted book-tax differences, permanent book-tax differences (e.g., Chen et. al 2010), effective tax rates (e.g., Zimmerman 1983, Gupta and Newberry 1997), adjusted effective tax rates such as cash effective tax rates (e.g., Dyreng et al. 2008), uncertain tax benefits (e.g., Alexander et al. 2008) and the residual of regression models used by Frank et al. (2010).[5]

Shackelford and Shevlin (2001) suggest that researchers should consider "all parties,

[5] Hanlon and Heitzman (2010) offer an excellent review of this literature.

all taxes and all costs" based on Scholes et al.'s (2005) dictum. The reference to "all taxes" is a call to include implicit taxes where possible. While the literature has paid more attention to taxes paid to governments, the tax fees paid to consultants constitute a similar non-discretionary cash outflow for the firm. In the U.S., the Securities and Exchange Commission (SEC) requires (since 2000) public firms to disclose total fees paid to external auditors as well as (since 2003) tax fees paid to external auditors (Bedard et al. 2010). Similar disclosure of tax fees became mandatory in Canada and effective July 2004 (Rule 52-110F1).

One reason why tax fees to consultants have garnered more attention is that they can and do reduce tax burden significantly. Mills et al. (1998) find effective tax rates to be negatively associated with tax planning investment at both statistically and economically significant levels. They report that "[o]n average, an additional one dollar investment in tax planning results in a $4 reduction in tax liabilities" (Mills et al. 1998, page 1). In my computation of "all costs," I include the taxes paid to government as well as the fees paid to consultant for tax related services.

I therefore assume that firms attempt to minimize the aggregate of taxes paid to the governments and consultancy fees paid to tax advisors. While this measure still excludes taxes paid to internal advisors and other (non-audit) tax service providers, it is a step in the right direction of estimating aggregate cash outflows associated with tax planning and

tax compliance. I predict firms with higher insider and family ownership are more aggressive in tax savings, because they care more about the cash flows over book income. Firms with higher ownership concentration can be expected to pay less aggregate tax fees and taxes. My hypothesis (in alternate form) is as follows:

Hypothesis 6: Ceteris paribus, firms with higher insider/family ownership pay less in aggregate tax fees and taxes.

3. Data and research design

3.1 Data

Data on tax fees and statutory tax rates[6] for the largest 300 Canadian firms listed on the Toronto Stock Exchange (TSX 300) were collected from Annual Information Form (AIF) and annual Management Information Circulars (MICs) for the years 2005-2008 inclusive.[7] Information about dual class and principal shareholders[8] were also collected from annual MICs. Insider and family ownership data were retrieved from Bloomberg. All other financial statement data were retrieved from Compustat.

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[6] Firms have the choice of disclosing statutory tax rates or dollar amounts. Firms also have to disclose effective tax rates and income tax expense. Effective tax rates used to calculate statutory tax rates are collected form Management Information Circulars (MICs).

[7] Annual Information Form and Annual Management Information Circulars are available on www.sedar.com

[8] Principal shareholders are shareholders who directly or indirectly own more than 10% of the voting shares.

Of the 1,200[9] Canadian firm-year observations, 312 firm-year observations did not have sufficient tax fees data in their AIFs. The resulting dataset was first merged with ownership data from Bloomberg, and the remaining data merged with financial statement and market data retrieved from Compustat. Missing data resulted in a final sample of 674 Canadian firm-years. The sample selection procedure is summarized in Table 1.1.

A preliminary analysis of the data indicated some extreme values. To control for the effect of these outliers on the results, all of the continuous variables were winsorized by one percent at the top and bottom, including the sum of taxes paid and tax fees, total assets, size, pretax ROA, market-to-book ratio, leverage and intangible assets.[10]

3.2 Measures of Tax aggressiveness

I follow the method used in Frank et al. (2009) to measure tax aggressiveness. Frank et al. (2009) demonstrate how this measurement is superior to other measures.

The model used to calculate DTAX or the residual (ε) is based on Frank et al's equation 1 (Frank et al. 2009, pg. 473):

$$PERMDIFF_{it} = \beta_0 + \beta_1 INTANG_{it} + \beta_2 UNCON_{it} + \beta_3 MI_{it} + \beta_4 CSTE_{it} + \beta_5 \Delta NOL_{it} + \beta_6 LAGPERM_{it} + \varepsilon_{it} \quad \text{(equation 1)}$$

where:
$PERMDIFF_{it}$ = {pre-tax book income – [(federal income tax expense + foreign income tax expense)/Statutory Tax Rate]} – (deferred income tax expense/ Statutory Tax Rate);

[9] 300 firms x 4 years = 1,200 firm-years.

[10] Winsorizing by 0.5% at both ends did not change the results qualitatively.

$INTANG_{it}$ = intangibles assets;
$UNCON_{it}$ =income (loss) reported under the equity method;
MI_{it} = income (loss) attributable to minority interest;
$CSTE_{it}$ = state income tax expense;
ΔNOL_{it} = change in tax loss carryforwards from last year to current year;
$LAGPERM_{it}$ = one-year lagged PERMDIFF; and
ε_{it} =discretionary permanent difference (DTAX).

The DFIN is the residual of the following equation 2 based on Frank et al. 2009 (pg. 479) and then adjusted for industry average:

$$TACC_{it} = \alpha_0 + \alpha_1 (\Delta REV_{it} - \Delta AR_{it}) + \alpha_3 PPE_{it} + \eta_{it} \quad \text{(equation 2)}$$

Where:
$TACC_{it}$ =total accruals = $(EBEI_{it} - TTE_{it}) - [(CFO_{it} - ITP_{it}) - EIDO_{it}]$;
$EBEI_{it}$ =earnings before extraordinary items from the statement of cash flow;
TTE_{it} = total tax expense;
CFO_{it} = cash flow from operations;
ITP_{it} =income taxes paid from the statement of cash flow;
$EIDO_{it}$ = extraordinary items and discontinued operations from the statement of cash flow;
ΔREV_{it} = change in sales from year t-1 to year t;
ΔAR_{it} = change in accounts receivable from year t-1 to year t;
PPE_{it} = gross property, plant, and equipment; and
η_{it} = discretionary accruals before adjusting for performance.

I follow Frank et al. (2009) to estimate DTAX and DFIN, and use it as proxies for tax and financial reporting aggressiveness, respectively. Both models above control for industries at the first-two digit SICs.

3.3 Research design

To test my first three hypotheses, I use tax aggressiveness as my dependent variable

and control for the basic determinants of tax aggressiveness such as pretax performance, size, growth, leverage, financial reporting cost, loss carry-forward, foreign taxes paid and intangible assets (similar to Chen et al. 2010 and Frank et al. 2009). I then incorporate my two test variables: a continuous variable for financial reporting aggressiveness and an indicator variable that takes the value of 1 if the Canadian firm-year has higher insider and family ownership than the sample average, and zero otherwise. Formally my model 1 is:

$$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 IFO_{it} + \beta_3 DFIN_{it}*IFO_{it} + \beta_4 FRC_{it} + \beta_5 MTB_{it} + \beta_6 LEV_{it} + \beta_7 PTROA_{it} + \beta_8 FORTAX_{it} + \beta_9 INTANG_{it} + \beta_{10} TLCF_{it} + \beta_{11} SIZE_{it} + \beta_{12\text{-}14} Year + \varepsilon_{it} \quad \text{(model 1)}$$

Where:
$DTAX_{it}$ or Tax Aggressiveness = the proxy for tax aggressiveness based on Frank et al. (2009);
$DFIN_{it}$ or Financial Reporting Aggressiveness= the proxy for financial reporting aggressiveness calculated following Frank et al. (2009) ;
IFO_{it} =Insider and/or Family Ownership = an indicator variable that equals 1 if the firm's family and/or insider ownership is above the sample average family and /or insider ownership, and 0 otherwise;
FRC_{it} = Financial Reporting Cost coded as an indicator variable that takes the value of 1 if the firm's ROA is below target ROA; target ROA is calculated following Klassen and Mawani (2000) as follows: Target $ROA_t = \{(1+drift_t)\ (NI_{t-1} / BV_{t-2})\}$, where $drift_t = (1/2)$Target $ROA_{t-1} + (1/4)$Target $ROA_{t-2} + (1/8)$Target $ROA_{t-3} + (1/16)$Target $ROA_{t-4} + (1/16)$Target ROA_{t-5};
MTB_{it} = Market to book ratio calculated as the market value of common equity divided by book value of common equity at end of current year;
LEV_{it} = Leverage calculated as long-term debt at current year-end divided by book value of equity at current year-end;
$PTROA_{it}$ = Pretax ROA calculated as the pretax income for firm i in year t divided by total assets for firm i in year t-1;
$FORTAX_{it}$ =Foreign Tax proxied by an indicator variable that equals 1 if foreign tax expenses are positive, and 0 otherwise;

$INTANG_{it}$ = Intangible Assets (as % of total assets $_{t-1}$) calculated as intangible assets for firm i in year t divided by total assets for firm i in year t-1;
$TLCF_{it}$ =Tax Loss Carryforward proxied as an indicator variable that equals 1 if tax loss carryforward is positive, and 0 otherwise; and
$SIZE_{it}$ = Size = natural log of total assets.

As claimed in hypothesis 1, the sign of β_1 is not predicted allowing tax aggressiveness and financial reporting aggressiveness to be positively or negatively associated. As claimed in hypothesis 2, the interaction of family/insider ownership and financial reporting aggressiveness (β_3) is expected be the significant but the sign is not predicted. As claimed in hypothesis 3, tax aggressiveness (β_2) is expected to be significantly associated with insider/family ownership. Leverage and market-to-book ratio are proxies for financial reporting costs and predicted to be negatively associated with tax aggressiveness. When pretax income is higher, firms may pursue tax savings more even at the cost of reducing the (higher) pretax incomes. Intangible assets and foreign taxes are proxies for opportunities for tax planning. However, it is not certain whether such firms use these opportunities to reduce tax payments, improve reported income, or both (Mills et al. 1998). Tax loss carryforwards are tax shields that can reduce tax burdens, thereby reducing the need for additional tax aggressiveness. It is therefore expected to be negatively associated with tax aggressiveness. Larger firms may be less tax aggressive because they have relatively more stable incomes (due to their greater diversification) or they may be more tax aggressive due to the greater opportunities to engage in tax

planning.

To test hypotheses 4 and 5, I use the same model as above, but substitute Dual Class for Insider/Family Ownership, as follows:

$$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 DUAL_{it} + \beta_3 DFIN_{it}* DUAL_{it} + \beta_4 FRC_{it} + \beta_5 MTB_{it} + \beta_6 LEV_{it} + \beta_7 PTROA_{it} + \beta_8 FORTAX_{it} + \beta_9 INTANG_{it} + \beta_{10} TLCF_{it} + \beta_{11} SIZE_{it} + \beta_{12\text{-}14} Year + \varepsilon_{it} \quad \text{(model 2)}$$

where:

DUAL refers to dual class voting. I use two measures of Dual Class:

DUAL = an indicator variable equals 1 if the firm has more than one class of shares, and zero otherwise; and
DUAL1 = an indicator variable equals 1 if the firm has more than one class of shares and also has a principal shareholder, who directly or indirectly owns more than 10% of the voting shares, and zero otherwise.

The coefficient of Dual Class is expected to be significant but the sign is not predicted (H4), and the interaction term of Dual Class and DFIN is expected to be significant (H5). The predictions for all other variables are the same as in the previous model.

To test hypothesis 6, I estimate the following regression model 3:

$$\text{Sum of taxes paid and tax fees} = \beta_0 + \beta_1 IFO_{it} + \beta_2 FRC_{it} + \beta_3 MTB_{it} + \beta_4 LEV_{it} + \beta_5 FORTAX_{it} + \beta_6 TLCF_{it} + \beta_7 DEP_{it} + \beta_8 ASSETS_{it} + \beta\ Year + \beta\ Industry\ Indicators + \varepsilon_{it} \quad \text{(model 3)}$$

The variables are defined in the same way as in the previous models. As claimed in my hypothesis 4, the sum of taxes paid and tax fees is hypothesized to be lower in firms with higher insider/family ownership.

Leverage and market-to-book ratios are proxies for financial reporting costs and are

hypothesized to be positively associated with the aggregate of taxes paid and tax consulting fees. Foreign taxes are proxies for tax planning opportunities, where firms may spend more on tax fees to take advantage of such opportunities and therefore pay less in taxes. Depreciation expenses and tax loss carry-forward can reduce tax burdens and are therefore hypothesized to be negatively associated with the aggregate of taxes paid and tax fees. Larger firms are hypothesized to spend more on tax fees and taxes payments due to scale effect.

4. Empirical results

4.1 Descriptive statistics

Summary statistics for the pooled sample are reported in Table 1.2. Panel A reports descriptive statistics for dependent variables and Panel B reports descriptive statistics for continuous independent variables: insider and family ownership (as a continuous variable), total assets, size, pretax ROA, market-to-book ratio, leverage ratio and intangible assets as a percentage of total assets.

The mean level of tax aggressiveness for firms with higher insider/family ownership is higher than the mean for non-insider/family firms[11], while the mean financial reporting aggressiveness for firms with higher insider/family ownership is lower than the mean of

[11] If I divided the samples into dual class firms and non-dual class firms, I get similar results: the mean tax aggressiveness of dual class firms is greater than the mean tax aggressiveness of non-dual class firms.

non-insider/family firms. These results suggest that firms with higher insider and family ownership may care more about pursuing tax savings and not as much about pursuing higher reported incomes.

Panel C presents descriptive statistics for insider/family ownership, Dual Class, Dual Class 1, FRC, Foreign tax and tax loss carryforwards. As expected, closely-held firms are smaller than widely held firms. Approximately one third of the sample firm-years have dual class share structures.

Table 1.3 presents the Pearson correlation matrix for the independent variables. No correlation is higher than 32%[12], thereby suggesting that multicollinearity is not a significant concern.

4.2 Regression results for hypotheses 1-5 (Table 1.4)

The regression results for hypotheses 1-5 using tax aggressiveness as the dependent variable are presented in Table 1.4. In column 1, I exclude ownership and interaction from model 1. Tax aggressiveness is negatively and significantly associated with financial reporting aggressiveness, suggesting that firms make tradeoffs between taxes and book incomes, thereby supporting hypothesis 1. Tax aggressiveness is negatively and significantly associated with market-to-book ratio, suggesting that growth firms facing

[12] The only exception is the 90% correlation between DUAL and DUAL1 which is expected by construction.

higher financial reporting pressures may be sacrificing tax savings to report higher earnings to impress the capital markets. The coefficient of Pre-tax ROA is positive and significant, consistent with my prediction that firms with higher earnings have more incentives to save taxes. Leverage is positively and significantly associated with tax aggressiveness, contrary to my hypothesis. Tax aggressiveness is negatively associated with intangible assets (as a proportion of total assets at the beginning of the year), suggesting that perhaps firms are not using intangible assets as opportunities for tax planning.

In column 2, I include insider/family ownership and the associated interaction term in addition to all the other independent variables. I find tax aggressiveness to be negatively associated with financial reporting aggressiveness, suggesting the existence of tradeoffs between tax savings and reported earnings, thereby supporting hypothesis 1. This finding is consistent with most of the literature summarized in Shackelford and Shevlin (2001). The interaction term of financial reporting aggressiveness and insider/family ownership is also positively associated with tax aggressiveness, suggesting that firms with insider/family ownerships make different tradeoffs between tax savings and reported earnings, thereby supporting hypothesis 2. The sum of the coefficient on financial reporting aggressiveness and the coefficient on the interaction term (between financial reporting aggressiveness and insider/family ownership) is also positively associated with

tax aggressiveness,[13] suggesting a positive association between tax aggressiveness and financial reporting aggressiveness for firms with insider/family ownership. This result is consistent with Frank et al. (2009). Finally, tax aggressiveness is positively associated with insider/family firms, suggesting that firms with higher insider/family ownership may be more tax aggressiveness, thereby supporting hypotheses 3 and consistent with Klassen (1997). Most control variables are similar in their statistical significance across columns 1 and 2, except that market-to-book ratio and leverage is insignificant in column 2.

In columns 3 and 4, I use Dual Class and Dual Class1, respectively, as the proxy for closely-held firms. The regression results support hypotheses 4 and 5. After adding Dual Class and Dual Class 1, tax aggressiveness is still negatively associated with financial reporting aggressiveness, suggesting the existence of tradeoffs between tax savings and reported earnings, thereby supporting hypothesis 1. The interaction term of financial reporting aggressiveness and Dual Class (or Dual Class 1) is positively associated with tax aggressiveness, suggesting that firms with dual class share structures make different tradeoffs between tax savings and reported earnings, thereby supporting hypothesis 4. The sum of the coefficient on financial reporting aggressiveness and the coefficient on the interaction term (between financial reporting aggressiveness and dual class/dual class

[13] The p-value of the hypothesis that the sum of the two coefficients is zero is < 0.001.

1) is also positively associated with tax aggressiveness,[14] suggesting dual class firms do not make tradeoffs between financial reporting aggressiveness and tax aggressiveness. Tax aggressiveness is positively associated with Dual Class and Dual Class1, suggesting that dual class firms are more tax aggressiveness, supporting hypothesis 5. The results for control variables are generally consistent with column 1.

4.3 Regression results for hypotheses 6 (Table 1.5)

The sum of taxes paid and tax fees is negatively associated with insider/family ownership. On average, firms with higher insider and family ownership pay C$42 million lower in taxes and tax fees combined compared with other firms. Foreign tax indicator is positively associated with the sum of taxes and tax fees, suggesting that perhaps firms pay higher tax advisory fees when they are subject to foreign taxes (consistent with Mills et al. 1998) or pay more taxes when they operate in several jurisdictions. Finally, larger firms pay more in taxes and tax fees combined.

4.4 Additional Tests (Table 1.6)

Frank et al. (2009) argue that the growing trend in book-tax differences is driven by firms being more aggressive in tax reporting and/or financial reporting over time. The

[14] The p-value of the hypothesis that the sum of the two coefficients is zero is 0.006 and 0.009 for DUAL and DUAL 1, respectively.

increasing book-tax gap over recent years may imply that firms are making tradeoffs to a lesser extent since large gaps suggests that firms are not able to achieve both objectives. To test this argument, I add indicator variables for each year, which allows tax aggressiveness to vary by year after controlling for the economic determinants of tax and financial reporting aggressiveness, such as firm performance, leverage, etc. I also introduce interaction variables between financial reporting aggressiveness and years to models 1 and 2, thereby allowing the association between the tax and financial reporting aggressiveness to vary over time. I hypothesize the interactions of year and financial reporting aggressiveness to be positive. Formally the models are as follows:

$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 IFO_{it} + \beta_3 DFIN_{it}*IFO_{it} + \beta_4 Year\ 2006 * DFIN_{it} + \beta_5 Year\ 2007 * DFIN_{it} + \beta_6 Year\ 2008 * DFIN_{it} + \beta_7 FRC_{it} + \beta_8 MTB_{it} + \beta_9 LEV_{it} + \beta_{10} PTROA_{it} + \beta_{11} FORTAX_{it} + \beta_{12} INTANG_{it} + \beta_{13} TLCF_{it} + \beta_{14} SIZE_{it} + \beta_{15\text{-}17} Year + \varepsilon_{it}$
(model 4)

$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 DUAL_{it} + \beta_3 DFIN_{it}*DUAL_{it} + \beta_4 Year\ 2006 * DFIN_{it} + \beta_5 Year\ 2007 * DFIN_{it} + \beta_6 Year\ 2008 * DFIN_{it} + \beta_7 FRC_{it} + \beta_8 MTB_{it} + \beta_9 LEV_{it} + \beta_{10} PTROA_{it} + \beta_{11} FORTAX_{it} + \beta_{12} INTANG_{it} + \beta_{13} TLCF_{it} + \beta_{14} SIZE_{it} + \beta_{15\text{-}17} Year + \varepsilon_{it}$
(model 5)

Similar to Table 1.4, the ownership variable and its interaction with financial reporting aggressiveness are excluded from the model in column 1. After controlling for year indicator variables and the associated interaction terms, tax reporting aggressiveness is negatively associated with financial reporting aggressiveness, consistent with the result in Table 1.4, and thereby supporting hypothesis 1. In all columns 1-4, the coefficient of

interaction between year 2007(2008) and financial reporting aggressiveness is positive and significant, suggesting Canadian firms make tradeoffs to a lesser extent in the year 2007(2008) compared to 2005. The argument that tradeoffs are mitigating over time is supported.

After introducing the year effects, hypotheses 2-5 also remain supported by the data. In column 2, the coefficient of insider and family ownership is positive and significant, suggesting closely-held firms are more aggressive in tax savings, thereby supported hypothesis 3. Similarly, the coefficients of DAUL and DUAL1 are positive and significant in column 3 and 4 respectively, thereby supported hypothesis 5. The coefficient of interaction between ownership/dual class shares and financial reporting aggressiveness is also positive and significant, thereby suggesting that closely-held firms make different tradeoffs compared to widely-held firms, and hypotheses 2 and 4 are supported.

4.5 Reconciling to the prior literature

The result reported in tables 1.4 and 1.6, that tax aggressiveness and financial reporting aggressiveness are positively associated, is inconsistent with that found by Frank et al. (2009). However, it is generally consistent with the other studies summarized by Shackelford and Shevlin (2001). Further, it is also consistent with a recent study by

Lennox et al. (2013) which finds that tax aggressive firms are less likely to commit accounting fraud, suggesting a trade-off between tax savings and reported income. The difference in this result from Frank et al. (2009) could be due to the Canadian setting with its different institutional environment and/or higher tax enforcement. Such jurisdictional differences could explain some of the differences in the tradeoffs taken by Canadian and U.S. firms.

The results reported in table 1.4 and 1.6 – that closely-held firms are more tax aggressive – are inconsistent with that found by Chen et al. (2010). This study differs from Chen et al. (2010) along a number of dimensions. First, my sample period (2005 to 2008) is more recent than the 1996-2000 period used by Chen et al. (2010). Second, this study controls for financial reporting cost, while Chen et al. (2010) do not. Third, I consider both insider and family ownership, while Chen et al. (2010) only examines family firms. Finally, the objective of Chen et al. (2010) is to test whether family firms are more or less aggressive in tax planning, while the objective of this study is to examine the extent of trade-offs (if any) between tax aggressiveness and financial reporting aggressiveness. On replicating Chen et al's (2010) model to my Canadian data, I do not find results that support their hypothesis that insider and family firms are more tax aggressive. When I introduce financial reporting cost to Chen et al.'s model, the

coefficient of ownership still remains insignificant, while financial reporting cost is found to be significantly associated with effective tax rate.

4.6 Robustness Tests

For robustness, I use a continuous variable of insider/family ownership and two additional dummy variables for testing hypotheses 1 to 3, and the results are reported in Table 1.7. I code insider/family ownership as 1 if the aggregate percentage of shares owned by insider and / or family is higher than 5% (10%), and 0 otherwise. The regression results with continuous measure of ownership as well as 5% and 10% cutoff points are reported in the first three columns of Table 1.7. Tax aggressiveness is negatively associated with financial reporting aggressiveness. In general, firms with higher insider/family ownership are more aggressive than other firms, and tradeoff differently from other firms. Consistent with results in table 1.4, hypotheses 1, 2 and 3 are all supported.

I conduct another set of robustness tests by using ETRs as tax aggressiveness measures (untabulated). As discussed in the methodology section, ETR can be affected by both earnings management and tax management. Only Cash ETR support all three hypotheses, while the other two measures[15] only support some of the hypotheses.

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[15] ETR1 = Total tax expense/ Pretax income.

ETR2 = (Total tax expense – Change in deferred tax) / Operating cash flows (following Zimmerman 1983)

5. Conclusion

This study contributes to the debate on whether firms tradeoff between tax savings and reported income. Frank et al. (2009) find that tax aggressiveness and financial reporting aggressiveness are positively correlated, a result that deviates from most of the literature prior to it (as summarized in Shackelford and Shevlin, 2001).

I find that while tax aggressiveness is negatively associated with financial reporting aggressiveness in general, firms with higher insider and family ownership tradeoff differently, and firms with dual class share structure also tradeoff differently between the two factors. Firms with insider and family concentrated ownership are more aggressive in pursuing tax savings compared to other firms, allowing them to enjoy paying $42 million less in combined taxes (to governments) and tax fees (to tax advisors).

The limitations of this study apply to many other studies in this literature that adapt Frank et al's (2009) measures of tax and financial reporting aggressiveness. Frank et al's definition of tax aggressiveness only includes downward management of taxable incomes while in practice tax aggressiveness could include overstating taxable incomes in some periods (e.g., those with loss carryovers). Similarly, Frank et al's (2009) definition of

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ETR3 = Cash taxes paid/Pretax income (following Chen et al. 2010)

The dependent variable (DFRA) is the residual from total accrual equation divided by pretax income. The other independent variables are defined in Table 2. P-Values are presented in parentheses.

financial reporting aggressiveness only includes upward management of reported earnings, while in practice earnings management could include understating reported earnings.

Table 1.1 Sample Selection

Initial Sample (firm-year observations)	1200 (a)
Deletions due to missing data for	
Tax aggressiveness data in Compustat	-121
Financial Reporting Aggressiveness in Compustat	-7
Market-to-Book ratio in Compustat	-127
Leverage in Compustat	-2
Sample used in Table 1.4, column 1	943
Deletions due to missing data for	
Insider/Family Ownership in Bloomberg	-269
Sample used in Table 1.4, column 2	674

Initial Sample (firm-year observations)	1200 (a)
Deletions due to missing data for	
Tax fees on Sedar	-312
Insider/Family Ownership in Bloomberg	-144
Operating expenses in Compustat	-22
Pretax ROA in Compustat	-12
Market-To-Book ratio in Compustat	-71
Leverage in Compustat	-2
Depreciation (as % of total assets $_{t-1}$) in Compustat	-22
ETR in Compustat	-40
Intangible assets (% of total assets $_{t-1}$) in Compustat	-6
FRC in Compustat	-4
Sample used in Table 1.5	565

(a) TSX 300 firms for 2005-2008

Table 1.2 Summary Statistics for Dependent and Independent Variables

Panel A: Dependent Variables								
	Firms with higher insider/family ownership				**Firms with lower insider/family ownership**			
Variables	**N**	**Mean**	**Median**	**Std Dev**	**N**	**Mean**	**Median**	**Std Dev**
DTAX	154	0.011	0.001	0.117	520	0.003	0.012	0.134
DFIN	154	-0.018	-0.153	0.099	520	0.013	0.003	0.125
Sum of taxes paid and tax fees (C$ million)	134	37	14	60	453	162	29	282
Panel B: Continuous Variables								
	Firms with higher insider/family ownership				**Firms with lower insider/family ownership**			
Variable	**N**	**Mean**	**Median**	**Std Dev**	**N**	**Mean**	**Median**	**Std Dev**
IFO (%)	154	18.768	14.619	11.764	520	0.91	0.484	1.063
ASSETS	154	7,747	1,863	23,589	520	21,060	2,788	68,783
SIZE	154	7.741	7.530	1.226	520	8.249	7.933	1.510
PTROA	154	0.108	0.074	0.099	520	0.119	0.101	0.105
MTB	154	2.287	1.766	1.934	520	2.151	1.905	1.458
LEV	154	0.944	0.523	1.252	520	0.705	0.427	1.056
INTANG	154	0.228	0.100	0.303	520	0.150	0.046	0.279
Panel C: Discrete variables								
Variable			**N**	**Percent**			**N**	**Percent**
IFO	1		154	22.85%	0		520	77.15%
DUAL	1		249	27.24%	0		665	72.76%
DUAL1	1		218	24.80%	0		661	75.20%
FRC	1		325	48.22%	0		349	51.78%
FORTAX	1		132	19.58%	0		542	80.42%
TLCF	1		163	24.18%	0		511	75.82%

Variable definitions

Dependent variables:

DTAX or Tax Aggressiveness = the proxy for tax aggressiveness based on Frank et al. (2009);
DFIN or Financial Reporting Aggressiveness= the proxy for financial reporting aggressiveness calculated following Frank et al. (2009) ;

Independent variables:

SIZE = Size = natural log of total assets;
PTROA = Pretax ROA calculated as the pretax income for firm i in year t divided by total assets for firm i in year t-1;
MTB = Market to book ratio calculated as the market value of common equity divided by book value of common equity at end of current year;
LEV = Leverage calculated as long-term debt at current year-end divided by book value of equity at current year-end;
INTANG = Intangible Assets (as % of total assets $_{t-1}$) calculated as intangible assets for firm i in year t divided by total assets for firm i in year t-1;

Discrete variables:
IFO =Insider/Family Ownership = an indicator variable that equals 1 if the firm's family and insider ownership is above the sample average family and insider ownership, and 0 otherwise;
DUAL = indicator variable that equals 1 if the firm has more than one class of shares, and zero otherwise;
DUAL1 = indicator variable that equals 1 if the firm has more than one class of shares and also has a principal shareholder, who directly or indirectly owns more than 10% of the voting shares, and zero otherwise;
FRC = Financial Reporting Cost coded as an indicator variable that takes the value of 1 if the firm's ROA is below target ROA; target ROA is calculated following Klassen and Mawani (2000) as follows: Target $ROA_t = \{(1+drift_t)\ (NI_{t-1} / BV_{t-2})\}$, where $drift_t = (1/2)$Target $ROA_{t-1} + (1/4)$Target $ROA_{t-2} + (1/8)$Target $ROA_{t-3} + (1/16)$Target $ROA_{t-4} + (1/16)$Target ROA_{t-5};
TLCF =Tax Loss Carryforward proxied as an indicator variable that equals 1 if tax loss carryforward is positive, and 0 otherwise; and
FORTAX =Foreign Tax proxied by an indicator variable that equals 1 if foreign tax expenses are positive, and 0 otherwise.

Table 1.3: Pearson Correlation

	DFIN	DUAL	DUAL1	IFO	FORTAX	TLCF	MTB	LEV	PTROA	INTANG
DUAL	-0.026	1.000								
	(0.494)									
DUAL	-0.044	0.956	1.000							
	(0.263)	(0.000)								
IFO	-0.109	0.212	0.222	1.000						
	(0.005)	(0.000)	(0.000)							
FORTAX	-0.020	0.064	0.016	-0.126	1.000					
	(0.604)	(0.098)	(0.693)	(0.001)						
TLCF	-0.129	0.140	0.140	0.028	0.096	1.000				
	(0.001)	(0.000)	(0.000)	(0.463)	(0.013)					
MTB	0.032	-0.160	-0.148	0.036	0.076	-0.208	1.000			
	(0.401)	(0.000)	(0.000)	(0.348)	(0.050)	(0.000)				
LEV	-0.041	0.148	0.142	0.091	0.010	0.105	0.025	1.000		
	(0.288)	(0.000)	(0.000)	(0.019)	(0.792)	(0.007)	(0.524)			
PTROA	0.096	-0.106	-0.119	-0.044	-0.088	-0.102	0.295	-0.204	1.000	
	(0.013)	(0.006)	(0.002)	(0.254)	(0.023)	(0.008)	(0.000)	(0.000)		
INTANG	0.062	0.125	0.130	0.115	0.000	0.111	-0.033	0.022	0.070	1.000
	(0.108)	(0.001)	(0.001)	(0.003)	(0.992)	(0.004)	(0.399)	(0.564)	(0.070)	
SIZE	0.076	0.060	0.017	-0.146	0.317	-0.034	0.020	0.010	-0.090	-0.074
	(0.048)	(0.120)	(0.662)	(0.000)	(0.000)	(0.377)	(0.614)	(0.798)	(0.020)	(0.054)

Note:
This table presents Pearson Correlation among variables. The variables are defined in Table 1.2. P-Values are presented in parentheses.

Table 1.4: Association between Tax Aggressiveness and Financial Reporting Aggressiveness

$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 IFO_{it} + \beta_3 DFIN_{it}*IFO_{it} + \beta_4 FRC_{it} + \beta_5 MTB_{it} + \beta_6 LEV_{it} + \beta_7 PTROA_{it} + \beta_8 FORTAX_{it} + \beta_9 INTANG_{it} + \beta_{10} TLCF_{it} + \beta_{11} SIZE_{it} + \beta_{12\text{-}14} Year + \varepsilon_{it}$

Dependent variable DTAX	Pred	Column 1	Column 2	Column 3	Column 4
Intercept		0.027	0.016	0.024	0.021
		(0.362)	(0.610)	(0.424)	(0.488)
DFIN	(H1)?	**-0.097*****	**-0.118*****	**-0.125*****	**-0.126*****
		(0.004)	**(0.006)**	**(0.000)**	**(0.000)**
IFO	(H3)?		**0.028****		
			(0.016)		
DFIN*IFO	(H2)?		**0.594*****		
			(0.000)		
DUAL	(H5)?			**0.034*****	
				(0.001)	
DFIN*DUAL	(H4)?			**0.210****	
				(0.049)	
DUAL1	(H5)?				**0.030*****
					(0.005)
DFIN*DUAL1	(H4)?				**0.209***
					(0.065)
FRC	-	-0.012	-0.016	-0.010	-0.006
		(0.180)	(0.105)	(0.307)	(0.559)
MTB	-	**-0.007*****	-0.001	**-0.005****	**-0.005****
		(0.003)	(0.799)	**(0.040)**	**(0.033)**
LEV	-	**0.010*****	0.005	**0.008****	**0.008****
		(0.008)	(0.247)	**(0.030)**	**(0.046)**
PTROA	+	**0.183*****	**0.231*****	**0.190*****	**0.203*****
		(0.000)	**(0.000)**	**(0.000)**	**(0.000)**
FORTAX	?	-0.009	-0.010	-0.010	-0.012
		(0.438)	(0.405)	(0.384)	(0.321)
INTANG	?	**-0.136*****	**-0.148*****	**-0.140*****	**-0.132*****
		(0.000)	**(0.000)**	**(0.000)**	**(0.000)**

TLCF	-	-0.010	-0.005	-0.013	-0.010
		(0.260)	(0.648)	(0.163)	(0.281)
SIZE	?	-0.001	-0.001	-0.002	-0.002
		(0.848)	(0.808)	(0.616)	(0.662)
Adj. R^2		0.091	0.166	0.106	0.099
No. of observations		943	674	914	879

Notes:
This table presents regression results of hypotheses 1, 2, 3, 4 and 5 using a pooled ordinary least squares estimation. There are 943/674/914/879 firm-year observations over the period 2005 to 2008. The dependent measures and independent variables are defined in Table 1.2. P-Values are presented in parentheses.
*** Statistically significant at the 1% level
** Statistically significant at the 5% level
* Statistically significant at the 10% level

Table 1.5: Tax Reporting and Insider/Family ownership

Sum of taxes paid and tax fees=$\beta_0 + \beta_1 IFO_{it} + \beta_2 FRC_{it} + \beta_3 MTB_{it} + \beta_4 LEV_{it} + \beta_5 FORTAX_{it} + \beta_6 TLCF_{it} + \beta_7 DEP_{it} + \beta_8 ASSETS_{it} + \beta$ Year + β Industry Indicators + ε_{it}

Dependent variable: Sum of taxes and tax fees	Pred	OLS
Intercept		35.947
		(0.342)
IFO	(H6)-	**-42.216***
		(0.077)
FRC	+	-16.281
		(0.350)
MTB	+	2.932
		(0.656)
LEV	+	-5.775
		(0.503)
FORTAX	?	**102.382*****
		(0.000)
TLCF	-	8.411
		(0.653)
DEP	-	35.961
		(0.349)
ASSETS	+	**0.003*****
		(0.000)
Year indicator		Included
Industry Indicator		Included
Adj. R^2		0.596
No. of observations		565

Notes:
This table presents regression results of hypothesis 6 using a pooled ordinary least squares estimation. There are 565 firm-year observations over the period 2005 to 2008. The dependent and independent variables are defined in Table 1.2. P-Values are presented in parentheses.
*** Statistically significant at the 1% level
** Statistically significant at the 5% level
* Statistically significant at the 10% level

Table 1.6: The Tradeoff Trend over Time

$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 IFO_{it} + \beta_3 DFIN_{it}*IFO_{it} + \beta_4$ Year 2006 * $DFIN_{it} + \beta_5$ Year 2007 * $DFIN_{it} + \beta_6$ Year 2008 * $DFIN_{it} + \beta_7 FRC_{it} + \beta_8 MTB_{it} + \beta_9 LEV_{it} + \beta_{10} PTROA_{it} + \beta_{11} FORTAX_{it} + \beta_{12} INTANG_{it} + \beta_{13} TLCF_{it} + \beta_{14} SIZE_{it} + \beta_{15\text{-}17}$ Year $+ \varepsilon_{it}$

Dependent variable DTAX	Pred	Column 1	Column 2	Column 3	Column 4
Intercept		0.045	0.032	0.040	0.038
		(0.131)	(0.307)	(0.178)	(0.212)
DFIN	(H1)?	**-0.170*****	**-0.289*****	**-0.190*****	**-0.188*****
		(0.007)	**(0.000)**	**(0.003)**	**(0.005)**
IFO	(H3)?		**0.027****		
			(0.015)		
DFIN*IFO	(H2)?		**0.500*****		
			(0.000)		
DUAL	(H5)?			**0.032*****	
				(0.001)	
DFIN*DUAL	(H4)?			**0.191***	
				(0.073)	
DUAL1	(H5)?				**0.029*****
					(0.007)
DFIN*DUAL1	(H4)?				**0.194***
					(0.085)
Year 2006 * DFIN	+	-0.132	0.013	-0.114	-0.110
		(0.128)	(0.896)	(0.191)	(0.212)
Year 2007 * DFIN	+	**0.255*****	**0.333*****	**0.236****	**0.231****
		(0.009)	**(0.005)**	**(0.016)**	**(0.023)**
Year 2008 * DFIN	+	**0.232*****	**0.606*****	**0.209****	**0.194****
		(0.009)	**(0.000)**	**(0.020)**	**(0.033)**
FRC	-	-0.007	-0.010	-0.005	-0.002
		(0.447)	(0.285)	(0.567)	(0.852)
MTB	-	**-0.008*****	-0.001	**-0.006****	**-0.006****
		(0.001)	(0.790)	**(0.019)**	**(0.016)**
LEV	-	**0.010*****	0.004	**0.008****	**0.008****
		(0.009)	(0.298)	**(0.031)**	**(0.047)**
PTROA	+	**0.188*****	**0.225*****	**0.194*****	**0.205*****

		(0.000)	**(0.000)**	**(0.000)**	**(0.000)**
FORTAX	?	-0.011	-0.011	-0.011	-0.013
		(0.356)	(0.376)	(0.321)	(0.282)
INTANG	?	**-0.131*****	**-0.144*****	**-0.135*****	**-0.128*****
		(0.000)	**(0.000)**	**(0.000)**	**(0.000)**
TLCF	-	-0.014	-0.009	**-0.016***	-0.013
		(0.137)	(0.332)	**(0.087)**	(0.157)
SIZE	?	-0.002	-0.003	-0.002	-0.002
		(0.649)	(0.320)	(0.481)	(0.525)
Year 2006	+	-0.016	0.003	-0.016	-0.016
		(0.175)	(0.796)	(0.192)	(0.190)
Year 2007	+	-0.014	0.007	-0.012	-0.013
		(0.259)	(0.587)	(0.348)	(0.308)
Year 2008	+	-0.018	0.002	-0.016	-0.016
		(0.158)	(0.878)	(0.225)	(0.229)
Adj. R^2		0.112	0.210	0.121	0.114
No. of observations		943	674	914	879

Notes:
This table presents regression results of hypotheses 1, 2, 3, 4 and 5 using a pooled ordinary least squares estimation. There are 943/674/914/879 firm-year observations over the period 2005 to 2008. The dependent measures and independent variables are defined in Table 1.2. P-Values are presented in parentheses.
*** Statistically significant at the 1% level
** Statistically significant at the 5% level
* Statistically significant at the 10% level

Table 1.7: Association between tax aggressiveness and different measures of insider/family ownership

$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 IFO_{it} + \beta_3 DFIN_{it}*IFO_{it} + \beta_4 FRC_{it} + \beta_5 MTB_{it} + \beta_6 LEV_{it} + \beta_7 PTROA_{it} + \beta_8 FORTAX_{it} + \beta_9 INTANG_{it} + \beta_{10} TLCF_{it} + \beta_{11} SIZE_{it} + \beta_{12\text{-}14} Year + \varepsilon_{it}$

Dependent variable DTAX	Pred	IFO Continues Variable	IFO Cutoff Point 5%	IFO Cutoff Point 10%
Intercept		0.012	0.017	0.018
		(0.695)	(0.579)	(0.562)
DFIN	(H1)?	**-0.084***	**-0.123*****	**-0.102****
		(0.055)	**(0.004)**	**(0.017)**
IFO	(H3)?	**0.001***	**0.023****	**0.028****
		(0.086)	**(0.046)**	**(0.028)**
DFIN*IFO	(H2)?	**0.017*****	**0.611*****	**0.602*****
		(0.001)	**(0.000)**	**(0.000)**
FRC	-	-0.016	-0.015	**-0.016***
		(0.110)	(0.113)	**(0.094)**
MTB	-	0.000	-0.001	-0.002
		(0.982)	(0.817)	(0.636)
LEV	-	0.005	0.005	0.005
		(0.231)	(0.233)	(0.243)
PTROA	+	**0.233*****	**0.231*****	**0.230*****
		(0.000)	**(0.000)**	**(0.000)**
FORTAX	?	-0.015	-0.011	-0.014
		(0.251)	(0.391)	(0.271)
INTANG	?	**-0.148*****	**-0.147*****	**-0.152*****
		(0.000)	**(0.000)**	**(0.000)**
TLCF	-	-0.004	-0.005	-0.005
		(0.677)	(0.632)	(0.622)
SIZE	?	-0.001	-0.001	-0.001
		(0.879)	(0.785)	(0.861)
Adj. R^2		0.138	0.167	0.159
No. of observations		674	674	674

Notes:
This table presents regression results of hypotheses 1, 2, and 3 using a pooled

ordinary least squares estimation. There are 674 firm-year observations over the period 2005 to 2008. The dependent measures and independent variables are defined in Table 1.2. P-Values are presented in parentheses.

*** Statistically significant at the 1% level

** Statistically significant at the 5% level

* Statistically significant at the 10% level

ESSAY 2

Financial and Tax Reporting Aggressiveness: A Canada - U.S. Comparison

1. Introduction

This study examines whether firms tradeoff between reporting higher book income and being tax aggressive to a similar extent in Canada and the United States; and whether the impact of ownership on this tradeoff is similar across the two countries. The literature is inconclusive about whether firms tradeoff between book income and taxable savings. Earlier literature suggested that firms made tradeoffs between the two goods: tax savings and reported income (e.g., Klassen 1997; Beatty and Harris 1999; Klassen and Mawani 2000; Mawani 2003; Shackelford and Shevlin 2001).

More recent literature (e.g., Frank et al. 2009) suggests that firms can and do pursue both tax reporting aggressiveness and financial reporting aggressiveness simultaneously, thereby implying that firms need not choose between doing only one of tax reporting aggressiveness and financial reporting aggressiveness. Tax aggressiveness is defined in the literature as the "downward management of taxable income through tax planning activities that may or may not be considered fraudulent tax reporting" (Frank et al. 2009). Financial reporting aggressiveness is defined as "upward earnings management that may or may not be within the confines of generally accepted accounting principles (GAAP)" (Frank et al. 2009). Most of the published empirical studies are based on U.S. data. This comparison study of U.S. and Canada can be useful in triangulating the mixed results of this literature, and shed some light on factors affecting the tradeoff decisions.

Frank et al. (2009) admit that not all firms engage in being aggressive in both tax planning and reported earnings. They claim that "[e]ven if firms have the ability to be aggressive for both financial and tax reporting purposes, it is not obvious that firms would be willing to engage in both behaviors" (p. 471). It is therefore interesting to examine whether firms in different jurisdictions that have different financial reporting standards (Canadian GAAP versus U.S. GAAP), different tax rates, different tax systems, and different tax enforcement behave in the same manner with regards to the tradeoff decision. It is also interesting to examine whether there are any particular kinds of firms that may engage differently in this dual aggressive behaviour, and whether such firms are more prevalent in one or both jurisdictions. Closely-held firms may face different financial reporting and tax reporting pressures, and it is possible they behave differently from widely-held firms.

This study examines two questions. First, I re-examine whether firms trade-off between tax reporting aggressiveness and financial reporting aggressiveness in each of the two jurisdictions. Canadian firms may behave differently from U.S. firms due to differences in financial reporting and tax reporting pressures and rules between the two countries. Second, I examine whether closely-held firms tradeoff differently between tax reporting aggressiveness and financial reporting aggressiveness compared to firms that are not closely-held. Closely held firms may have different priorities for both financial

reporting and tax reporting (e.g., Klassen, 1997). While making tradeoffs implies firms wish to purse two goods but are forced to emphasize only one, making different tradeoffs could imply three possible scenarios: (1) firms do not need to make tradeoffs (i.e., firms want to or are able to purse both goods simultaneously); (2) firms interested in pursuing only one good (e.g., tax savings only), with no significant interest in pursuing the other good; and (3) firms pursing neither goods.

I examine tax and financial reporting decisions of the S&P 500 firms in the U.S. and TSX300 firms in Canada for the 2005 to 2008 period, inclusive. My results show that tax reporting aggressiveness and financial reporting aggressiveness are positively associated for U.S. firms, suggesting U.S. firms are pursing both tax savings and reporting higher book income simultaneously, but negatively associated for Canadian firms, suggesting Canadian firms do tradeoff between the two goods. U.S. closely-held firms make similar tradeoff decisions compared to U.S. widely-held firms. In contrast, Canadian closely-held firms seem to make no tradeoffs between book income and tax savings.

My results have important implications for policy and practice. First, this study provides preliminary insights about financial accounting and tax reporting across the two jurisdictions. Second, taxes are material, with firms paying almost a third of their pretax income to governments in the form of taxes (Chen et al. 2010). Firms are therefore likely to engage in efforts to minimize such payments. Tax authorities may benefit from

knowing which firms are more likely to be aggressive in tax planning, and thereby target their scarce auditing and monitoring resources more effectively and efficiently. Third, external auditors can also be more effective and efficient by knowing which firms are more likely to be aggressive in their financial reporting. Finally, investors may also be interested in understanding which firms are more likely to be aggressive in financial reporting.

The remainder of this study is organized as follows. Hypotheses are developed in section 2 after a brief discussion of the literature. In section 3, research design and data are described. Section 4 presents the results from regression analyses and section 5 summarizes and concludes.

2. Literature review

2.1 Trade-off between tax aggressiveness and financial reporting aggressiveness

Tax aggressiveness is defined in the literature as the "downward management of taxable income through tax planning activities that may or may not be considered fraudulent tax reporting" (Frank et al. 2009). Financial reporting aggressiveness is defined as "upward earnings management that may or may not be within the confines of generally accepted accounting principles (GAAP)" ((Frank et al. 2009).

Income taxes constitute material a material component of earnings in both countries,

creating strong incentives to be aggressive in reporting lower taxable incomes. However, firms are unlikely to simply minimize taxes payments since they need to consider non-tax costs such as financial reporting costs. Shackelford and Shevlin (2001) define financial reporting costs as the costs of reporting lower income. The separation of management and ownership creates information asymmetry, and managers use reported earnings as one means to resolve such asymmetry. Managers attempt to meet or exceed shareholders' expectation regarding earnings. At an extreme, Erickson et al. (2004) found managers engaged in fraudulent financial reporting paid an additional eight cents in taxes to report each additional dollar of fraudulent earnings, confirming a trade-off between reported income and taxable savings. Consistent with Erickson et al. (2004), Lennox et al. (2013) also find that, based on five measures of tax aggressiveness, U.S. public firms engaging in tax aggressiveness are less likely to be involved in accounting fraud. In additional, firms are generally reluctant to minimize both tax costs and financial reporting costs. Mills (1996) finds that "Internal Revenue Service (IRS) proposed audit adjustments increase as the excess of book income over taxable income increases." Such penalties serve as the brake on aggressive tax planning.

Frank et al. (2009) develop their own measure of tax aggressiveness in examining the association between tax aggressiveness and financial reporting aggressiveness. They find a positive and significant association between tax aggressiveness and financial

reporting aggressiveness, suggesting that firms may not be making tradeoffs between the pursuit of these book income and tax savings.

Due to the inconclusive evidence in literature, I do not predict the sign of the relationship. My hypothesis 1 (in alternate form) is as follows:

Hypothesis 1: Ceteris paribus, tax aggressiveness is associated with financial reporting aggressiveness.

2.2 Tradeoffs across jurisdictions

Compared with U.S. firms, Canadian firms may be more or less aggressive in financial reporting. The differences could be driven by differences in corporate governance regimes that can impose some influence on earnings management. Aggarwal et al. (2007), for example, compare the corporate governance of non-U.S. firms with U.S. firms. Using an index of firm governance attributes, they found Canadian firms to have better governance than matching U.S. firms. Xie et al. (2003) found corporate governance could prevent earnings management. If Canadian firms do indeed have better corporate governance, they may be less likely to manage their earnings, and therefore less likely to be aggressive in their financial reporting compared to U.S. firms.

To the extent that closely-held firms have lower information asymmetry between shareholders and management, thereby reducing the pressure to manage reported

earnings and allowing managers to put more weight on tax savings (e.g., Klassen 1997). Several studies have shown that there are more ownership-concentrated firms in Canada (e.g., Ben-Amar and Andre 2006; Morck et al. 2000; Amoaku-Adu and Smith 2001; Smith and Amoaku-Adu 1999). Closely-held firms may also rely more on internal sources of funds (e.g., from the founding family or founders) and less on external sources of funds compared to widely-held firms. As a result, the average Canadian firm's financial reporting pressure may be arguably lower compared to the average U.S. firm, and they could be able to afford more tax aggressiveness compared to the average U.S. firm. Because of differences in firm size, it is possible that Canadian firms are more tax aggressive and less aggressive in financial reporting compared to U.S. firms.

However, firms with concentrated ownership could need to report even higher book income to compensate the potential price discount imposed by outside shareholders, and they need to sacrifice tax savings to achieve financial reporting target (e.g., Chen et al. 2010). It is also possible Canadian firms would be more aggressive in financial reporting and less aggressive in tax savings compared to U.S. firms.

There is a "quiet life" theory suggesting that controlling shareholders may want to enjoy a quiet life and avoid costly activities (Zhao and Chen 2008). The potential costs to involve in earnings management and/or tax savings could be high for controlling shareholders (e.g., family owners or founders), such as reputation costs, personal

penalties (Chen et al. 2010), and the controlling shareholders may be less aggressive in tax savings and/or reporting higher book income. Based on such motivations, it is possible that Canadian firms also want to avoid financial reporting aggressiveness and/or tax aggressiveness, and are less aggressive in both tax savings and reporting higher book income.

Canadian firms are likely to be less aggressive in their tax reporting because of more stringent enforcement by Canadian tax authorities compared to U.S. tax authorities. A typical corporation based in Ontario faced a combined federal-provincial tax rate of 26.5% in 2013[16] compared to 35% in the U.S.[17] Despite the lower corporate tax rates in Canada, corporate taxes made up 1.9% of Canada's GDP in 2012 compared to the higher U.S. corporate tax rates making up 1.6% of the U.S. GDP in 2012.[18] This difference may be explained by differences in GDP growth, differences in tax enforcement and differences in tax complexity that may make tax enforcement easier in Canada. The strong tax enforcement and different ownership structure could make Canadian firms tradeoff differently than U.S. firms.

Making tradeoffs implies firms want to purse two goods (book income and tax

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[16]http://www.ey.com/Publication/vwLUAssets/Tax_Rate_Card_-_2013_Corporate/$FILE/Tax-Rates-Corporate-2013.pdf

[17]http://www.ey.com/Publication/vwLUAssets/Worldwide_corporate_tax_guide_2012/$FILE/WCTG_2012_Worldwide_Corporate_Tax_Guide.pdf

[18] http://www.cato.org/blog/corporate-tax-low-rates-high-revenues

savings, in this case) but are forced to emphasize on only one (Klassen 1997). Making different tradeoffs could imply there are no tradeoffs (i.e., firms want to and are able to purse two goods simultaneously). Making different tradeoffs could also imply that firms are pursuing only one good (e.g., tax savings only), with no significant interest in pursuing the other good. While unlikely, making different tradeoffs does not preclude the possibility that firms are pursing neither goods.

My hypothesis 2 (in alternate form) is as follow:

Hypothesis 2: Ceteris paribus, Canadian firms make different tradeoffs between tax reporting aggressiveness and financial reporting aggressiveness compared to U.S. firms.

2.3 Tax aggressiveness and ownership concentration

Insider and /or family ownership can potentially reduce information asymmetry between management and shareholders, thereby potentially mitigating the need for both tax and financial reporting aggressiveness.

Wolfson (1993) offers evidence that the "financial reporting consequences of tax planning strategies are relatively less important where business ownership is concentrated in the hands of relatively few investors". The finding is similar to Klassen's study (1997) which finds firms with larger inside ownership concentration take larger losses or smaller gains when they are highly taxable. These studies document that firms

with high concentration of insider and family owners makes them care more about reducing their taxes. In contrast, Chen et al. (2010) find that firms owned or managed by founding family members are less tax aggressive than non-family firms. They explain their results by claiming that family firms forgo tax savings to avoid potential price discounts imposed by shareholders, and that these family firms have higher non-tax costs such as the reputation costs and potential personal penalties for tax avoidance. Steijvers and Niskanen (2011) extend Chen et al.'s results to private firms and show that private family firms are less aggressive than private non-family firms. One possible reason for the difference in results could be that some of the studies examine only tax aggressiveness without controlling for financial reporting aggressiveness or financial reporting costs (e.g., Chen et al. 2010).

Insider shareholders are more likely to direct their firms to minimize cash outflows instead of maximizing reported earnings when the latter do not necessarily represent cash inflows. As a result, firms with higher insider and family ownership may be more aggressive in their tax planning. However, it is not clear whether they would also be more or less aggressive in their financial reporting.

Insider and family owned firms may face lower financial reporting costs since they have more inside information about the firm and rely less of formal financial reporting. On the other hand, insider and family owned firms may need to report higher book

income to compensate for the potential price discount for lower liquidity imposed by outside shareholders (e.g., Chen et al. 2010).

I predict that firms with higher insider and family ownership tradeoff differently between tax savings and reported earnings. I aggregate insider and family ownership for my empirical tests to examine how the combined ownership affects firms' decisions to tradeoff between tax savings and reported earnings. Although insider-owned firms and family-owned firms are different in some aspects, they both suffer less from information asymmetry between outsiders and insiders. They have more information regarding the performance, and therefore rely less on the disclosed book income. They may share similar attitudes towards pursuit of tax savings, and may be tax aggressive if they can personally benefit from it. They may make the same tradeoff because they face the similar financial reporting pressure and tax reporting pressure. My hypothesis 3 (in alternate form) is as follows:

Hypothesis 3: Ceteris paribus, firms with higher insider/family ownership make different tradeoffs between tax aggressiveness and financial reporting aggressiveness compared to widely-held firms.

3. Data and research design

3.1 Data

For U.S. firms, my sample consists of Standard & Poor's 500 firms (S&P 500) for the years 2005-2008 inclusive. For Canadian firms, my sample consists of largest 300 firms listed on Toronto Stock Exchange (TSX 300) for the same period (2005-2008 inclusive). Both U.S. and Canadian firms' insider and family ownership data were retrieved from Bloomberg. Other financial statement and market data were retrieved from Compustat.

Of the 2,000[19] U.S. firm-year observations, 74 firm-year observations did not have sufficient ownership data in the Bloomberg database. The resulting dataset was merged with financial statement and market data retrieved from Compustat. Missing Compustat data resulted in a final sample of 1,452 U.S. firm-years[20]. Of the 1,200[21] Canadian firm-year observations, 269 firm-year observations did not have sufficient ownership data in the Bloomberg database. The resulting dataset was merged with financial statement and market data retrieved from Compustat. Missing Compustat data resulted in a final sample of 674 Canadian firm-years. The sample selection procedure is summarized in table 2.1.

A preliminary analysis of the data indicates some extreme values. To control for the effect of these outliers on the results, all of the continuous variables were winsorized by one percent at the top and bottom, including total assets, size, pretax ROA,

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[19] 500 firms x 4 years = 2,000 firm-years.

[20] Frank et al. (2009) lost 39% of their sample of firm-years due to missing data ((81,931-49,886)/81,931), while I lost 27.4% of my firm-years due to missing data.

[21] 300 firms x 4 years = 1,200 firm-years.

market-to-book ratio, leverage and intangible assets.[22]

3.2 Measures of tax and financial reporting aggressiveness

Commonly used measures of tax aggressiveness in the literature include: effective tax rate (ETR), book-tax difference (BTD) and modified ETR and BTD (e.g., cash ETR and permanent BTD). I use DTAX to proxy for tax aggressiveness since – compared to ETR and BTD – DTX is less driven by earnings management and includes more pure tax planning effects. Frank et al. (2009) demonstrate how this measure is superior to other measures.

The model used to calculate DTAX or the residual (ε) is based on the following equation (Frank et al. 2009, pg. 473):

$$PERMDIFF_{it} = \beta_0 + \beta_1 INTANG_{it} + \beta_2 UNCON_{it} + \beta_3 MI_{it} + \beta_4 CSTE_{it} + \beta_5 \Delta NOL_{it} + \beta_6 LAGPERM_{it} + \varepsilon_{it} \quad \text{(equation 1)}$$

Where:
$PERMDIFF_{it}$ = {pre-tax book income – [(federal income tax expense + foreign income tax expense)/Statutory Tax Rate]} – (deferred income tax expense/ Statutory Tax Rate);
$INTANG_{it}$ = intangibles assets;
$UNCON_{it}$ =income (loss) reported under the equity method;
MI_{it} = income (loss) attributable to minority interest;
$CSTE_{it}$ = state income tax expense;
ΔNOL_{it} = change in tax loss carryforwards from last year to current year;
$LAGPERM_{it}$ = one-year lagged PERMDIFF; and
ε_{it} =discretionary permanent difference (DTAX).

[22] Winsorizing by 0.5% at both ends did not change the results qualitatively.

Similar to Frank et al. (2009), I use DFIN to proxy for financial reporting aggressiveness. The DFIN is the residual of the following equation based on Frank et al. 2009 (pg. 479), and adjusted for industry average:

$$TACC_{it} = \alpha_0 + \alpha_1 (\Delta REV_{it} - \Delta AR_{it}) + \alpha_3 PPE_{it} + \eta_{it} \quad \text{(equation 2)}$$

Where:
$TACC_{it}$ =total accruals = $(EBEI_{it} - TTE_{it}) - [(CFO_{it} - ITP_{it}) - EIDO_{it}]$;
$EBEI_{it}$ =earnings before extraordinary items from the statement of cash flow;
TTE_{it} = total tax expense;
CFO_{it} = cash flow from operations;
ITP_{it} =income taxes paid from the statement of cash flow;
$EIDO_{it}$ = extraordinary items and discontinued operations from the statement of cash flow;
ΔREV_{it} = change in sales from year t-1 to year t;
$\Delta ARit$ = change in accounts receivable from year t-1 to year t;
PPEit = gross property, plant, and equipment; and
η_{it} = discretionary accruals before adjusting for performance.

The two models used to calculate DTAX and DFIN are controlled for industry effects using the first-two digit SICs. Earnings management and tax aggressiveness has been found to vary across industries (e.g. Key 1997).

3.3 Research design

I examine Hypothesis 1-3 using the North American sample (i.e., both Canadian and U.S. firms). Similar to Chen et al. (2010) and Frank et al. (2009), I use tax aggressiveness as my dependent variable and control for the determinants of tax aggressiveness such as pretax performance, size, growth, leverage, financial reporting cost, loss carry-forward,

foreign taxes paid and intangible assets. I incorporate my two test variables: a continuous variable for financial reporting aggressiveness and an indicator variable of Canadian firms (i.e., CA takes on the value of 1 if the firm is based in Canada and 0 if the firm is based in the U.S.). To test hypothesis 2, I include the interaction of two variables in the model 2. In model 3, I include an indicator variable for insider and family ownership that takes the value of 1 if the firm-year has higher-than-average insider and family ownership, and zero otherwise. The interaction of the indicator of insider and family ownership and the financial accounting aggressiveness is also included in the model to test hypothesis 3. In model 4, I also include the interaction between the Canadian indicator, financial reporting aggressiveness and insider/family ownership to examine whether Canadian closely-held firms behave differently in their tradeoff decisions from other firms. Formally, my model is:

$$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 FRC_{it} + \beta_3 MTB_{it} + \beta_4 LEV_{it} + \beta_5 PTROA_{it} + \beta_6 FORTAX_{it} + \beta_7 INTANG_{it} + \beta_8 TLCF_{it} + \beta_9 SIZE_{it} + \varepsilon_{it} \quad \text{(model 1)}$$

$$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 CA_{it} + \beta_3 DFIN_{it} * CA_{it} + \beta_4 FRC_{it} + \beta_5 MTB_{it} + \beta_6 LEV_{it} + \beta_7 PTROA_{it} + \beta_8 FORTAX_{it} + \beta_9 INTANG_{it} + \beta_{10} TLCF_{it} + \beta_{11} SIZE_{it} + \varepsilon_{it} \quad \text{(model 2)}$$

$$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 IFO_{it} + \beta_3 DFIN_{it}*IFO_{it} + \beta_4 CA + \beta_5 FRC_{it} + \beta_6 MTB_{it} + \beta_7 LEV_{it} + \beta_8 PTROA_{it} + \beta_9 FORTAX_{it} + \beta_{10} INTANG_{it} + \beta_{11} TLCF_{it} + \beta_{12} SIZE_{it} + \varepsilon_{it} \quad \text{(model 3)}$$

$$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 CA_{it} + \beta_3 DFIN_{it} * CA_{it} + \beta_4 IFO_{it} + \beta_5 DFIN_{it}* IFO_{it} + \beta_6 CA_{it} * IFO_{it} + \beta_7 DFIN_{it} * IFO_{it} * CA_{it} + \beta_8 FRC_{it} + \beta_9 MTB_{it} + \beta_{10} LEV_{it} + \beta_{11} PTROA_{it} + \beta_{12} FORTAX_{it} + \beta_{13} INTANG_{it} + \beta_{14} TLCF_{it} + \beta_{15} SIZE_{it} + \varepsilon_{it} \quad \text{(model 4)}$$

where:
$DTAX_{it}$ or Tax Aggressiveness = the proxy for tax aggressiveness based on Frank et al. (2009);
$DFIN_{it}$ or Financial Reporting Aggressiveness= the proxy for financial reporting aggressiveness calculated following Frank et al. (2009) ;
IFO_{it} =Insider/Family Ownership = an indicator variable that equals 1 if the firm's family and insider ownership is above the sample average family and insider ownership, and 0 otherwise;
FRC_{it} = Financial Reporting Cost coded as an indicator variable that takes the value of 1 if the firm's ROA is below target ROA; target ROA is calculated following Klassen and Mawani (2000) as follows: Target $ROA_t = \{(1+drift_t)\ (NI_{t-1} / BV_{t-2})\}$, where $drift_t = (1/2)$Target $ROA_{t-1} + (1/4)$Target $ROA_{t-2} + (1/8)$Target $ROA_{t-3} + (1/16)$Target $ROA_{t-4} + (1/16)$Target ROA_{t-5};
MTB_{it} = Market to book ratio calculated as the market value of common equity divided by book value of common equity at end of current year;
LEV_{it} = Leverage calculated as long-term debt at current year-end divided by book value of equity at current year-end;
$PTROA_{it}$ = Pretax ROA calculated as the pretax income for firm i in year t divided by total assets for firm i in year t-1;
$FORTAX_{it}$ =Foreign Tax proxied by an indicator variable that equals 1 if foreign tax expenses are positive, and 0 otherwise;
$INTANG_{it}$ = Intangible Assets (as % of total assets $_{t-1}$) calculated as intangible assets for firm i in year t divided by total assets for firm i in year t-1;
$TLCF_{it}$ =Tax Loss Carryforward proxied as an indicator variable that equals 1 if tax loss carryforward is positive, and 0 otherwise;
$SIZE_{it}$ = Size = natural log of total assets; and
CA = Canadian firm indicator which takes a value of 1 if the firm is based in Canada and 0 if the firm is based in the U.S.

In model 1, as stated in hypothesis 1, the sign of β_1 which captures the direction of association between tax aggressiveness and financial reporting aggressiveness is not predicted. In model 2, the sign of coefficient β_2 (CA) is not predicted to reflect the fact that Canadian firms may be less or more tax aggressive compared to U.S. firms. Consistent with Hypothesis 2, I hypothesize the interaction term of CA and DFIN (β_3) to

be statistically significant to reflect that Canadian firms make the tradeoff decision differently from U.S. firms.

In model 3, consistent with hypothesis 3, the sign of interaction of family/insider ownership and financial reporting aggressiveness is also not predicted (other than to be statistically significant) so as to remain agnostic about the comparative strengths of the different tradeoffs made by closely-held firms and widely-held firms. I predict tax aggressiveness is significantly associated with insider/family ownership, but the sign is not predicted.

In model 4, the coefficient of the interaction of CA and IFO (β_6) is predicted to be significant, but the sign is not predicted. Canadian firms with higher family and insider ownership may be more or less tax aggressive than other firms. Consistent with Hypothesis 3, β_7 (interaction of CA, IFO and DFIN) is expected to be statistically significant, but the sign is once again not predicted. Canadian closely-held firms may tradeoff differently between tax aggressiveness and financial reporting aggressiveness compared to other firms, but there is no a priori prediction whether it is more or less.

Leverage and market-to-book ratio are proxies for financial reporting costs and are predicted to be negatively associated with tax aggressiveness. When pretax income is higher, firms may have incentives to be more tax aggressive since they may be less concerned about the corresponding reductions in book income (if any). Intangible assets

and foreign taxes are considered proxies for opportunities for tax planning based on the literature (e.g., Chen et al. 2010, Mills et al. 1998). However, such opportunities can be used to reduce tax payments or improve reported income (Mills et al. 1998). Tax loss carryforward and depreciation expenses are tax shields that can reduce tax burdens. Firms claiming large amounts of tax loss carryforwards or tax depreciation may not need to be as tax aggressive, and therefore such tax shields are hypothesized to be negatively associated with tax aggressiveness. Larger firms may face more financial pressure, and at the same time, may have more opportunities to reduce their tax burden. Therefore, I do not predict the sign of the coefficient on the size variable. The predictions for all other variables are the same as for the previous models.

4. Empirical results

4.1 Descriptive statistics

Summary statistics for the pooled sample are reported in Table 2.2. Panel A reports descriptive statistics for dependent variables and Panel B reports descriptive statistics for continuous independent variables: insider and family ownership as continuous variables, assets, size, pretax ROA, market-to-book ratio, leverage ratio and intangible assets as a percentage of total assets. Panel C reports descriptive statistics for discrete independent variables: insider/family ownership, financial reporting costs, foreign tax, and total loss

carryforwards.

The mean (median) tax aggressiveness for Canadian firms is higher than the mean (median) of U.S. firms[23]. The mean financial reporting aggressiveness for Canadian firms is higher than the median, while the median financial reporting aggressiveness for U.S. firms is higher than the mean, which suggests that the skewness of financial reporting aggressiveness is different in two countries. Canada has more firms that do not report as aggressively, while U.S. has relatively more firms that report more aggressively.

The average U.S. firm is larger than the average Canadian firm, while the performance in terms of pretax ROA in higher for U.S. firms compared to Canadian firms.[24] The mean (median) market to book ratio in U.S. firms is significantly higher than Canadian firms, which could indicate more growth opportunities in the U.S. or signal over-priced stocks in the U.S. The mean (median) leverage ratio is lower for U.S. firms compared to Canadian firms, suggesting that U.S. firms use more equity financing. The mean intangible assets is higher for U.S. firms.

In the Canadian subsample, 26.11% of the firms are classified as closely-held firms compared to 15.50% for the U.S. subsample. This is consistent with prior studies that

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[23] This is not consistent with my regression result. Before controlling for other factors, such as size and performance, I found average DTAX for Canadian firms is larger. However, after controlling for other factors (e.g., size, performance), there is no significant DTX difference between Canadian firms and U.S. firms.

[24] Earnings-related measures of Canadian firms are computed using Canadian GAAP while those of U.S. firms are computed using U.S. GAAP.

document more ownership concentrated in Canadian firms (e.g., Ben-Amar and Andre 2006; Morck et al. 2000; Amoaku-Adu and Smith 2001). In my North American sample, more U.S. firms face higher financial reporting costs compared to Canadian firms (62.12% vs. 48.22%), and this could explain the need for U.S. firms to be more aggressive in their financial reporting. More U.S. firms pay foreign taxes compared to Canadian firms (76.58% vs. 19.58%), reflecting the greater number of multinational corporations in U.S. More U.S. firms also have tax loss carryforward compared to Canadian firms (42.36% vs. 39.02%).

Table 2.3 reports the Pearson correlation among independent variables. The highest correlation is 32.3% between market to book ratio and pretax ROA, suggesting that multicollinearity among independent variables is not a major concern.

4.2 Regression results for hypotheses 1-3 (Table 2.4)

The regression results for hypotheses 1-3 based on North American firms are presented in Table 2.4. I do not include the Canadian indicator, ownership variable and interactions in model 1. Tax aggressiveness is positively and significantly associated with financial reporting aggressiveness, suggesting that North American firms do not make tradeoffs between taxes and book incomes, consistent with Frank et al. (2009).

In model 2, after including the Canada indicator and its interaction with financial

reporting aggressiveness, the positive association between tax aggressiveness and financial reporting aggressiveness remains, thereby supporting hypothesis 1. There is no significant difference between the level of tax aggressiveness for U.S. and Canadian firms. The interaction of Canadian firms and financial reporting aggressiveness is negative and significant, reflecting greater tradeoffs by Canadian firms. In model 3, after the ownership and its interaction term with Canadian firms are introduced to the model and the interaction of Canadian indicator and financial reporting aggressiveness is dropped from the model, the significance of the association between tax aggressiveness and financial reporting aggressiveness disappears. Firms with higher insider and family ownership are significantly more tax aggressive compared to other firms. The interaction of insider and family ownership and the financial reporting aggressiveness is positive and significant, supporting hypothesis 3. The sum of coefficients of ownership and its interaction with financial reporting aggressiveness is positive and significant,[25] suggesting firms with higher insider and family ownership do not tradeoff between tax savings and book income.

My Model 4 includes insider/family ownership and the associated interaction terms with the Canadian indicator, family ownership and DFIN – in addition to all the other independent variables. Similar to results of models 1 and 2, the association between tax

[25] The P-value of the hypothesis that sum of the two coefficients is zero is < 0.001.

aggressiveness and financial reporting aggressiveness is significant and positive, suggesting firms do not tradeoff in general. Consistent with hypothesis 2, the interaction of Canadian firms and financial reporting aggressiveness is negative and significant. In addition, the sum of the coefficients of DFIN and DFIN*CA remains negative and significant,[26] suggesting that unlike U.S. firms, Canadian firms tradeoff between tax aggressiveness and financial reporting aggressiveness. The coefficient of CA*IFO is positive and significant, suggesting that closely-held firms in Canada are more tax aggressive than other firms. The coefficient of DFIN*CA*IFO is positive and significant, suggesting that closely-held firms in Canada make different trade-off than other firms. Hypothesis 3 is therefore partially supported by Canadian data. The sum of the coefficients of DFIN, DFIN*IFO, DFIN*CA and DFIN*CA*IFO is positive and significant,[27] suggesting that Canadian closely-held firms make no tradeoff between tax aggressiveness and financial reporting aggressiveness. The coefficients of insider and family ownership and its interaction with financial reporting aggressiveness are both insignificant. This may be caused by the different ownership effects on U.S. and Canadian firms, and the effect may cancel out each other.

Tax aggressiveness is positively and significantly associated with Pretax ROA, consistent with my prediction that firms with higher earnings have more incentives to

[26] The p-value of the hypothesis that the sum of the two coefficients is zero is < 0.001.

[27] The p-value of the hypothesis that the sum of the four coefficients is zero is < 0.001.

pursue tax savings. Tax aggressiveness is negatively associated with intangible assets (as a proportion of total assets at the beginning of the year) suggesting that perhaps firms are using them as earnings management opportunities instead of tax planning opportunities.

4.3 Robustness Tests

For robustness, I use two additional cutoff points (5% and 10%) to measure insider/family ownership in addition to the continuous variable for testing hypotheses 1 to 3 in the North American context, and the results are reported in Table 2.5. I code insider and/or family ownership as 1if the aggregate percentage of shares owned by insiders and family is higher than 5% (10%), and 0 otherwise. The regression results with continuous and 5% (10%) cutoff points are reported in the first and second (third) columns of Table 2.5. Consistent with Hypothesis 1 and results in table 2.4, tax aggressiveness is positively and significantly associated with financial reporting aggressiveness, suggesting that North American firms do not generally tradeoff. However, my results show that Canadian firms tradeoff to a greater extent compared to U.S. firms The coefficient of the interaction between Canadian indicator and financial reporting aggressiveness is negative and significant, thereby supporting hypothesis 2. Canadian firms with higher insider and family ownership tradeoff differently compared to other

firms (i.e., they do not seem to tradeoff). Hypothesis 3 is partially supported by Canadian data. The robustness tests results are consistent with my main test.

4.4 Cross-listed Firms

I separately test a subsample of Canadian firms that are also listed on a U.S. exchange. Cross-listed firms have to comply with financial reporting and regulatory regimes for both jurisdictions (Canada and the U.S.). I expect cross-listed firms to behave like U.S. firms in their tradeoffs – i.e., I expect them to not exhibit tradeoff between tax reporting and financial reporting – due to pressures to compete with financial reporting by other U.S. firms. Upon introducing an ownership variable, I find that cross-listed firms with higher insider and/or family ownership do not tradeoff, similar to U.S. firms. These results are reported in table 2.6.

5. Conclusion

This study is motivated by the debate on whether firms tradeoff between book income and tax savings, and whether such tradeoffs are similar in Canada and the U.S. Furthermore, I test whether the tradeoffs are similar or different in closely-held firms and widely-held firms. This study addresses three research questions. First, I re-examine whether firms trade-off between tax reporting aggressiveness and financial reporting

aggressiveness. Second, I examine whether Canadian firms tradeoff differently between tax reporting aggressiveness and financial reporting aggressiveness compared to U.S. firms. Finally, I examine whether closely-held firms tradeoff differently between tax reporting aggressiveness and financial reporting aggressiveness.

I find that tax reporting aggressiveness is positively associated with financial reporting aggressiveness for the S&P 500 firms in the U.S. and negatively associated for the TSX 300 firms in Canada for the period 2005 to 2008. The result suggests U.S. firms do not seem to tradeoff between book income and tax savings, while Canadian firms do tradeoff between the two goods.

Furthermore, U.S. closely-held firms do not tradeoff significantly differently from widely-held firms. In contrast, Canadian closely-held firms tradeoff differently than other firms. The different role of ownership in the tradeoff decision in U.S. and Canadian firms may be explained in part by the favorable tax treatment of interoperate dividends in Canada, allowing better access to retain ownership concentration. This study helps in explaining the conflicting results in the literature by suggesting jurisdictional differences in tradeoff behavior.

Table 2.1: Sample Selection

	U.S. Samples	Canadian Samples
Initial Sample (firm-year observations)	2000 (a)	1200 (b)
Deletions due to missing data for		
Insider/Family Ownership in Bloomberg	-74	-269
Tax aggressiveness data in Compustat	-188	-121
Financial Reporting Aggressiveness in Compustat	-197	-7
Market-to-Book ratio in Compustat	-81	-127
Leverage in Compustat	-8	-2
Sample used in regressions	1,452	674

(a) S & P 500 firms for 2005-2008
(b) TSX 300 firms for 2005-2008

Table 2.2: Summary Statistics for Dependent and Independent Variables

Panel A: Dependent Variables								
	U.S. Samples				**Canadian Samples**			
Variables	**N**	**Mean**	**Median**	**Std Dev**	**N**	**Mean**	**Median**	**Std Dev**
DTAX	1452	0.000	0.002	0.07	674	0.006	0.005	0.121
DFIN	1452	0.001	0.007	0.046	674	0.005	0.001	0.13
Panel B: Continuous Variables								
	U.S. Samples				**Canadian Samples**			
Variable	**N**	**Mean**	**Median**	**Std Dev**	**N**	**Mean**	**Median**	**Std Dev**
IFO	1452	2.683	0.723	6.045	674	8.025	1.371	12.666
ASSETS	1452	23,406	9,770	55,958	674	18,018	2,467	61,695
SIZE	1452	9.251	9.187	1.199	674	8.133	7.793	1.465
PTROA	1452	0.126	0.119	0.106	674	0.117	0.100	0.104
MTB	1452	3.765	2.957	3.345	674	2.182	1.872	1.579
LEV	1452	0.675	0.400	1.173	674	0.759	0.446	1.108
INTANG	1452	0.247	0.038	0.251	674	0.167	0.054	0.286
Panel C: Discrete variables								
	U.S. Samples				**Canadian Samples**			
Variable			**N**	**Percent**			**N**	**Percent**
IFO	1		225	15.50%	1		176	26.11%
FRC	1		902	62.12%	1		325	48.22%
FORTAX	1		1112	76.58%	1		132	19.58%
TLCF	1		615	42.36%	1		252	39.02%

Variable definitions

Dependent variables:

DTAX or Tax Aggressiveness = the proxy for tax aggressiveness based on Frank et al. (2009);
DFIN or Financial Reporting Aggressiveness= the proxy for financial reporting aggressiveness calculated following Frank et al. (2009) ;

Independent variables:

SIZE = Size = natural log of total assets;
PTROA = Pretax ROA calculated as the pretax income for firm i in year t divided by total assets for firm i in year t-1;
MTB = Market to book ratio calculated as the market value of common equity divided by book

value of common equity at end of current year;
LEV = Leverage calculated as long-term debt at current year-end divided by book value of equity at current year-end;
INTANG = Intangible Assets (as % of total assets $_{t-1}$) calculated as intangible assets for firm i in year t divided by total assets for firm i in year t-1;

Discrete variables:
IFO =Insider/Family Ownership = an indicator variable that equals 1 if the firm's family and insider ownership is above the sample average family and insider ownership, and 0 otherwise;
FRC = Financial Reporting Cost coded as an indicator variable that takes the value of 1 if the firm's ROA is below target ROA; target ROA is calculated following Klassen and Mawani (2000) as follows: Target $ROA_t = \{(1+drift_t)\ (NI_{t-1} / BV_{t-2})\}$, where $drift_t = (1/2)$Target $ROA_{t-1} + (1/4)$Target $ROA_{t-2} + (1/8)$Target $ROA_{t-3} + (1/16)$Target $ROA_{t-4} + (1/16)$Target ROA_{t-5};
TLCF =Tax Loss Carryforward proxied as an indicator variable that equals 1 if tax loss carryforward is positive, and 0 otherwise; and
FORTAX =Foreign Tax proxied by an indicator variable that equals 1 if foreign tax expenses are positive, and 0 otherwise; and
CA = Canadian firm indicator = takes value of 1 if the firm is a Canadian-based firm and takes value of 0 if the firm is a U.S.-based firm.

Table 2.3: Pearson Correlation

	DFIN	IFO	FRC	FORTAX	TLCF	MTB	LEV	PTROA	INTANG
IFO	-0.060	1.000							
	(0.005)								
FRC	0.015	-0.052	1.000						
	(0.477)	(0.016)							
FORTAX	-0.011	-0.085	0.101	1.000					
	(0.598)	(0.000)	(0.000)						
TLCF	-0.085	-0.045	0.006	0.175	1.000				
	(0.000)	(0.036)	(0.771)	(0.000)					
MTB	0.003	-0.002	0.084	0.221	0.000	1.000			
	(0.907)	(0.938)	(0.000)	(0.000)	(0.992)				
LEV	-0.021	-0.001	-0.031	-0.146	0.039	0.279	1.000		
	(0.339)	(0.952)	(0.157)	(0.000)	(0.074)	(0.000)			
PTROA	0.246	-0.001	0.111	0.127	-0.093	0.323	-0.241	1.000	
	(0.000)	(0.963)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
INTANG	-0.028	0.028	-0.062	0.178	0.141	-0.016	-0.007	-0.016	1.000
	(0.201)	(0.204)	(0.004)	(0.000)	(0.000)	(0.460)	(0.743)	(0.456)	
SIZE	0.026	-0.214	-0.027	0.237	-0.038	-0.062	0.073	-0.180	0.023
	(0.224)	(0.000)	(0.207)	(0.000)	(0.084)	(0.004)	(0.001)	(0.000)	(0.281)

Note:
This table presents Pearson Correlation among variables. The variables are defined in Table 2.2. P-Values are presented in parentheses.

Table 2.4: Association between Tax Aggressiveness and Financial Reporting Aggressiveness for North American firms

$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 CA_{it} + \beta_3 DFIN_{it} * CA_{it} + \beta_4 IFO_{it} + \beta_5 DFIN_{it} * IFO_{it} + \beta_6 CA_{it} * IFO_{it} + \beta_7 DFIN_{it} * IFO_{it} * CA_{it} + \beta_8 FRC_{it} + \beta_9 MTB_{it} + \beta_{10} LEV_{it} + \beta_{11} PTROA_{it} + \beta_{12} FORTAX_{it} + \beta_{13} INTANG_{it} + \beta_{14} TLCF_{it} + \beta_{15} SIZE_{it} + \varepsilon_{it}$

Dependent variable DTAX	Pred	Model 1	Model 2	Model 3	Model 4
Intercept		**-0.022***	-0.018	-0.023	-0.017
		(0.086)	(0.228)	(0.114)	(0.234)
DFIN	(H1)?	**0.035***	**0.139*****	-0.013	**0.143*****
		(0.080)	**(0.000)**	(0.533)	**(0.000)**
CA	?		0.000	0.001	0.000
			(0.938)	(0.763)	(0.953)
DFIN*CA	(H2)?		**-0.169*****		**-0.268*****
			(0.000)		**(0.000)**
IFO	?			**0.007***	0.001
				(0.099)	(0.905)
DFIN*IFO	(H3)?			**0.349*****	-0.047
				(0.000)	(0.599)
CA*IFO	?				**0.015***
					(0.090)
CA*DFIN*IFO	?				**0.659*****
					(0.000)
FRC	-	-0.001	-0.004	0.000	-0.003
		(0.885)	(0.314)	(0.982)	(0.405)
MTB	-	-0.001	0.000	-0.001	-0.001
		(0.217)	(0.498)	(0.195)	(0.425)
LEV	-	0.003	0.002	**0.003***	0.002
		(0.101)	(0.239)	**(0.095)**	(0.253)
PTROA	+	**0.182*****	**0.163*****	**0.178*****	**0.162*****
		(0.000)	**(0.000)**	**(0.000)**	**(0.000)**
FORTAX	?	-0.003	-0.003	-0.001	-0.001
		(0.503)	(0.499)	(0.733)	(0.779)
INTANG	?	**-0.051*****	**-0.049*****	**-0.052*****	**-0.049*****

		(0.000)	**(0.000)**	**(0.000)**	**(0.000)**
TLCF	-	0.002	0.002	0.002	0.002
		(0.513)	(0.612)	(0.558)	(0.607)
SIZE	?	0.002	0.002	0.002	0.001
		(0.219)	(0.266)	(0.233)	(0.319)
Adj. R^2		0.075	0.092	0.093	0.114
No. of observations		2126	2126	2126	2126

Notes:
This table presents regression results of hypotheses 1, 2 and 3 using a pooled ordinary least squares estimation. There are 2126 firm-year observations over the period 2005 to 2008. The dependent measures and independent variables are defined in Table 2.2.
P-Values are presented in parentheses.
*** Statistically significant at the 1% level
** Statistically significant at the 5% level
* Statistically significant at the 10% level

Table 2.5: Association between tax aggressiveness and different measures of insider/family ownership

$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 CA_{it} + \beta_3 DFIN_{it} * CA_{it} + \beta_4 IFO_{it} + \beta_5 DFIN_{it} * IFO_{it} + \beta_6 CA_{it} * IFO_{it} + \beta_7 DFIN_{it} * IFO_{it} * CA_{it} + \beta_8$ Year 2006 * $DFIN_{it} + \beta_9$ Year 2007 * $DFIN_{it} + \beta_{10}$ Year 2008 * $DFIN_{it} + \beta_{11} FRC_{it} + \beta_{12} MTB_{it} + \beta_{13} LEV_{it} + \beta_{14} PTROA_{it} + \beta_{15} FORTAX_{it} + \beta_{16} INTANG_{it} + \beta_{17} TLCF_{it} + \beta_{18} DEP_{it} + \beta_{19} SIZE_{it} + \beta_{20\text{-}22}$ Year $+ \varepsilon_{it}$

Dependent variable DTAX	Pred	IFO Continuous Variable	IFO Cutoff Point Inside5	Inside10
Intercept		-0.017	-0.017	-0.016
		(0.230)	(0.239)	(0.262)
DFIN	(H1)?	**0.138*****	**0.144*****	**0.138*****
		(0.000)	**(0.000)**	**(0.000)**
IFO	?	0.000	0.002	0.001
		(0.666)	(0.749)	(0.875)
DFIN*IFO	(H2)?	0.000	-0.070	0.009
		(0.983)	(0.500)	(0.946)
CA	?	-0.001	0.001	-0.001
		(0.871)	(0.899)	(0.835)
CA*DFIN	(H3)?	**-0.266*****	**-0.268*****	**-0.234*****
		(0.000)	**(0.000)**	**(0.000)**
CA*IFO	?	0.000	0.015	**0.020***
		(0.273)	(0.131)	**(0.091)**
CA*DFIN*IFO	?	**0.019*****	**0.697*****	**0.568*****
		(0.002)	**(0.000)**	**(0.000)**
FRC	-	-0.003	-0.003	-0.003
		(0.366)	(0.373)	(0.337)
MTB	-	-0.001	-0.001	-0.001
		(0.424)	(0.418)	(0.389)
LEV	-	0.002	0.002	0.002
		(0.231)	(0.213)	(0.238)
PTROA	+	**0.161*****	**0.161*****	**0.161*****
		(0.000)	**(0.000)**	**(0.000)**
FORTAX	?	-0.002	-0.001	-0.002
		(0.723)	(0.778)	(0.673)
INTANG	?	**-0.051*****	**-0.049*****	**-0.051*****

		(0.000)	**(0.000)**	**(0.000)**
TLCF	-	0.002	0.002	0.002
		(0.572)	(0.636)	(0.608)
SIZE	?	0.001	0.001	0.001
		(0.297)	(0.326)	(0.299)
Adj. R^2		0.107	0.115	0.105
No. of observations		2126	2126	2126

Notes:
This table presents regression results of hypotheses 1, 2 and 3 using a pooled ordinary least squares estimation. There are 2126 firm-year observations over the period 2005 to 2008. The dependent measures and independent variables are defined in Table 2.2. P-Values are presented in parentheses.
*** Statistically significant at the 1% level
** Statistically significant at the 5% level
* Statistically significant at the 10% level

Table 2.6: Association between Tax Aggressiveness and Financial Reporting Aggressiveness for Canadian cross-listed firms

$DTAX_{it} = \beta_0 + \beta_1 DFIN_{it} + \beta_2 IFO_{it} + \beta_3 DFIN_{it}*IFO_{it} + \beta_4 FRC_{it} + \beta_5 MTB_{it} + \beta_6 LEV_{it} + \beta_7 PTROA_{it} + \beta_8 FORTAX_{it} + \beta_9 INTANG_{it} + \beta_{10} TLCF_{it} + \beta_{11} SIZE_{it} + \beta_{12\text{-}14} Year + \varepsilon_{it}$

Dependent variable DTAX	Pred	Column 1	Column 2
Intercept		0.028	0.032
		(0.478)	(0.420)
DFIN	(H1)?	**0.121****	0.087
		(0.034)	(0.155)
IFO			0.001
			(0.964)
DFIN*IFO	(H3)?		**0.281***
			(0.090)
FRC	-	-0.003	-0.003
		(0.825)	(0.840)
MTB	-	0.007	0.006
		(0.108)	(0.184)
LEV	-	0.007	0.007
		(0.185)	(0.200)
PTROA	+	**0.212*****	**0.211*****
		(0.002)	**(0.003)**
FORTAX	?	-0.003	-0.002
		(0.841)	(0.910)
INTANG	?	**-0.126*****	**-0.115*****
		(0.000)	**(0.000)**
TLCF	-	0.004	0.004
		(0.738)	(0.758)
SIZE	?	-0.006	-0.006
		(0.163)	(0.146)
Adj. R^2		0.103	0.106
No. of observations		340	340

Notes:
This table presents regression results of hypotheses 1, and 3 using a pooled ordinary least squares estimation. There are 340 firm-year observations over the period 2005 to 2008. The dependent measures and independent variables are defined in Table 2.2.

P-Values are presented in parentheses.
*** Statistically significant at the 1% level
** Statistically significant at the 5% level
* Statistically significant at the 10% level

ESSAY 3

IFRS Adoption and Executive Compensation: Preliminary Canadian Evidence

1. Introduction

Effective January 1, 2011, International Financial Reporting Standards (IFRS) became the mandatory reporting standards for publicly accountable enterprises[28] and government business entities in Canada. IFRS was mandated to improve the comparability of financial statements across firms in different jurisdictions as well as enhance stewardship evaluation within a firm. In their study of Continental European firms adopting IFRS, Wu and Zhang (2011) document greater financial reporting comparability associated with IFRS adoption as well as a stronger stewardship assessment role played by IFRS earnings.

IFRS was arguably designed to be more effective at stewardship evaluation, and therefore as a result, firms may have good reasons to rely more on accounting performance measures to evaluate executives (Ozkan et al, 2012; Wu and Zhang 2011). I therefore hypothesize that pay for accounting-based performance will be stronger after IFRS adoption as the reported accounting measures become more reliable and comparable under IFRS. While Ozkan et al (2012) and Wu and Zhang (2011) have examined this topic in the European context, this study is – to the best of my knowledge – the first one to examine this issue in the Canadian context. Unlike other studies in this literature, the Canadian data allows me to examine all individual components of

[28] Some firms or industries are allowed to defer the adoption of IFRS, such as investment and mining firms.

compensation: cash, bonus, total cash, equity and total compensation. Other studies using European data examine focus mostly on cash compensation because large variations in stock market returns within different European countries (e.g. Ozkan et al, 2012) made them inappropriate for comparison over time. This study is also the first one to examine the change in pay-for-accounting-performance sensitivity as Canadian firms moved from the old Canadian GAAP to IFRS.

It will take some time to assess whether IFRS has resulted in enhanced comparability and improved stewardship evaluation in the Canadian context (e.g., Ozkan et al 2012). However, the cost of adopting IFRS is starting to surface. Firms incurred a steep learning curve in adopting IFRS that resulted in additional staff, consulting and senior management time and energy. The incremental "mind and management" responsibility for IFRS adoption – including meeting all statutory reporting requirements – was typically assigned to CFOs. Such greater responsibilities are typically associated with higher compensation in a competitive labour market (e.g., Balsam et al 2012). While CEOs were also faced with greater responsibilities, it is not clear whether they earned higher IFRS-induced compensation. Depending on what else was going on in the firm, it is conceivable that the CFOs compensation relative to the CEOs' compensation increased in the year of IFRS adoption.

CEO compensation is found to be associated with firm size, firm performance (both accounting and market), risks, corporate governance and other variables. CFO compensation is also found to be associated with the same factors (Smith 1995). Compensation in general is awarded for (1) meeting certain goals or milestones (e.g., adopting IFRS); (2) moving ahead on certain goals for which directional incentives may be offered (e.g., cost reduction or earnings growth); and (3) taking risks. This paper focuses on the first role described above at the senior executive level.

There is limited research examining the relative compensation for CFOs and CEOs, and whether they are both driven by the same factors. The executive compensation literature largely focuses on the association between compensation and financial performance measures, even though non-financial measures are used by boards to assess and reward senior management. The adoption of IFRS by Canadian firms in 2011 offers an opportunity to evaluate whether the chief financial officers (CFOs) were compensated for taking on the additional fiduciary duties of ensuring IFRS was appropriately adopted in time. This line of research follows Hoitash et al (2012) who examine whether CFOs earned more for disclosing internal control material weaknesses (ICMW) legislated under the Sarbanes-Oxley Act of 2002. Similar to the adoption of SOX in 2002, IFRS adoption is a non-financial performance measure that requires firms to meet specific reporting targets. As a non-financial performance measure, implementing IFRS would impact the

responsibility and management workload of a CFO much more than that of a CEO, and therefore could affect the CFO's compensation relative to the CEO's compensation. During the adoption of IFRS, it was generally expected that CFO was the senior executive who planned, performed and managed the adoption, including establishing new accounting policies, modifying the accounting operations, negotiating with auditors, documenting the changes and ensuring that all statutory requirements were met on time. It is reasonable to predict CFOs compensation relative to CEOs' compensation increased in the year that IFRS was adopted.

This study investigates the association between executive compensation and the IFRS adoption. I ask three questions. First, whether accounting-based pay for performance sensitivity is stronger after IFRS adoption. Second, whether executive compensation is positively associated with IFRS adoption. Third, whether CFO compensation relative to CEO compensation is positively associated with IFRS adoption.

To answer these three questions, I start with a sample of the largest 400 firms listed on Toronto Stock exchange with December 31 year-ends[29]. I examine whether accounting-based pay-for-performance sensitively is stronger after IFRS adoption. I find that the change in total compensation is positively and significantly associated with the interaction term of IFRS adoption and change in earnings per share (EPS). A one

[29] I started data collection in April, 2012, by then only firms with year-end of December 31 had disclosed their IFRS reports.

standard deviation increase in ΔEPS (1.30) after IFRS adoption in adoption firms increased executive compensation by $0.174 million on average. I also find that executives earned $11.37 more for every $1,000 increase of accounting income under IFRS than under previous Canadian GAAP.

I then test the association between absolute levels of executive compensation with IFRS adoption. CFO salary, bonus, cash compensation and total compensation are found to be positively associated with IFRS adoption. CFO cash compensation and total compensation increase by $54,751 and $108,624 respectively upon IFRS adoption after controlling for CFO tenure, firm size, earnings per share, stock return, book-to-market ratio, firm return volatility, and industry. This association between CFO compensation and IFRS adoption is also economically significant. In contrast, levels of CEO compensation were not found to be significantly associated with IFRS adoption.

Finally, I examine the association between CFO compensation relative to CEO compensation and IFRS adoption. The association is positive and significant for bonus. CFO bonus relative to CEO bonus increases by 24%[30] in the year of IFRS adoption after controlling for tenure of CEO and CFO. This result shows that the CFO is compensated more relative to the CEO during IFRS adoption, and the incremental compensation is mainly in the form of bonus.

[30] Exp(0.218)-1=24%

I conduct robustness tests to examine whether my findings can be explained by other competing reasons. One reason for the positive association between relative CFO compensation and IFRS adoption could be the year effect, and an alternative explanation for the positive association between absolute CFO compensation and IFRS adoption could be both the year effect and the industry effect. I compare executive compensation levels of my sample of IFRS-adopting firms with Canadian non-adopters and U.S. firms, and find that neither of the alternative explanation is supported by the data. I conclude my robustness tests by claiming that the IFRS effect is not the same as year effect or industry effect.

This study contributes to the IFRS adoption literature by adding preliminary evidence on the effect of accounting standard change on CFO compensation using Canadian data. The increased compensation constitutes additional regulatory costs imposed on shareholders. Although shareholders' likely benefit from the comparability of financial statements prepared by firms in different jurisdictions adopting the same IFRS, benefits net of costs may be limited in the early periods. My study also contributes to the relative compensation literature. Within the same firm, CFO bonus relative to CEO bonus is significantly associated with IFRS adoption, while I do not find any positive association between CEO compensation and IFRS adoption. I also find that absolute compensation and relative compensation are affected by different factors. This study also

contributes to the debate about whether IFRS earnings better reflect management's stewardship. I find that accounting-based pay-for-performance sensitivity is statistically stronger and economically higher in the year of adoption.

The rest of the paper is organized as follows: the next section reviews the literature and develops hypotheses, while section 3 describes the data and articulates my hypotheses more formally. Section 4 presents the results of my regression tests and robustness tests. The last section concludes the paper.

2. Literature review and hypotheses

2.1 Is EPS more important for executive compensation after IFRS adoption?

Research on European firms suggests that financial statements' comparability and earnings quality have improved since adoption of IFRS. Yip and Young (2012) used three measures of comparability: (1) the similarity of accounting functions that translate economic events into accounting data; (2) the degree of information transfer; and (3) the similarity of the information content of earnings and of the book value of equity. They conclude that adoption of IFRS significantly improved the comparability of financial statements in 17 European countries.

By studying firms' adoption of IAS[31] in 21 countries, Barth et al (2008) find that

[31] IAS (International Accounting Standards) was issued by IASC, and IFRS was published by IASB, which succeeded the IASC.

firms generally reported less earnings management and more timely loss recognition, as well as produced more value relevant accounting numbers compared to a sample of matched firms applying non-U.S. domestic standards. Zeghal et al (2012)'s findings are consistent with Barth et al (2008) as they also find that adoption of IFRS is associated with less earnings management and improved timeliness.

Board compensation committees in Canada could incorporate such research findings and consider IFRS as a higher quality accounting standard that can better reflect firm performance. As a result, boards could rely more on the new IFRS accounting numbers to assess stewardship of their senior managers and to base executive compensation decisions on such numbers.

Ozkan et al (2012) examine whether compensation contracts were increasingly based on accounting numbers after adoption of IFRS in Europe. They hypothesize that firms increasingly use accounting numbers for executive compensation after the adoption of IFRS, as well as relied more on foreign peers from IFRS jurisdictions to determine compensation of their own executives. Based on a sample of 892 public companies from 15 European countries for the period of 2002-2008, they find results that support their hypotheses. They conclude that "the overall results are consistent with the compensation committees in those countries perceiving earnings after IFRS adoption to be of higher quality and comparability." (Ozkan et al 2012, page 1077)

Based on the literature, my first hypothesis (in alternate form) is as follows.

H1: Boards rely more on accounting numbers after IFRS adoption for their executive compensation decisions.

2.2 Is pay-for-accounting-performance sensitivity higher after IFRS adoption?

Executive compensation is often used to align incentives between managers and shareholders and to mitigate agency costs. (e.g., Scott 2006).

If IFRS reflects firm and managerial performance more accurately (Ozkan et al 2012), it is conceivable that firms will use greater pay-for-performance compensation contracts for their senior executives. In other words, firms could increase incentive-based compensation after IFRS adoption. In addition, when the accounting performance measures seem more reliable (e.g., Barth et al 2008, Zeghal et al 2012), compensation committees will be willing to pay (or incent) more for the reliable performance.

Pay-performance sensitivity is defined by Murphy and Jensen (1990) as "the dollar change in the CEO's wealth associated with a dollar change in the wealth of shareholders." In my study, I define pay-performance sensitivity as the dollar change in the CEO's total compensation associated with $1,000 dollar change in firm's accounting net income.

My second hypothesis (in alternate form) is as follows:

H2: Pay-for-performance sensitivity is higher in the year of IFRS adoption (year 2011) compared to pre-adoption.

2.3 Are CFOs and CEOs compensated for IFRS adoption?

Balsam et al (2012) predict and find that executive compensation (for both CEO and CFO) is higher after IFRS adoption. Prior studies have found that executives are rewarded for large one-time corporate events. For example, Harford and Li (2007) find CEOs are compensated for merger and acquisition even if the bidding shareholders are subsequently worse off due to the transaction. IFRS transition was a large event for Canadian firms in 2011, and required significant incremental effort from senior management. For example, firms had to restate their 2010 fiscal year financial statements from old Canadian GAAP to IFRS in order to present two years of comparable data when they started presenting their 2011 fiscal year financial statements under IFRS. This amounts to almost double the accounting work load during the year of adoption.

Senior management also had to learn the differences between IFRS and the old Canadian GAAP in order to choose accounting policies that were most appropriate for their firms. The "heavier reliance of IFRS on fair value accounting and comprehensive income, and the use of the entity theory for consolidation" (Blanchette et al 2012) required Canadian executives to report using a different set of measurement. IFRS also

introduced the need for annual impairment testing of property, plant & equipment, goodwill and intangible assets. This increased both the volume and the complexity of executives' work load. My third hypotheses (in alternate forms) are as follows:

H3a: CFO compensation is higher in the year of IFRS adoption (year 2011) compared to pre-adoption.

H3b: CEO compensation is higher in the year of IFRS adoption (year 2011) compared to pre-adoption.

2.4 Are CFOs compensated more relative to CEOs compensation for IFRS adoption?

Balsam et al (2012) examine the reasons for and the magnitude of the impact of IFRS adoption on CFO compensation. In their sample of 13,214 firm-years from 23 countries for the period of 2000-2007, they find that CFO compensation increases more than CEO compensation during the years in which IFRS is adopted, arguably because CFOs are mainly responsible for the financial reporting function within firms. They also find that the increase in CFO compensation is not temporary; CFOs were found to earn the IFRS premium for the entire post-adoption period in their sample (from 2005 to 2007).

Loyeung et al (2011) study the association between CFO compensation and their "accounting talent." They define "accounting talent" as the inverse of the errors made by

firms after the adoption. They examine 280 Australian firms before and after the transition to IFRS and find a positive association between the CFO compensation and CFO talent during the transition year, and a positive association between CFO bonus and CFO talent in the IFRS adoption year. They also find a negative association between the CFO turnover and their talent. The two studies document evidence that CFO compensation is significantly associated with IFRS adoption.

The fourth research question in this study examines whether CFOs are awarded more compensation relative to CEOs after the transition to IFRS, arguably because of the greater workload, greater complexity and/or greater risk. While it may not be necessary for CEOs to understand the difference between Canadian GAAP and IFRS, it is essential for CFOs to understand the differences and guide the allocation of resources required to implement the change, as well as the potential reputational and other costs if the changes are not implemented in time to meet the statutory reporting deadlines. This leads to my fourth hypothesis (in alternate form):

H4: CFO compensation is higher relative to CEO compensation in the year of IFRS (year 2011) adoption compared to pre-adoption.

3. Data and regression model design

3.1 Data

My sample consists of the 400 largest Canadian firms listed on Toronto Stock Exchange or Toronto Stock Exchange Venture with December 31st year-ends. Detailed components of compensation for both the CEO and CFO are manually collected from Sedar.com for the years 2009-11. The compensation data collected include salary, annual incentive plan (or bonus), equity-based compensation, pension compensation and total compensation. Cash compensation is the sum of salary and annual incentive plan (bonus). Equity compensation is the sum of share-based compensation and option-based compensation. All other accounting and market data are retrieved from Compustat. All continuous variables are winsorized by 1% both at the top and bottom.

Table 3.1 describes the data selection procedure and explains the sample sizes used in the subsequent regression analysis. I exclude 36 firms from my sample that did not adopt IFRS in 2011, presumably because they were allowed to defer IFRS adoption. I also exclude 11 observations in which either the CEO or the CFO received zero total compensation. Finally, 502 firm-year observations were deleted from the sample because of missing data in Sedar and / or Compustat.

Table 3.2 presents the statistical description of my data. Panel A shows the CEO and CFO compensation for both pre-adoption and for the year of IFRS adoption. CFOs' average compensation increased from $925,000 to $958,000 in the year of IFRS adoption, while the mean CEO compensation decreased from $2,325,000 to $2,213,000 during the

same year. Panels 2 and 3 describe continuous variables and discrete variables, respectively. The minimum values for size, book to market ratios, and volatility are rounded to zero. A firm's industry is coded using the two-digits SIC. Table 3.2 also defines all my variables used in the study.

3.2 Regression Model for Hypothesis 1

Hypothesis 1 examines the role of accounting numbers in executive compensation contracts. Similar to Ozkan et al (2012), I use change in compensation instead of level of compensation as my dependent variable to control for sticky wages and firm characteristics. The following regression equation is used to test hypothesis 3:

$$\Delta \text{Compensation} = \beta_0 + \beta_1 \underset{(+)}{\text{Year of IFRS Adoption}*\Delta\text{EPS}} + \beta_2 \text{Year of IFRS Adoption} + \beta_3 \Delta(\text{EPS}) + \beta_4 \text{CFO\_Indicator} + \beta_5 \Delta(\text{Stock Return}) + \beta_6 \Delta(\text{Firm Size}) + \beta_7 \Delta(\text{Firm Return Volatility}) + \beta_8 \Delta(\text{Book to Market}) \quad \text{(model 1)}$$

I expect a positive β_1, indicating changes in executive compensation are positively associated with IFRS_Adoption * ΔEPS.

3.3 Regression Model for Hypothesis 2

In hypothesis 2, I examine whether the pay-for-performance sensitivity (PPS) is higher in the year of IFRS adoption than in years prior to adoption. I hypothesize that the coefficient on Year of IFRS-adoption is positive and significant to reflect the stronger reliance on IFRS accounting numbers by compensation committees of the boards. I define the dependent variable PPS as the ratio of change in total compensation over the change in accounting net income. Following Jensen and Murphy (1990), I do not include other control variables except an indicator variable of CFO.

$$\Delta(\text{Total compensation})/\Delta(\text{Net Income}) = \beta_0 + \beta_1 \underset{(+)}{\text{Year of IFRS\_Adoption}} + \beta_2 \text{CFO\_indicator} \quad \text{(model 2)}$$

3.4 Regression Model for Hypothesis 3

Hypothesis 3 tests whether CFOs and CEOs earned higher absolute compensation in the year of IFRS adoption. I use the level of compensation as dependent variable and control for both personal-level and firm-level characteristics.

$$\text{CFO (CEO) Compensation} = \beta_0 + \beta_1 \underset{(+)}{\text{Year of IFRS\_Adoption}} + \beta_2 \text{CFO (CEO) \_Tenure} + \beta_3 \text{EPS} + \beta_4 \text{Stock Return} + \beta_5 \text{Firm Size} + \beta_6 \text{Firm Return Volatility} + \beta_7 \text{Book to Market} + \beta \text{ Industry Indicators} \quad \text{(model 3)}$$

My choice of control variables is based on those used in this literature (e.g., Balsam et al 2012). Firm size is defined as the natural log of market value and to avoid log of

zero, I add 1 to all market values. The definitions for other variables can be found in Table 3.2.

3.5 Regression Model for Hypothesis 4

Hypothesis 4 examines whether CFO earn relatively higher compensation compared to CEOs within the same firms during the year of IFRS adoption. I use the following model to test hypothesis 4:

$$\text{(CFO Compensation/CEO Compensation)} = \beta_0 + \beta_1 \underset{(+)}{\text{Year of IFRS\_adoption}} + \beta_2 \text{Relative\_Tenure} \qquad \text{(model 4)}$$

Given the skewness of the relative compensation variables, I take the natural log of CFO compensation over CEO compensation as the dependent variable, and to avoid the natural log of zero, I add 0.1% to the ratio of CFO compensation over CEO compensation. If any component of compensation – for example, equity compensation – is zero for the same firm's CEO and CFO in the same year, I define the ratio to be zero.

Relative tenure is introduced in this model since relative executive compensation may reflect the relative seniority of the executive. Relative_Tenure is coded as an indicator variable that takes the value of 1 when the CFO has been in the CFO position longer than the CEO has been in the CEO position and 0 otherwise. Since the CEO and

CFO are from the same firm, all the firm-level features are exactly the same for both executives. As a result, I do not introduce any additional firm-level control variables.

4. Regression results

4.1 Hypothesis 1

Results of regression model 1 are presented in table 3.3. The change in total compensation is positively associated with the interaction term of change in EPS and the year of IFRS adoption at conventional levels, thereby supporting hypothesis 1. Prior to IFRS adoption, change in EPS is not statistically significant suggesting that it was not as instrumental in being the base for compensation contracts for Canadian executives. Ozkan et al (2012) find similar results. The sum of the two coefficients (ΔEPS*IFRS and ΔEPS) is 174.182, which suggests that total compensation increased by approximately $174,000 for every one standard deviation increase in ΔEPS (1.30) in the year of IFRS adoption.

Following Ozkan et al (2012), I also examine whether change in executive compensation is associated with the interaction term of change in stock return and the year of IFRS adoption. I do not make any predictions for this coefficient since I know of no reason why stock return would be a stronger base for executive compensation after IFRS adoption. Consistent with Ozkan et al (2012), I find no significant association

between change in compensation and the interaction of change in stock return and IFRS adoption. After controlling for this interaction term, the association between change in compensation and the interaction term of change in EPS and year of IFRS adoption remain positive and statistically significant, consistent with Ozkan et al (2012).

As predicted, change in total compensation is negatively associated with the change of book to market ratio. While the compensation level is positively associated with the book to market ratio (tables 3.5 and 3.6), the change in compensation is negative and significantly associated with the book to market ratio. This may be due to the lower correlation among independent variables in the change model. Change in total compensation is also positively associated with change in firm size at conventional levels. Firm size could be a proxy for complexity as well as volume of work (Balsam et al 2011). The Year of IFRS adoption indicator variable is negative and significant, consistent with both Balsam et al (2012) and Ozkan et al (2012)[32].

4.2 Hypothesis 2

Results of regression model 2 are presented in table 3.4. The coefficient for the year of IFRS-adoption variable is positive and significant. In the year of IFRS adoption, CEOs

[32] Balsam et al (2012) and Ozkan et al (2012) define the year of transition and post-transition as "post" dummy variable in their studies, and the coefficients of post dummy variable are negative and significant in these two studies.

and CFOs earned $11.37 more for every $1,000 increase in accounting net income, thereby supporting hypothesis 2. The coefficient for the CFO indicator variable is not significant, suggesting that there is no significant difference between CEO compensation and CFO compensation due to changes in accounting net income.

I also conduct a t-test to test the hypothesis that the mean of PPS in year of IFRS adoption is smaller than the mean of PPS in pre-adoption year. I get a p-value of 0.0479 (untabulated), indicating that I are 95% certain that the mean of PPS in adoption year is higher compared to the pre-adoption year.

4.3 Hypothesis 3a and 3b

I present the regression results of hypotheses 3a and 3b in Tables 3.5 and 3.6 respectively. Table 3.5 shows that CFO salary, bonus, cash compensation and total compensation are all higher in the year of IFRS adoption, thereby supporting hypothesis 3a. After controlling for CFO tenure, earnings per share, stock return, firm return volatility, book-to-market ratio and industries, CFOs earned $54,751 more in cash compensation and $108,624 more in total compensation during the year of IFRS adoption. It seems that CFOs earned approximately double the salary and bonus, presumable because they had to prepare two sets of financial statements for comparative purposes (i.e., 2010 year-end financial statements had to be prepared under the old

Canadian GAAP and then again under IFRS). Table 3.6 shows that CEO compensation is not significantly associated with IFRS adoption, thereby not supporting hypothesis 3b.

My results for the control variable are generally consistent with the literature. Tables 3.5 and 3.6 show that executive compensation is positively and significantly associated with tenure for both CFOs and CEOs, consistent with Balsam et al (2012). CFO bonus and cash compensation are positively associated with EPS[33], while CEO salary, bonus, cash and total compensation are positively associated with EPS. Stock return is not significant for CFO compensation, but significant for CEO salary and cash compensation[34]. Size is significant for every component of compensation, also consistent with Balsam et al (2012). CEO salary is negatively associated with firm return volatility. CEOs are expected to demand higher risk premiums when risk – as measured by the standard deviation of past five-year stock return – is higher. This could explain the negative association between CEO salary and risk. I do not find significant association between firm return volatility and CFO compensation. Similar to the stock return, this may be because CFOs are not responsible for stock price performance. Book to market ratio is significant for some components of CEO and CFO compensation, but the association is positive – contrary to expectation. Balsam et al. (2012) also find this

[33] Balsam et al (2012) use ROA instead of EPS as proxy of accounting performance, and they find positive association for the bonus component only.

[34] Balsam et al (2012) find CFO bonus is positively associated with stock return, while salary and total cash compensation is negatively associated with stock return.

positive association between compensation and book-to-market ratio. The reason could be the strong correlation between size and book to market ratio.

4.4 Hypothesis 4

Results of regression model 4 are presented in table 3.7. As predicted, the coefficient on bonus is positive and statistically significant, suggesting that CFO earned a relatively higher bonus than CEOs in the year of IFRS adoption after controlling for relative tenure. The result is generally consistent with Balsam (2012).[35] CFOs earned a bonus that was 24.36 percent[36] higher relative to CEOs' bonus in the year of IFRS adoption. If I drop tenure as a control variable and conduct a univariate test, my regression results show CFOs earn almost 35 percent more compensation relative to CEOs in the year of IFRS adoption.

Relative_Tenure is coded as 1 if the CFO's tenure is greater than the CEO's tenure in the same firm for this year and 0 otherwise. I do not predict the sign of relative tenure since equity compensation could be positively or negatively associated with tenure. In general, compensation tends to increase with tenure, especially the salary component. Many firms increase nominal salaries at the level of inflation and to reflect some seniority. However, when firms hire new executives (i.e., with no tenure history), they

[35] Balsam et al (2012) find CFOs are paid more in salary, bonus and cash compensation.

[36] Exp(0.218)-1 = 24.36%

often need to compensate the new executive at the previous incumbent's compensation package just before they departed, especially since such information is publicly disclosed. Equity compensation often constitutes a large component of total compensation package for new executive so as to align them to the long-term interest of the firm. My results show that CFO's salary and cash compensation relative to CEOs' salary and cash compensation is positively associated with the CFOs' relative tenure.

4.5 Alternative explanation for absolute CFO compensation levels

An alternative explanation for the positive association between levels of CFO compensation and the year of IFRS_adoption (year 2011) could be that the IFRS effect is the same as year effect – i.e., perhaps the economy was better in 2011 compared to 2010, and increases in CFO compensation could reflect this time trend instead of adoption of IFRS. If this argument holds, I should find the positive association between CFO compensation and year 2011 for non-adopting Canadian firms and for U.S. firms who did not adopt IFRS. The regression results using model 3 reported in panel A of table 3.8 show that the coefficients for year 2011 are not significant, which suggest that there is no significant change in total executive compensation after controlling for firm characteristics. I also conduct t-test using the two respective samples with results reported in panel A. The t-statistic is too low for me to reject the hypothesis that the

compensation in year 2011 and year 2010 are statistically similar. In other words, I fail to find the positive association between total compensation and year 2011 by testing Canadian non-adopting firms and U.S. firms. In an untabulated Chow-test, I compare my sample of IFRS adopting firms with Canadian non-adopters and U.S. firms using model 3. The p-value is < 0.001 from the Chow-test, suggesting that the coefficients of the two samples are significantly different. In summary, none of the three tests results support the year effect argument.

An alternative explanation for the positive association between CFO compensation and the year of IFRS-adoption (year 2011) could be the industry effect. Canadian Accounting Standards Board (ACSB) allowed mining and investment firms to defer adopting IFRS. As a result, the positive association between CFO compensation in Canadian adopting_firms and the year of IFRS_adoption (year 2011) could be attributed to the fact that other industries were arguably doing better in 2011 than mining and investment industries, and therefore CFOs of IFRS-adopting firms were compensated more than CFOs of non-adopting firms due to differences in industry performance. If this industry effect does exist, I should find a positive association between CFO compensation and year 2011 by testing a subsample of U.S. firms which have same first two-digits SIC. I use model 3 to test this subsample, and find that the coefficient for year 2011 is not statistically significant (untabulated). I also compare my sample of adopting

firms with the sample of non-adopting U.S. firms using the Chow-test, and I get a p-value of < 0.001 (untabulated). The Chow-test rejects the hypothesis that all of coefficients from the two samples are the same. Therefore, the industry effect is not supported by my data.

4.6 Alternative explanation for relative CFO compensation levels

An alternative explanation for the positive association between CFO bonus relative to CEO bonus and IFRS adoption is the year effect. The relatively higher bonuses for CFOs could be due to excessive demand for or reduced supply of CFOs in 2011, requiring firms to pay more to retain or attract CFOs. To test whether this alternative explanation is correct, I conduct two univariate regression tests of model 4 by comparing Canadian firms that did not adopt IFRS in 2011 and U.S. firms respectively. Tenure is not included in these regressions because the data on U.S. based CFO tenure is not publicly available. The regression results are presented in panel B of table 3.8. The coefficients for (1) Canadian non-adopters, and (2) for US firms are not statistically significant, suggesting that there is no significant change in relative bonus compensation in the year 2011 compared to year 2010. I also conduct a Chow test to compare my sample of IFRS adopting firms with non-adopting Canadian firms and compare my sample of IFRS adopting firms with U.S. firms using model 4. The p-value from the Chow-test is 0.037

(untabulated), suggesting that the coefficients from the two samples are significantly different at 5% level. The alternative explanation of year effect is therefore not supported by my data.

All my sensitivity tests suggest that the effect I consider to be the IFRS effect is not the same as the year effect or the industry effect.

5. Conclusion

This study examines the association between executive compensation and IFRS adoption. I find that accounting-based pay for performance sensitivity became stronger once IFRS was adopted. Executives earned $11.37 more for every $1,000 increase of accounting income under IFRS than under previous Canadian GAAP. Compensation committees seem to consider accounting numbers produced by IFRS to be more meaningful for writing compensation contracts. While narratives provided with the compensation disclosure do not specifically mention IFRS as the base for the CFOs' bonuses, the link is inferred from the compensation numbers disclosed during the year of IFRS adoption.

I also find CFO compensation increased by approximately $108,000 in the year of IFRS adoption, while CEO compensation does not change significantly in the year of IFRS adoption. I also find CFO bonus relative to CEO bonus increased by more than 20%

in the year of IFRS adoption compared to previous year. The increases in CFO absolute and relative compensation are both statistically and economically significant. These results suggest that CFOs were rewarded for what were additional management responsibilities in the year of IFRS adoption.

This study can be extended to other factors such as who gets compensated for tax planning in a firm. Such studies contribute to finding other determinants of managerial compensation.

Table 3.1: Sample selection

Panel A		# firm-years
	CFO	CEO
Initial Sample (firm-years) from TSX 400 firms 2010-11	800	800
Deletions due to missing data for		
Firms not adopting IFRS in 2011	-72	-72
Exclude total compensation of zero	-3	-8
Executive compensation in Sedar	-46	-42
Tenure in Sedar	-2	-5
Volatility in Compustat	-105	-105
Stock Return in Compustat	-13	-13
EPS in Compustat	-8	-8
Final Sample used in this study	551[1]	547[2]

Panel B	# firm-years
Initial Sample (firm-years) from TSX 400 firms 2010-11	800
Deletions due to missing data for	
Firms not adopting IFRS in 2011	-72
Executive compensation in Sedar	-46
Observations with CEO total compensation of zero but CFO total compensation not zero	-10
Tenure in Sedar	-1
Final Sample used in this study	671[3]

[1] sample size in table 3.3
[2] sample size in table 3.4
[3] sample size in table 3.5

Table 3.2: Summary Statistics for Dependent and Independent Variables

Panel A: Dependent Variables (Cdn $ amounts in thousands)						
Variables	**N**	**Mean**	**Median**	**Std Dev**	**Min**	**Max**
CFO compensation pre-IFRS adoption						
Salary	267	261	255	130	-	693
Bonus	267	158	110	173	-	1,017
Cash Compensation	267	419	378	271	-	1,462
Equity Compensation	267	424	187	622	-	5,533
Total Compensation	267	925	685	785	67	5,976
CFO compensation in the year of IFRS adoption						
Salary	284	280	272	138	-	900
Bonus	284	173	103	210	-	1,800
Cash Compensation	284	453	365	319	-	2,700
Equity Compensation	284	405	222	574	-	5,075
Total Compensation	284	958	705	812	37	5,593
CEO compensation pre-IFRS adoption						
Salary	266	486	427	297	-	1,300
Bonus	266	479	267	582	-	2,385
Cash Compensation	266	985	692	858	-	3,686
Equity Compensation	266	1,005	449	1,374	-	5,551
Total Compensation	266	2,325	1,474	2,316	62	9,783
CEO compensation in the year of IFRS adoption						
Salary	281	502	445	293	-	1,300
Bonus	281	450	243	568	-	2,385
Cash Compensation	281	968	692	814	-	3,686
Equity Compensation	281	953	500	1,244	-	5,551
Total Compensation	281	2,213	1,425	2,108	45	9,783
Panel B: Continuous Variables						
Variable	**N**	**Mean**	**Median**	**Std Dev**	**Min**	**Max**
CEO_Tenure	547	7.476	5.000	7.122	1.000	41.530
CFO_Tenure	551	4.867	4.000	3.705	1.000	18.810
Earnings per share (EPS)	551	0.912	0.330	1.610	-2.314	7.876
One-Year Stock Return	551	3.42%	0.83%	7.23%	-0.74%	44.47%
Firm Size	551	6.724	6.448	1.485	0.001	10.448
Book to Market Ratio	551	0.640	0.552	0.440	0.000	2.702

Volatility of Return	551	19.424	10.061	49.618	0.213	264.577

Panel C: Discrete variables

Variable	coded	N	Percent	coded	N	Percent
Relative_Tenure	1	161	22%	0	558	78%

Variable definitions

Compensation/dependent variables: Salary, Bonus (or non-equity compensation-annual), option awards, stock awards, and total compensation data are collected from Management Information Circulars, which are retrieved from Sedar[37]. Total Cash Compensation is the aggregate of salary and bonus. Total Equity Compensation is the sum of option award and stock awards. Variables are winsorized at the 1% level at the top.

Independent variables: Firm size is the natural log of market value plus one. Market Value is retrieved from Compustat. Stock Return is the sum of difference between end-of-year stock price and beginning-of-year stock price and dividend this year, all divided by beginning-of-year stock price. Earnings per share (EPS) is basic EPS retrieved from Compustat. Book-to-market ratio is book value of common equity divided by market value of common equity at end of year. Volatility is the standard deviation of annual stock return for the past five years. Continuous variables are winsorized at the 1% level at both top and bottom.

Discrete variables: Relative_Tenure equals 1 if the tenure of CFO is longer than CEO in the same firm for this year, and 0 otherwise.

[37] www.sedar.com

Table 3.3: Test whether the association between compensation and accounting-based pay for performance sensitivity is stronger after IFRS adoption

Δ Compensation $=\beta_0+\beta_1$ Year of IFRS Adoption + β_2 Year of IFRS_Adoption * (ΔEPS) * $+\beta_3\Delta$EPS + β_4 CFO_Indicator $+\beta_5$ Δ(Stock Return) + $\beta_6\Delta$Size + β_7 ΔFirm Return Volatility $+\beta_8$ ΔBook to Market

	Pred	Model a	Model b
Intercept		**334.247*** **	**335.689*** **
		(0.000)	**(0.000)**
Year of IFRS_Adoption * (ΔEPS)	(H1)+	**210.770*** **	**211.127*** **
		(0.000)	**(0.000)**
Year of IFRS Adoption	+	**-204.070** **	**-206.509** **
		(0.022)	**(0.022)**
ΔEPS	+	-36.588	-36.615
		(0.455)	(0.455)
CFO_Indicator	-	-92.497	-92.538
		(0.222)	(0.222)
Δ(Stock Return)	+	6.627	8.051
		(0.482)	(0.515)
Year of IFRS_Adoption * (Δ(Stock Return))			-3.292
			(0.859)
ΔSize	+	**44.729***	**44.850***
		(0.067)	**(0.067)**
Δ(Firm Return Volatility)	+	2.258	2.115
		(0.679)	(0.702)
Δ(Book to Market)	-	**-396.212*** **	**-396.389*** **
		(0.000)	**(0.000)**
No. of observations		1068	1068
R Square		0.058	0.058

Notes:
This table presents regression results of the hypothesis 1 using a pooled OLS estimation. There are 1,068 firm-year observations over the period 2010 - 2011. The dependent measures and independent variables are defined in Table 3.2.
P-Values are presented in parentheses.
*** Statistically significant at the 1% level using a two-tailed test
** Statistically significant at the 5% level using a two-tailed test
* Statistically significant at the 10% level using a two-tailed test

Table 3.4: Test whether the accounting-based pay is higher after IFRS adoption

Δ(Total compensation)/Δ(Net Income) = $\beta_0 + \beta_1$ Year of IFRS_Adoption $+\beta_2$ CFO_indicator

	Pred	CEO&CFO samples
Intercept		-7.325
		(0.217)
Year of IFRS_Adoption	(H2)+	**11.372***
		(0.096)
CFO_indicator	?	0.037
		(0.996)
No. of observations		1219
R-Squared		0.0023

Notes:
This table presents regression results of the hypothesis 2 using a pooled OLS estimation. There are 1,219 firm-year observations over the period 2010 - 2011. The dependent measures and independent variables are defined in Table 3.2. P-Values are presented in parentheses.
*** Statistically significant at the 1% level using a two-tailed test
** Statistically significant at the 5% level using a two-tailed test
* Statistically significant at the 10% level using a two-tailed test

Table 3.5: Test of association between the CFO compensation and IFRS adoption

CFO Compensation = β_0 + β_1 Year of IFRS adoption + β_2 CFO_Tenure + β_3 EPS + β_4 Stock Return + β_5 Firm Size + β_6 Firm Return Volatility + β_7 Book to Market + β Industry Indicators

	Pred	Salary	Bonus	Cash Comp	Equity Comp	Total Comp
Intercept		**-54,361*****	**-56,015****	**-110,376*****	-65,565	**-219,451***
		(0.001)	**(0.042)**	**(0.006)**	(0.482)	**(0.051)**
Year of IFRS adoption	(H3a) +	**26.994*****	**27.757****	**54.751*****	32.262	**108.624***
		(0.003)	**(0.042)**	**(0.006)**	(0.486)	**(0.052)**
CFO_Tenure	+	**5.737*****	-0.713	**5.025**	-2.359	6.716
		(0.000)	(0.724)	**(0.085)**	(0.731)	(0.416)
EPS	+	-0.729	**14.408****	**13.678***	-32.900	4.256
		(0.845)	**(0.011)**	**(0.092)**	(0.101)	(0.853)
Stock Return	+	1.488	-0.146	1.341	-1.739	3.199
		(0.142)	(0.923)	(0.542)	(0.736)	(0.607)
Firm Size	+	**42.197*****	**46.542*****	**88.739*****	**181.016*****	**280.854*****
		(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Firm Return Volatility	+	-0.019	0.144	0.125	0.294	0.443
		(0.868)	(0.401)	(0.614)	(0.613)	(0.528)
Book to Market	-	**25.097****	-12.857	12.240	-71.649	-56.057
		(0.032)	(0.463)	(0.629)	(0.249)	(0.434)
Industries		Included	Included	Included	Included	Included
No. of observations		551	551	551	551	551
R-Squared		0.483	0.375	0.449	0.249	0.389

Notes:
This table presents regression results of the hypothesis 3a using a pooled OLS estimation. There are 551 firm-year observations over the period 2010 - 2011. The dependent measures and independent variables are defined in Table 3.2. P-Values are presented in parentheses.

*** Statistically significant at the 1% level using a two-tailed test
** Statistically significant at the 5% level using a two-tailed test
* Statistically significant at the 10% level using a two-tailed test

Table 3.6: Test of association between the CEO compensation and IFRS adoption

CEO Compensation = β_0 + β_1 Year of IFRS adoption + β_2 CEO_Tenure + β_3 EPS + β_4 Stock Return + β_5 Firm Size + β_6 Firm Return Volatility + β_7 Book to Market + β Industry Indicators

	Pred	Salary	Bonus	Cash Comp	Equity Comp	Total Comp
Intercept		-48,984	26,399	-29,077	-73,188	-5,611
		(0.187)	(0.726)	(0.773)	(0.710)	(0.985)
Year of IFRS adoption	(H3 b) +	24.255	-13.371	14.112	35.478	1.216
		(0.189)	(0.721)	(0.778)	(0.717)	(0.993)
CEO_Tenure	+	**5.768*****	4.267	**9.178****	2.868	**20.204***
		(0.000)	(0.159)	**(0.024)**	(0.717)	**(0.094)**
EPS	+	**19.824****	**72.887*****	**94.137*****	-13.774	**145.425****
		(0.012)	**(0.000)**	**(0.000)**	(0.740)	**(0.022)**
Stock Return	+	**6.337*****	4.635	**16.588*****	-6.539	24.647
		(0.002)	(0.263)	**(0.003)**	(0.545)	(0.135)
Firm Size	+	**85.358*****	**107.181*****	**193.493*****	**446.585*****	**735.621*****
		(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Firm Return Volatility	+	**-0.453***	-0.019	-0.789	-0.045	-1.668
		(0.052)	(0.967)	(0.212)	(0.971)	(0.375)
Book to Market	-	**66.600*****	31.393	99.058	-76.061	172.385
		(0.005)	(0.517)	(0.126)	(0.547)	(0.371)
Industries		Included	Included	Included	Included	Included
No. of observations		547	547	547	547	547
R-Squared		0.511	0.470	0.551	0.303	0.433

Notes:
This table presents regression results of the hypothesis 3b using a pooled OLS estimation. There are 547 firm-year observations over the period 2010 - 2011. The dependent measures and independent variables are defined in Table 3.2. P-Values are presented in parentheses.
*** Statistically significant at the 1% level using a two-tailed test
** Statistically significant at the 5% level using a two-tailed test
* Statistically significant at the 10% level using a two-tailed test

Table 3.7: Test of CFO compensation relative to CEO compensation and IFRS Adoption

Log of (CFO Compensation/CEO Compensation) = $\beta_0 + \beta_1$ Year 2011 + β_2 Relative_Tenure

	Pred	Salary	Bonus	Cash Comp	Equity Comp	Total Comp
Intercept		**-0.638*****	**-1.146*****	**-0.806*****	**-0.841*****	**-0.774*****
		(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
Year 2011	(H4)+	0.049	**0.218****	0.082	-0.030	0.063
		(0.272)	**(0.046)**	(0.141)	(0.784)	(0.225)
Relative _Tenure	?	**0.235*****	0.161	**0.233*****	**-0.216***	-0.047
		(0.000)	(0.219)	**(0.000)**	**(0.095)**	(0.448)
No of observation		660	632	661	634	671
R-Squared		0.032	0.009	0.022	0.005	0.003

Notes:
This table presents regression results of the hypothesis 4 using a pooled OLS estimation. There are 671 firm-year observations over the period 2010 - 2011. The dependent measures and independent variables are defined in Table 3.2. P-Values are presented in parentheses.
*** Statistically significant at the 1% level using a two-tailed test
** Statistically significant at the 5% level using a two-tailed test
* Statistically significant at the 10% level using a two-tailed test

Table 3.8: Sensitivity Tests

Panel A Absolute CFO Total Compensation	Predicted by alternative explanation	Non-adopters in Canada		U.S. firms available on ExecuComp	
		Coef.	t-stat	Coef.	t-stat
Year 2011	+	170.22	-0.028	-13.72	0.6068
		(0.292)		(0.919)	
Firm Controls		Included		Included	
Industry Controls		Included		Included	
No. of observations		31		1788	
R-Squared		0.933		0.431	

Notes:
Panel A presents regression results of the model 3 using different samples. CFO_Tenure is dropped from model 3 because the tenure data of U.S. CFOs are not available. Year 2011 is a dummy variable which takes value of 1 when the observation is from 2011, and 0 when the observation is from 2010. P-Values are presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The results of t-test are reported in column T-stat.

Panel B CFO relative Bonus	Predicted by alternative explanation	Non-adopters in Canada Coef.	U.S. firms available on ExecuComp Coef.
Year 2011	+	0.015	-0.037
		(0.97)	(0.265)
No. of observations		38	1981
R-Squared		0.0001	0.0006

Notes:
Panel B presents regression results of the model 4 using different samples. Relative_Tenure is dropped from model 4 because the tenure data of U.S. CFOs are not available. Year 2011 is a dummy variable which takes a value of 1 when the observation is from 2011, and 0 when the observation is from 2010. P-Values are presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. The results of t-test are reported in column T-stat.

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