THE EFFECT OF EARNINGS MANAGEMENT THROUGH ASSETS SALES ON CANADIAN STOCKS

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Abstract

This paper tests the earnings-smoothing and the debt-equity hypotheses using a sample of Canadian firms engaging in sales of long-lived assets and investments assets. findings show there is a negative relationship between income from asset sales and change in earnings per share exclusive of income from asset sales, as well as a positive relationship between leverage (proxied by debt-equity ratio) and income from asset sales. Yet, Canadian firms also report zero income or losses more often than gains as opposed to mostly gains from such sales reported by US firms, suggesting that they may be using asset sales proceeds for other corporate governance-related reasons than earnings smoothing, including Canadian tax policies (when selling fixed-assets), liquidity needs, avoidance of debt covenants violation, and level of management bonus plans. We also notice some differences between Canadian firms and their US counterparts that may explain some differences in their results.

Keywords: Earnings management, earnings smoothing, long-lived assets sales, investments assets sales, Canadian stocks, corporate governance, leverage

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I. Introduction

Earnings management is often defined as the planned timing of revenues, expenses, gains and losses to smooth out fluctuations in earnings. Earnings management is usually motivated by external, internal, and personal forces. Firms are under extreme pressure to meet analysts' earnings estimates in order to prevent large drops in their stock price, and to meet their current debt covenants as well as other contractual obligations. Internal factors include potential mergers, management compensation and budget planning, while personal factors include personal bonuses, promotions and job retention. It is also possible for earnings management to have positive effect by smoothing out noise in earnings.[2] Regardless of the motivation, earnings management can have a negative effect on the quality of earnings if it distorts information.

In the late nineties, investors lost over $200 billion following earnings restatements of stocks that were made to look profitable while in fact they were not (Byrnes et al., 2002). It is reported that the

number of restatements increased from 116 to 233 between 1997 and 2000.

Following the Enron and WorldCom frauds, a flurry of articles in the business press have echoed concerns about corporate governance and accounting practices, leading some to even question the credibility of the entire financial reporting system. Hence, future pervasive and expanding earnings management may be put under the spotlight as well.

There are many studies in the US that investigate earnings management motivations and effects. Using a sample of 653 observations, Bartov (1993) identifies two common motivations for a connection between asset sales and earnings management in the US: the earnings-smoothing hypothesis (i.e., there is a negative relationship between change in earnings per share exclusive of income from asset sales and income from asset sales) and the debt-equity hypothesis (i.e., there is a positive relationship between debt-equity ratio and income from asset sales).

In this paper, we re-examine the Bartov's (1993) earnings-smoothing hypothesis and the debt-equity hypothesis using a Canadian sample to find whether Canadian firms engage in asset sales, particularly the sales of long-lived assets (like property, plant and equipment) and the sales of investments (like investment properties and marketable securities), in order to manage reported earnings, and to verify

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[2] Thanks to an anonymous referee for proposing this possible motivation.

whether such results hold for a sample of publicly traded Canadian firms.

Burgstahler and Dichev (1997) argue that incentives for earnings management tend to be asymmetric: firms with poor economic performance have greater, and possibly different, incentives to manage earnings than firms exhibiting strong economic performance. On the other hand, Robb (1998) shows that managing earnings is one way of avoiding adverse market reactions to earnings disappointments. Yet, there are not enough papers addressing the same issues in Canada, which is one motivation for this paper. Black et al. (1998) find that income smoothing through the use of asset sales is generally less prevalent in countries which allow asset revaluation, and that earnings management appears to be related to the accounting treatment of gains and losses on the disposal of previously re-valued assets.

On another front, earnings smoothing reduces the estimated volatility of the underlying earnings process and thus the estimated probability of bankruptcy by various claimants (i.e., lenders, customers, workers, and suppliers). Earnings smoothing, therefore, potentially benefits shareholders by reducing borrowing costs as presented by Dechow et al. (1995), improving terms of trade as shown by Trueman and Titman (1998), and minimizing compensation costs for shareholders' preferred actions (internal or stewardship reasons); and by influencing prospective investors' perceptions of the company's value (external reasons) as demonstrated by Dye (1988).

The literature about the effect of debt covenant restrictions on mixed samples of firms shows that the closer the firm is to violating debt covenant restriction, the more likely the firm's manager will adopt income-increasing accounting choices. [See Christie (1990) and Skinner (1993) for a summary of the evidence on this issue].

This evidence on US firms may not apply to other countries such as Canada. Also, as noticed by Elfakhani and Foltz (2001), the Canadian and American circumstances differ. Canadian markets are thinly traded and are largely made up of small firms, while American markets are heavily traded and are largely made up of big firms. Also, Booth and Johnston (1984) suggest that individual investors dominated the Canadian equities market in the 80s, while institutions and professional traders tended to dominate American markets.

The picture in the nineties was not grossly different. There also exist differences between Canada and the US pertaining to taxes. In 2000 the Government of Canada introduced a Five-Year Tax Reduction Plan – the largest tax cut in the country's history aimed at creating a tax advantage for investment and entrepreneurship in Canada. Differences in tax rates (or exemptions) as noted by Elfakhani and Lung (2003) can affect the desire of investors to move their cash holdings from one market to another, thus improving or worsening the trading activities in the deserted market. In particular, lower taxes reduce the need for earnings management where managers smooth income in order to evade high tax payments. Thus, it is worth investigating Canadian firms for any possible differences in behaviour from their American counterparties.

The Canadian literature on this subject is still scarce. Thus, we replicate Bartov's (1993) hypotheses using Canadian data. Despite some similarities in the methodology between this study and that of Bartov (1993), many differences exist. In our study, some new variables are introduced. Namely, we introduce the ratio of sales of investment over sales of long-lived assets $SIV/SPPE_{i,t}$ to directly assess differences in sources of income from assets sales and the use of their proceeds while avoiding collinearity problem. Second, we also test for any explanatory relationship between market value of common equity ($MVCE_{i,t}$) as a proxy for firm size and income from assets sales. Third, we examine the period following the year 2000 tax reduction compared to before the tax change and its influence on the direction of income from assets sales. Moreover, our Canadian sample is categorized into action (i.e., engaged in asset sales) and a control group of non-action firms (i.e., did not have a change in assets) in order to capture the comparative differences in characteristics of firms engaged in asset sales. Finally, our study is performed over a period of five-years from 1998-2002 as opposed to the three-year period from 1987-1989 studied by Bartov.

Results showed that Canadian companies that were engaged in assets sales (action firms) were mainly reporting zero income or even losses from such sales, and thus were managing earnings downward rather than upward. This observation, however, differs depending on the level of EPS (high or low) and leverage (high or low). So, although we found a negative relationship between change in EPS and income from asset sales and a positive relationship between debt-equity ratio and income from asset sales, these findings must be interpreted with caution as other reasons could offer alternatives. For instance, Canadian firms engagement in asset sales was not influenced by changes in tax code as the tax reduction plan in Canada had a weak positive effect on income from asset sales. Also, management bonus plans were not controlled in our study; yet they may have influenced the decisions related to asset sales. Also, our sampled Canadian firms appear to have shortages in liquidity that may have driven their asset sales programs. These issues deserve further attention in future research.

The US sample had higher percentage of firms with positive change in EPS before income from asset sales (55% compared to 44% in our Canadian sample), implying Bartov's sample of US firms had more profitability growth than our sample of Canadian firms. Also, the US firms had lower debt-equity ratios than the Canadian firms, and are thus

financially healthier. Yet, Canadian firms did not engage in asset sales in order to smooth earnings upward as was expected to be found, which also implies that asset sales is not one of the popular ways used to do it.

This paper proceeds as follows. Section II discusses testable hypotheses and data sampling. Section III details our tests results. Finally, section IV summerizes the major conclusions reached in this paper.

II. Hypotheses Development and Sampling Procedures

This study tests two hypotheses using a sample of Canadian firms. The earningssmoothing hypothesis as explained by Bartov (1993) suggests that earnings are manipulated to reduce fluctuations around some level considered normal for the firm. Hermann et al. (2003) argue that by selecting and timing the specific assets sold, management can influence the income recognized each period from the sale of assets. When current performance is below expectations, managers have an incentive to recognize holding gains in the current period and save holding losses for recognition in future periods. Similarly, when current performance is above expectations, managers can recognize holding losses in the current period and save holding gains for recognition in future periods.

Both US GAAP and Canadian GAAP do not allow asset revaluations. This creates an incentive to use asset sales for earnings management. Brown (1999) argues that income from assets sale has a discretionary component: the timing of asset sales, and in some cases even the choice of assets to sell, can strategically bridge gaps between historical cost and market value into income.

Poitras et al (2002) suggest that earnings smoothing achieves a level of earnings that is less variable than would be observed in the absence of management intervention. One explanation is that it is a way for a company to report a level of earnings consistent with market expectations or to signal the level of expected future earnings, and is rewarded by investors' willingness to pay higher price for a firm with a smoother income stream (Ronen and Sadan, 1981). Similarly, reduced variability in a firm's earnings stream can improve its implicit or explicit contracting terms (e.g., Bowen et al., 1995). Smoothing could also help lower the firm cost of capital due to the removal of information asymmetries between management and investors (Botosan, 1997). However, smoothing activities could also impose costs that may outweigh any potential benefits. For instance, Lang et al. (1995) find that sales of investment assets would influence choices of finance sources, normally in favor of a preference rank below current earnings but above debt increases or new issues of equity.

Firms with strong earnings growth will generally have a larger pool of current earnings to finance expansion than firms with declining earnings. In our test of the earnings-smoothing hypothesis, we expect a negative relationship between income from asset sales and change in earnings per share exclusive of asset sales. The normal benchmark around which income is smoothed is specified by previous year's EPS (as suggested by Bartov, 1993). When the current year earnings for a firm is weaker than that of the previous year, this firm might have an incentive to engage in asset sales in order to increase income from such sales and smooth earnings upward. When the managers expect stronger firm performance in the current year compared to that of the previous year, it will be less incited to engage in asset sales in order to smooth earnings upward, or may even smooth them downward so to not raise expectations regarding future earnings beyond normal levels.

The debt-equity hypothesis suggests that shareholders must pay higher interest rates as insurance against their own strategies, but they frequently accept protective covenants imposed by bondholders in exchange for lower borrowing rates. Negative covenants limit or prohibit actions the company may take like dividend distribution, pledging more assets to other lenders, merging with another firm, and issuing long-term debt. Positive covenants allow management to maintain its working capital at a minimum level or furnishing periodic financial statements to the lender (see Ross et al, 1999). Further, as argued by Poitras et al (2002), changes in these numbers can cause changes in the restrictions imposed by debt covenants that could lead to wealth transfers between debt-holders and shareholders and alter the probability of covenant default. It follows that managers act to minimize technical violation of accounting-based restrictions in debt agreements by earnings manipulation.

From the above it can be implied that firms with high debt-to-equity ratios are motivated to engage in 'real' activities, such as timing asset sales, to reduce the restrictions imposed by debt covenants, and to minimize the probability of covenant default. In this connection, timing the recognition of the gains from sales of assets with market values exceeding book values reduces the debt-to-assets ratios commonly used in debt covenants. This action loosens the covenant restrictions and, consequently, minimizes the probability of financial covenant default. Therefore, as concluded by Poitras et al (2002), if debt covenant restrictions do induce asset sales, it is expected that the higher the debt-equity ratio is, the higher the level of asset sales will be; thus implying a positive relationship between the deb-to-quity ratio and income from asset sales. Bartov (1993) confirmed this positive relationship by finding that high leveraged firms did engage in more sales of assets and achieved higher income from assets sales in order to

smooth earnings upward as compared to low leveraged firms.

In order to test earnings smoothing practices in Canadian markets, we gather our sample from the COMPUSTAT Global Database comprising 500 Canadian firms incorporated. All companies in the study are industrial; financial companies are excluded due to the fact that they have a different capital structure. The sample covers the five-year period from 1998-2002.

We opted to limit our study to data from 1998 to 2002 for several reasons. Although oil prices have quadrupled since 2003 to unprecedented levels (22% annual increase during the 2003-2007 period), the average annual percentage growth in oil prices was nearly similar in the 1998-2002 period (21%). Yet, the Canadian dollar remained below $0.70 during the 1998-2002, then it jumped from a bottom low of US $0.65 in 2002 to near $1.07 recently (i.e., 32% increase on average per year). By comparison, there was only a 7% average annual increase in the trade of balance surplus compared to 29% annual increase during our sampling period (1998-2002). Statistics also show that most of this surplus is driven by energy exports, thus suggesting a mere improvement in Canadian commodities exports, which underscores that rising currency values have likely worsened the conditions for growth of Canadian companies. This situation has been made more difficult by the emerging fierce competition from China and India. Therefore, the period since 2003 is considered different in characteristics and can be noisy, thus confounding our results, so we decided to restrict our sampling period to 2002.

As part of our applied selection criteria, all observations included had the following eight variables: sales of investments, sales of long-lived assets, income from asset sales reported as ordinary income, common shares used to calculate primary EPS, book value of long-term debt, pre-tax annual income, book value of stockholders' equity, and stock price at fiscal year-end.

The final sample consists of 118 companies with 584[3] sample point observations belonging to 79 different standard industrial classification (SIC) industries[4], of which 229 firms (i.e., 44%) had

positive changes in EPS, while 288 firms had negative changes in EPS.

Of the same sample, 290 firms had high leverage, and 288 had low leverage firms[5].

Furthermore, the sample is divided into 315 action firms (i.e., engaged in asset sales) and 235 non-action firms (i.e., firms that did not do asset sales). That is 62% of our sample actually engaged in asset sales and were candidates for income smoothing behavior. Besides the 118 sampled firms, a control sample of 342 other COMPUSTAT Canadian firms is chosen for additional comparative reasons.

Table 1 provides a summary of descriptive statistics for the testing sample and control sample. Four variables are presented in Table 1 (over the five year period 1998-2002). The first three measures pertain to proxies of firm size (namely, market value of common equity, annual sales, and total assets), and the fourth one is a proxy for short-term liquidity (namely, current ratio).

A comparison of the first three quartiles of each variable using the non-parametric univariate Wilcoxon Rank Sum Test shows that there is no significant difference in firm-size measures of market value of common equity and annual sales between the sample medians and the control sample firms' medians, while the sample firms' median for total assets is lower. This means that the sampled firm size portfolio is mostly equal to other Canadian firms in the control group (but with smaller total assets). With respect to current ratio, the sample's median is higher than that of the control sample median, which is a sign of firms being more liquid and financially healthier. In comparison with the US firms in Bartov's (1993) study, Canadian firms appear to be much smaller in size than US firms although they are not much different with respect to liquidity.

III. Empirical Evidence

To test the earnings smoothing hypothesis, the sample is divided into two groups: firms with positive change in EPS and firms with negative change compared to the previous year. To test the debt-equity hypothesis, the sample is also divided into two groups: firms with high leverage and firms with low leverage based on the median debt-equity ratio of the sample and leverage is measured at the beginning of the observation year (in accord with Bartov, 1993).

We run two rounds of tests. In the first round, we replicate Bartov's methodology and his variables, while in the second round we introduce a new set of variables and a new way of categorizing the data. So,

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[3] 6 sample point observations were dropped because they were considered as outliers: four extremely high debt-equity ratios and two high market values of common equity observations. In addition, 61 sample points had no reported earnings per share data. Thus the final sample for change in EPS is 517 distributed among action and no-action firms.

[4] Hence, our sample has no clustering problem as it includes a broad cross-section of firms that are so diversified belonging to a variety of sectors. This diversity renders any micro analysis by sector meaningless.

[5] Firms were classified into high leverage and low leverage based on the median of the debt-to-equity ratio of the sample. 54 sample points had no reported earnings per share data.

first we take the whole Canadian sample (without dividing it into

[Insert Table 1 about here]

action and non-action firms).

Descriptive statistics and comparative analysis results are reported in Table 2. As can be seen from Panel A in the table, the two samples are significantly different with respect to the mean of change in EPS level, so both sub samples are distinct in this context. Income from asset sales is negative for both EPS groups, suggesting that there is a negative relationship between income from asset sales and change in EPS exclusive of income from asset sales, which is consistent with the results observed by Bartov (1993) in his study of US firms. Panel A also shows that there is no statistically significant difference between the two groups of positive and negative changes in EPS with respect to size (MV of equity), level of risk (beta), and liquidity (current ratio). However, the positive change in EPS sub-sample appears to be significantly more leveraged and to a certain extent more engaged in fixed asset sales and less engaged in sales of investments than the negative change in EPS sub-sample. In particular, the negative EPS change group has negative debt-equity ratio, suggesting that this group is dominated by distressed firms with negative book value of equity. We also notice that positive change in EPS firms (i.e., firms with improved EPS from the year before) report more losses (i.e., less income) from asset sales than the negative EPS change group. The latter finding implies that for positive EPS growth Canadian firms, the

decision to sell both fixed assets, though at loss, and investment assets is likely driven by real factors such as the need to renew or expand real assets rather than income smoothing.[6] On the other hand, decreasing EPS Canadian firms are likely pressed to engage in asset sales probably to improve liquidity, reduce risk and leverage.

With regard to testing the debt-equity hypothesis, the sample is divided into two groups: firms with high leverage and firms with low leverage, separated by the debt-equity ratio median of the sample. Therefore, high leverage firms are firms with debt-equity ratio higher than the median of the sample and low leverage firms are firms with debt-equity ratio lower than the median of the sample.

Table 2 – Panel B presents both high-leverage and low-leverage firms for the whole sample. The high and low leverage samples are significantly different with respect to both mean and median. The table reports that high leverage Canadian firms (i.e., high book-value based debt-equity ratios) are significantly bigger in size (proxies by MV of equity),

less liquid, and are significantly more engaged in the sales of fixed assets and investment assets

[Insert Table 2 about here]

than low leverage firms. However, the high-leverage Canadian firms are significantly less risky than the low leverage group (there was no similar evidence found in the US-based Bartov's 1993 study).

The table also shows that the high leverage group is dominated by distressed firms with declining EPS. However, the difference between the two leverage groups with respect to EPS changes is statistically insignificant, suggesting that differences in EPS have no effect on the debt-equity hypothesis. Yet, the mean level is much lower than what is reported in Panel A, suggesting that both high and low leverage groups are not clustered with respect to reported earnings. The table also shows that high leverage firms are significantly more engaged in asset assets sales than low leverage firms (almost five times more) but with fewer losses from assets sales. Thus, there is indirect evidence that the debt-equity ratios are positively correlated to income from asset sales for the high leverage group.

Table 3 presents reports the results of univariate tests of the sample after dividing it into action and non-action firms with positive (Panel A) and negative (Panel B) changes in EPS. Panel A reports that there are 146 action firms and 83 non-action firms with positive changes in EPS. Action firms with positive change in EPS appear to be significantly bigger in size than non-action firms (the median market value is 272.6 and 208.9 respectively). In addition, action firms appear to be less risky than non-action firms (a beta of 0.67 versus 1.02 respectively) and more leveraged than non-action firms (the average debt-equity ratio is 68.4% compared to 48.7%). More, action firms appear to be significantly less liquid than non-action firms (the mean current ratios are 2.7 and 6.12, respectively). Moreover, action firms reported an average total asset sales of 5.95% comprised of 3.66% in sales of investments and 2.29% in sales of long-lived assets. Thus, Canadian firms with positive change in EPS (exclusive of income from asset sales) did engage in asset sales, but they reported losses from such asset sales.

Table 3 Panel B presents both action and non-action firms with negative change in EPS. There are 172 and 116 sample point observations respectively. Once again, action firms appear to be significantly bigger in size, less risky, more leveraged and significantly less liquid than non-action firms. Further, negative change in EPS firms exclusive of income from asset sales did engage in asset sales, both investment and long-lived assets, but reported losses from such sales.

When comparing the positive and negative changes in EPS groups within the action firms

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[6] Thanks to an anonymous referee for this proposed explanation of our results.

sample, table 3 reports no significant difference among Canadian firms in terms of firm

[Insert Table 3 about here]

size (using market value of equity), risk level (using beta), or liquidity (using current ratio levels). However, positive change in EPS action firms seems to be more leveraged than negative change in EPS action firms and the difference is statistically significant at less than 1%. This means that more losses are reported by positive change in EPS action firm's subsample than those reported by negative changes in EPS for action firms. Overall, Table 3 reveals that Canadian firms report losses from asset sales as opposed to positive income from asset sales in the US. Therefore the earnings smoothing hypothesis is supported in the study.

There is a relationship between change in EPS before income from asset sales and income from asset sales. This relationship is negative. Positive change in EPS firms did report higher losses than the ones reported by negative change in EPS firms. With regard to testing the debt-equity hypothesis, the full sample is divided into action and non-action sub-samples. The debt-equity hypothesis implies that there is no relationship between the debt-equity ratios and the income from asset sales for both groups of firms with high and low leverage.

Table 4 – Panel A presents the results for both action (200) and non-action (90) firms in the high leverage group. The non-action sub sample has no data for the four variables related at assets sales and income from sales as no sales were incurred by these firms. Action firms with high leverage are significantly less risky than high leverage non-action firms. The mean of common-stock BETA for action firms is 0.59 while it is 0.76 for non- action firms. Action firms also appear to be less liquid than non-action firms (the current ratio of action firms is 1.6 relative to 2.1 for non-action firms). There is no significant difference between action and non-action sub-samples of high leverage firms with respect to size, where the means of market value of common equity are 868 and 795 respectively. Also, there is no significant difference with respect to change in EPS, where both sub-samples' means are 0.99% and -0.14% respectively. From the above, we can infer the characteristics of action firms with high leverage. Further, while high leverage action firms did engage in asset sales, but, on average, they report losses (i.e., less income) from such sales.

Table 4 - Panel B presents action and non-action firms with low leverage. There seems to be significant difference between action and non-action firms with low leverage with respect to change in EPS. Action firms appear to have worse performance than in their previous year. Action firms are bigger in size (market value of equity), less risky (beta) than non-action firms, and less liquid (current ratio) than non-action

firms. Again, low leverage action frims did engage in asset sales and reported losses from such sales.

[Insert Table 4 about here]

The two hypotheses (i.e., earnings-smoothing and debt-equity) are also jointly tested using regression analysis, with two new variables not present in Bartov's (1993) model. The multiple regression model is as follows:

$$ASSIN_{i,t} = a_0 + a_1 \delta EPS_i + a_2\ DETEQ_{i,t} + a_3\ SIV/SPPE_{i,t} + a_4\ MVCE_{i,t} + e_i$$

Where,

$ASSIN_{i,t}$ = income from asset sales per share of the ith firm in year t deflated by the stock price at the beginning of the year, and it includes income from both sales of investments and sales of long-lived assets.

$\delta EPS_{i,t}$ = change in pre-tax annual ordinary income per share exclusive of income from asset sales of the ith firm in year t scaled by the stock price at the beginning of the year.

$DETEQ_{i,t}$ = the ratio of total debt to total equity of the ith firm in year t.

$SIV/SPPE_{i,t}$ = the ratio of sales of investment over sales of long-lived assets of the firm in year t.

$MVCE_{i,t}$ = the market value of common equity of the ith firm in year t.

e_i = residual term.

In the above regression model, $REPS_{i,t}$ and $DETEQ_{i,t}$ variables are used to test the earnings-smoothing hypothesis and the debt-equity hypothesis, respectively. The $SIV/SPPE_{i,t}$ is used to control the effect of the type of asset sold with respect to income from such sales, and the $MVCE_{i,t}$ used to control the effect of firm size on income from asset sales.

We tested this regression model, once using the whole sample of Canadian firms, and a second time using only action firms, and the results are reported in Table 5. The first set of regression tests presented in Panel A is run on five sub-samples: the full sample, positive change in EPS firms, negative change in EPS firms, high leverage firms, and low leverage firms. With the exception of the negative change in EPS sub-sample, the coefficient of the change in annual income exclusive of income from asset sales (δ EPS), a_1, is negative and significant at the one percent level, implying a negative relationship between $ASSIN_{i,t}$ and $\delta EPS_{i,t}$, thus confirming the results reported in Table 3. This finding is consistent with

Bartov's (1993) US-based evidence on earnings smoothing hypothesis. For the debt-equity ratio, all sub-samples excluding low leverage sub-sample have the positive coefficient of debt-equity, a_2, implying a positive relationship between $ASSIN_{i,t}$ and $DETEQ_{i,t}$, i.e. as the debt-equity ratios decrease, profits from asset sales decrease (or lead to further losses). The same relationship was found for US firms by Bartov; however, his results were statistically

[Insert Table 5 about here]

significant, while ours was statistically insignificant. As for the ratio of sales of investment over sales of long-lived assets, the relationship is negative and statistically significant, implying that as investment sales increase above fixed-assets sales, income from such sales is less. In other words, while sales of investment sales at a loss have no tax benefits, losses from such sales can be afforded as these firms have already comfortable liquidity level. This effect is incremental to the positive EPS change group losses from similar sales. Finally, the four sub-samples (excluding negative change in EPS sub-sample) shows that there is a negative, but statistically insignificant, relationship between $ASSIN_{i,t}$ and $MVCE_{i,t}$. As the firm size (proxied by market value of common equity) increases, income from asset sales decrease or the loss from sales of assets increase.

With regard to the action firms group only, the second set of regression tests presented similar results as shown in Table 5 – Panel B with respect to the coefficients a1, a2, a3, and a4 and their signs as well as the sub-samples concerned. As for the ratio of sales of investment over sales of long-lived assets, three sub-samples which are the full sample, positive change in EPS, and low leverage, have their coefficients of regression, a3 negative and significant, at 1%. Finally, the four sub-samples, excluding negative change in EPS subsample, have coefficients of market value of common equity, a4, negative, but insignificant.

The regression model for both Panels A and B also included a dummy variable differentiating the period before the implementation of tax reduction plan 1998-2000 (dummy variable = 0) from the period after 2001-2002 (dummy variable = 1). The coefficient for this variable is consistently positive, implying a weak positive association between tax reduction and income from asset sales, but also implying that this relationship is statistically insignificant. Hence, tax reduction had no direct effect on earnings management decisions.

This is not surprising especially that most asset sales are investment related that do not benefit from tax changes.

Finally, Table 6 presents asset sales as a percentage of annual asset sales by fiscal quarter for both long-lived assets and investments. Unlike Bartov's (1993) findings for the US, both sales of long-lived assets and investments are equally distributed over the four fiscal quarters, implying that there is no evidence of clustering of asset sales (i.e., seasonality) in the fourth quarter in the Canadian sample. Once again, this evidence is consistent with our findings of asset sales being driven by reasons other than earnings smoothing.

[Insert Table 6 about here]

IV. Conclusions

This study examines the issue of whether managers of Canadian firms manipulate the timing of asset sales, especially long-lived assets and investments, to manage reported earnings by taking advantage of the acquisition-cost principle underlying the accounting valuation of assets.

The earning-smoothing hypothesis and the debt-equity hypothesis are tested on this Canadian sample for the 1998-2002 period. Our results indicated that 47% of Canadian firms in our action-firms sub-sample report losses regardless of whether they have positive or negative change in EPS, 34% report zero income (i.e., no gain/no loss), while only 19% report gains (compared to 61% in Bartov's 1989[3] study). Thus, 81% of Canadian firms report zero income or losses from sales of assets as opposed to the income from asset sales observed in the US study. In addition, both high leverage and low leverage action firms did report losses from asset sales with the same percentages.

On the surface, our regression results support the earnings-smoothing hypothesis (negative relationship between asset sales and EPS changes) and the debt-equity hypothesis (positive relationship between asset sales and leverage). Also, it is found that firms experiencing positive change in EPS before income from asset sales incur more sales of longlived assets and investments but with more losses than firms with negative change in EPS, suggesting a negative relationship between the change in earnings per share before income from asset sales and income from asset sales. The fact that Canadian firms in our sample engage in assets sales most often incurring losses suggests that they may do that for corporate governance reasons other than earnings smoothing. For the sample of positive change in EPS exclusive of income from asset sales, engagement in asset sales seems geared to cut companies losses short and to smooth earnings downward while in a good year. For the negative EPS change group, the reported losses from asset sales may be driven by other possible reasons such as tax policies (when selling fixed-assets), seeking government subsidies, influencing managers' bonus plans, management change, liquidity, and earnings forecasts reasons.

As for the debt equity hypothesis, high leverage firms were more engaged in total asset sales than low leverage firms, but reported fewer losses. Therefore, there is a positive relationship between the debt equity ratio and income from asset sales. Thus, overall it appears that since Canadian firms are reporting mostly losses from asset sales, then such sales are made possibly because of fear from violating debt covenants, or to improve their liquidity, or meet their cash needs, among other things.

When positive and negative change in EPS firms before income from asset sales and high and low leverage firms were divided into action and non-

action sub-samples, it was observed that all action firms were larger, less risky and less liquid than non-action firms, which can justify the firms' engagement in asset sales at losses. Further, unlike Bartov's (1993) evidence for the US firms, our study shows that sales of both long-lived assets and investments are equally distributed over the four fiscal quarters, suggesting that Canadian firms do not engage in selling assets specifically at year end in order to smooth earnings, but probably for the other corporate governance-related reasons stated above.

As for the ratio of sales of investment over sales of long-lived assets, the regression shows a negative relationship with asset sales. Also, firm size was found to be negatively related to asset sales, suggesting that the bigger the firm, the more it is engaged in asset sales.

Finally, the tax reduction plan in Canada had a weak positive effect on income from asset sales.

Comparing the Canadian results to those of Bartov (1993), there are differences between the two samples. The US sample had higher percentage of firms with positive change in EPS before income from asset sales (55% compared to 44% in our Canadian sample), implying Bartov's sample of US firms had more profitability growth than our sample of Canadian firms. Also, the US firms had lower debt-equity ratios than the Canadian firms, and are thus financially healthier. Yet, Canadian firms did not engage in asset sales in order to smooth earnings upward as was expected to be found, which also implies that asset sales is not one of the popular ways used to do it.

Lastly, we recommend that future research examines the relationship between analysts' forecasts and earnings management through asset sales and the interaction between firm size and earnings management. Also, bonus plans in Canada is an area worthy of further investigation. This may tell us more about earnings smoothing activities.

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Table 1. Descriptive Statistics for the Testing Sample (118 Sampled Firms) and the Control Sample (342 Remaining COMPUSTAT Firms)

Statistic	Sample (118 Firms)			Other COMPUSTAT Firms (342 Firms)			Wilcoxon Rank Sum Test	
	Q1	Median	Q3	Q1	Median	Q3	z-statistic	p-value
Market Value of common equity ($million)	95.31	240.18	684.90	87.02	244.22	1074.58	-1.07	0.2856
Annual sales ($million)	56.15	256.49	713.32	46.69	244.79	1125.38	-1.43	0.1517
Total Assets ($million)	105.30	289.10	694.38	101.36	407.14	1572.15	-4.06	0.0001**
Current Ratio	1.28	1.93	3.07	0.96	1.52	2.54	7.00	0.0000**

**significant at the 5 percent level or less

Table 2. Descriptive Statistics and Comparative Analysis of Canadian Firms Categorized Based on Positive or Negative Changes in EPS for the Full Sample

Panel A: Full Sample	Positive δ EPS (n=229)		Absolute Value of Negative δ EPS (n=288)		p-value [2]	
Statistic [1] (n=517)	Mean	Median	Mean	Median	For Mean	For Median
δ EPS	15.88%	6.54%	14.71%	5.99%	0.0347**	0.6602
Market value of common equity	781.22	253.46	806.26	276.31	0.8339	0.5754
Common-stock BETA	0.92	0.74	0.89	0.73	0.6937	0.3628
Debt-equity ratio	45.43%	31.51%	-36.58%	28.06%	0.0000**	0.4776
Current ratio	3.97	1.93	3.96	1.97	0.9837	0.5222
Sale of investments divided by MVCE	2.32%	0.00%	2.72%	0.00%	0.7647	0.0910*
Sale of fixed assets divided by MVCE	1.45%	0.00%	0.91%	0.00%	0.2306	0.4592
Total sales of assets divided by MVCE	3.77%	0.20%	3.63%	0.07%	0.9280	0.0802*
Income from asset sales scaled by MVCE	-0.95%	0.00%	-0.12%	0.00%	0.0009**	0.0358**

** significant at the 5 percent level or less

Panel B: Full Sample	High Leverage (n=290)		Low Leverage (n=288)		p-value	
Statistic (n=578)	Mean	Median	Mean	Median	For Mean	For Median
δ EPS	-0.99%	-0.12%	0.51%	-0.25%	0.5814	0.6600
Market value of common equity	955.99	326.59	546.62	214.84	0.0001**	0.0000**
Common-stock BETA	0.64	0.59	1.16	0.97	0.0000**	0.0000**
Debt-equity ratio	121.00%	76.42%	-105.63%	1.43%	0.0005**	0.0000**
Current ratio	1.76	1.62	5.96	2.62	0.0000**	0.0000**
Sale of investments divided by MVCE	4.96%	0.00%	1.04%	0.00%	0.0040**	0.3222
Sale of fixed assets divided by MVCE	2.03%	0.18%	0.47%	0.00%	0.0002**	0.0000**
Total sales of assets divided by MVCE	6.99%	0.39%	1.51%	0.01%	0.0003**	0.0000**
Income from asset sales scaled by MVCE	-0.60%	0.00%	-1.09%	0.00%	0.2215	0.0640*

* significant at the 10 percent level or less

[1] δ EPS is the change in pre-tax annual ordinary income, exclusive of income from asset sales, deflated by beginning-of the year stock price for the event year. Debt-equity ratio and current ratio are as of the beginning of the year. The sale of investments, sale of fixed assets, and income from asset sales are all deflated by Market Value of Common Equity as of the beginning of the event year.

[2] The z-statistic tests the null that the mean (median) of the positive change In EPS action firms equals that of the negative change in EPS action firms using the student-t test and the Wilcoxon Rank Sum Test.

Table 3. Descriptive Statistics and Comparative Analysis of Canadian Firms Categorized Based on Positive or Negative Changes in EPS, and on Being Action or Non-Action Firms

Panel A:

Statistic[1]	Action Firms (n= 146)				Non-Action Firms (n= 83)				p-value [2]	
	Median	Mean	Max.	Min.	Median	Mean	Max.	Min.	Mean	Median
δ EPS	6.01%	16.03%	237.33%	0.10%	6.61%	15.62%	146.89%	0.13%	0.9134	0.6107
Market value of common equity	272.62	813.01	5527.63	13.20	208.91	517.52	5512.67	4.24	0.0625*	0.0472**
Common-stock BETA	0.67	0.77	3.42	-0.88	1.02	1.16	3.85	-0.19	0.0002**	0.0002**
Debt-equity ratio	40.39%	68.44%	769.69%	-303.46%	20.04%	48.68%	355.26%	-194%	0.0000**	0.1048
Current ratio	1.90	2.70	23.76	0.47	1.95	6.12	42.41	0.01	0.0001**	0.1496
Sale of investments divided by MVCE	0.00%	3.66%	107.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0131**	0.0000**
Sale of fixed assets divided by MVCE	0.30%	2.29%	76.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0050**	0.0000**
Total sales of assets divided by MVCE	0.95%	5.95%	135.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0015**	0.0000**
Income from asset sales scaled by MVCE	0.00%	-1.49%	0.51%	-54.01%	0.00%	0.00%	0.00%	0.00%	0.1544	0.0010**

Positive δ EPS   (n = 229)

Panel B:

Statistic[1]	Negative δ EPS (n = 288)									
	Action Firms (n= 172)				Non-Action Firms (n= 116)				p-value [2]	
	Median	Mean	Max.	Min.	Median	Mean	Max.	Min.	Mean	Median
δ EPS	-5.34%	-13.96%	-0.08%	-242.79%	-6.68%	-15.82%	-0.11%	-148.82%	0.5713	0.4192
Market value of common equity	341.05	881.20	8090.85	7.95	218.52	695.13	8571.89	3.15	0.2571	0.0171**
Common-stock BETA	0.60	0.77	4.22	-0.60	0.86	1.05	5.50	-0.52	0.0065**	0.0215***
Debt-equity ratio	37.84%	67.27%	1347.52%	0.00%	13.48%	44.04%	635.1%	0.00%	0.0000***	0.0002**
Current ratio	1.77	2.52	37.57	0.28	2.37	6.00	67.40	0.56	0.0001**	0.0000***
Sale of investments divided by MVCE	0.00%	4.56%	182.80%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0354**	0.0000***
Sale of fixed assets divided by MVCE	0.28%	1.52%	52.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0029**	0.0000***
Total sales of assets divided by MVCE	0.59%	6.08%	197.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0089**	0.0000***
Income from asset sales scaled by MVCE	0.00%	-0.20%	10.80%	-11.06%	0.00%	0.00%	0.00%	0.00%	0.0155**	0.0001**

** Significant at the 5 percent level or less
* Significant at the 10 percent level or less

[1] δ EPS is the change in pre-tax annual ordinary income, exclusive of income from asset sales, deflated by beginning-of the year stock price for the event year. Debt-equity ratio and current ratio are as of the beginning of the year. The sale of investments, sale of fixed assets, and income from asset sales are all deflated by Market Value of Common Equity as of the beginning of the event year.

[2] The z-statistic test the null that the mean (median) of the negative change In EPS action firms equals that of the negative change in EPS non-

Table 4. Descriptive Statistics and Comparative Analysis of Canadian Firms Categorized Based on High and Low Leverage For Action and Non-Action Firms

Panel A:

| Statistic [1] | High Leverage Firms (n = 290) | | | | | | | | | |
| | Action Firms (n= 200) | | | | Non-Action Firms (n= 90) | | | | P-Value [2] | |
	Mean	Median	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Debt-equity ratio	97.82%	78.12%	416.16%	30.51%	98.79%	63.49%	462.78%	31.51%	0.9236	0.1950
δ EPS	0.99%	0.18%	138.78%	-144.26%	-0.14%	-0.44%	59.29%	-70.19%	0.7227	0.6324
Market value of common equity	867.70	290.56	6080.95	18.61	795.32	385.16	5337.20	12.27	0.6599	0.5964
Common-stock BETA	0.59	0.52	2.39	-0.88	0.76	0.69	4.94	-0.52	0.0326**	0.1259
Current ratio	1.62	1.61	5.30	0.40	2.08	1.71	11.58	0.37	0.0017**	0.1079
Sale of investments divided by MVCE	7.07%	0.00%	182.80%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0143**	0.0000**
Sale of fixed assets divided by MVCE	2.90%	0.57%	76.51%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0011**	0.0000**
Total sales of assets divided by MVCE	9.97%	1.00%	197.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0020**	0.0000**
Income from asset sales scaled by MVCE	-0.85%	0.00%	61.13%	-55.84%	0.00%	0.00%	0.00%	0.00%	0.0000**	0.0005**

Panel B:

	Low Leverage Firms (n = 289)										
	Action Firms (n= 156)				Non-Action Firms (n= 132)				p-value [2]		
Statistic [1]	Mean	Median	Max.	Min.	Mean	Median	Max.	Min.		Mean	Median
Debt-equity ratio	-2.39%	2.65%	30.50%	-495.67%	0.97%	0.58%	29.54%	-360.1%		0.5999	0.0198***
δ EPS	3.64%	0.19%	249.12%	-73.60%	-3.17%	-0.76%	146.89%	-148.8%		0.0840*	0.1786
Market value of common equity	604.02	273.67	7221.29	7.95	477.74	159.73	8571.89	3.15		0.2976	0.0004***
Common-stock BETA	0.98	0.84	4.22	-0.34	1.36	1.26	5.50	-0.36		0.0008***	0.0018***
Current ratio	3.92	2.38	37.57	0.28	8.43	3.45	67.40	0.01		0.0000***	0.0004***
Sale of investments divided by MVCE	1.92%	0.00%	60.41%	0.00%	0.00%	0.00%	0.00%	0.00%		0.0010**	0.0000***
Sale of fixed assets divided by MVCE	0.86%	0.11%	18.44%	0.00%	0.00%	0.00%	0.00%	0.00%		0.0000***	0.0000***
Total sales of assets divided by MVCE	2.79%	0.45%	60.41%	0.00%	0.00%	0.00%	0.00%	0.00%		0.0000**	0.0000***
Income from asset sales scaled by MVCE	-2.01%	0.00%	2.18%	-132.92%	0.00%	0.00%	0.00%	0.00%		0.0000**	0.0000**

** significant at the 5 percent level or less

* significant at the 10 percent level or less

[1] δ EPS is the change in pre-tax annual ordinary income, exclusive of income from asset sales, deflated by beginning-of the year stock price for the event year. Debt-equity ratio and current ratio are as of the beginning of the year. The sale of investments, sale of fixed assets, and income from asset sales are all deflated by Market Value of Common Equity as of the beginning of the event year.

[2] The z-statistic test the null that the mean (median) of the positive change In EPS action firms equals that of the negative change in EPS action firms using the student-t test and the Wilcoxon Rank Sum Test

Table 5. Multiple Regression Analysis

Panel A (Full Sample):

Model: $ASSIN_i = a_0 + a_1 \delta EPS_i + a_2 DETEQ_i + a_3 SIV/SPPE_i + a_4 MVCE_i + e_i$

Sample	Coefficients	t-statistic	p-value	Model p-value	Correlation
Full Sample					
a_0	-0.0985	-0.9362	0.3499		–
a_1	-0.2561	-3.0106	0.0028**		-0.1562
a_2	0.0080	0.1135	0.9097		0.0314
a_3	-1.1341	-3.8217	0.0002**	0.0001**	-0.2031
a_4	-0.0356	-0.2249	0.8222		-0.0643
Positive δEPS_i					
a_0	0.1526	0.6146	0.5398		–
a_1	-0.6698	-3.0368	0.0029**		-0.2753
a_2	0.0799	0.4861	0.6277		0.0461
a_3	-2.3356	-3.4776	0.0007**	0.0001**	-0.3224
a_4	-0.2820	-0.8463	0.3989		-0.0976
Negative δEPS_i					
a_0	-0.0725	-1.1922	0.2348		–
a_1	0.0230	0.4785	0.6329		0.0548
a_2	0.0160	0.4223	0.6733		0.0413
a_3	-0.1478	-0.8973	0.3708	0.7724	-0.0766
a_4	0.0424	0.4533	0.6509		0.0389
High leverage					
a_0	-0.1657	-2.2184	0.0277**		–
a_1	-0.0208	-0.3009	0.7638		-0.0171
a_2	0.0949	1.0894	0.2773		0.0843
a_3	-0.2106	-0.9430	0.3468	0.6278	-0.0773
a_4	-0.0396	-0.3312	0.7409		-0.0322
Low Leverage					
a_0	-0.0414	-0.1475	0.8830		–
A_1	-0.4814	-2.7174	0.0076**		-0.2472
A_2	-0.0400	-0.3425	0.7326		0.0145
A_3	-2.4825	-3.6173	0.0004**		-0.3216
A_4	-0.0250	-0.0663	0.9472	0.0005**	-0.0944

Panel B (Action Firms):					
Sample	Coefficients	t-statistic	p-value	Model p-value	Correlation
Full Sample					
a_0	-0.1399	-0.9194	0.3589	0.0006**	–
a_1	-0.4571	-3.3810	0.0009**		-0.2113
a_2	0.0456	0.3976	0.6913		0.0424
a_3	-1.1033	-3.0058	0.0030**		-0.1901
a_4	-0.0626	-0.2689	0.7883		-0.0816
Positive δEPS_i					
a_0	0.4087	1.1420	0.2564	0.0002**	–
a_1	-1.2668	-3.5419	0.0006**		-0.3568
a_2	0.1976	0.8530	0.3959		0.0549
a_3	-2.2344	-2.8001	0.0062**		-0.3102
a_4	-0.2839	-0.6145	0.5404		-0.1165
Negative δEPS_i					
a_0	-0.0991	-1.0632	0.2899	0.8910	–
a_1	0.0364	0.4400	0.6607		0.0532
a_2	0.0334	0.4886	0.6261		0.0579
a_3	-0.1087	-0.5165	0.6065		-0.0618
a_4	0.0580	0.4183	0.6765		0.0392
High leverage					
a_0	-0.2334	-2.1624	0.0323**	0.8039	–
a_1	-0.0261	-0.2550	0.7991		-0.0102
a_2	0.1615	1.0578	0.2920		0.0927
a_3	-0.1257	-0.4584	0.6474		-0.0521
a_4	-0.0579	-0.3401	0.7343		-0.0338
Low Leverage					
a_0	-0.227	-0.568	0.572	0.0008**	–
a_1	-1.089	-3.433	0.001**		-0.387
a_2	-0.045	-0.244	0.808		0.027
a_3	-2.303	-2.687	0.009**		-0.315
a_4	0.024	0.042	0.966		-0.127

**significant at 1% and 5%

Table 6. Testing Seasonality of Asset Sales by Fiscal Quarter

*The

	Asset Sales as a Percentage of Annual Asset Sales by Fiscal Quarter				
	Long-Lived Assets			Investments	
Fiscal Quarter	Mean	t-statistic	p-value	Mean	t-statistic* p-value
1	24.19%	0.3880		24.37%	0.4455
2	24.77%	0.4281		24.65%	0.4563
3	25.15%	0.4512		25.07%	0.4711
4	25.89%	–		25.91%	–
	100.00%			100.00%	

student-t test tests the hypothesis that the mean asset sales for the fourth fiscal quarter exceed that for the other three fiscal quarters.