



Earnings management using asset sales

Earnings
management

Interesting issues for further study under unique institutional settings

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Abstract

Purpose – The paper aims to clarify the relationship between earnings management and the sale of long-lived assets and investments for firms listed in Taiwan. In addition, it suggests several interesting issues for further studies by proposing that positive earnings are one of the necessary conditions for the companies to issue bonds or new shares.

Design/methodology/approach – The paper uses archival data and regression analysis to document empirical evidence that assets sales are one of the methods to manipulate reported earnings among 12,484 firm-years over the period of 1984-2006.

Findings – The paper finds that approximately 54-57 percent of firms in Taiwan with small pre-managed earnings losses manipulate reported earnings to show small positive earnings. This is in contrast to 30-40 percent of firms in the USA as reported by Burgstahler and Dichev.

Research limitations/implications – The paper makes a good use of the unique institutional features of Taiwan. It has not produced other unique results that differ significantly from the findings of prior studies.

Practical implications – The paper shows that reported earnings are viewed as a primary measure of firm performance and mechanisms behind earnings management have important implications in deriving informative summary measures of firm performance.

Originality/value – The paper fulfils an identified need to study how companies listed in Taiwan to beat thresholds by selling long-lived assets and investments and provides a comparison in earnings management with US companies. Moreover, it provides several suggestions for future studies.

Keywords Earnings, Capital markets, Loss, Assets, Sales, Taiwan

Paper type Research paper

1. Introduction

Reported earnings are viewed as a primary measure of firm performance. Therefore, understanding the motivations and mechanisms behind earnings management

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has important implications in deriving informative summary measures of firm performance.

Although asset sales as a way of earnings management has been investigated for decades, most studies have examined the issue with US data, with only a few exceptions (that is, China (Chen and Yuan, 2004; Haw *et al.*, 2005), Japan (Herrmann *et al.*, 2003), and Singapore (Poitras *et al.*, 2002)).

This study examines asset sales as a way of earnings management under the following unique institutional settings in Taiwan. First, the Taiwanese Government plays a substantial role in accounting policy and practice. Second, asset revaluation is not permitted in the USA, whereas it is permitted in Taiwan. Third, probably partially in response to strict Taiwanese company law, Taiwanese newspapers often report the use of asset sales by management to window-dress external financial reporting. Fourth, Taiwan-listed companies have lower debt-equity (DE) ratios than those in the USA and Japan because Taiwan-listed companies normally raise capital by internal financing, rather than by borrowing.

These unique features suggest the importance of gaining a thorough understanding of how local conditions affect corporate reporting, rather than assuming that what applies in a company's home country applies equally when it goes global.

Hayn (1995) shows evidence that firms listed in the USA tend to avoid reporting losses. Similarly, Tung *et al.* (2008) find that firms listed in Taiwan use earnings management to avoid reporting losses and that firms with small losses are most likely to engage in earnings management.

Burgstahler and Dichev (1997) provide extensive systematic evidence to show how and why firms avoid reporting losses or earnings decreases. They adopt an unconventional approach towards testing earnings management by examining the discontinuity of earnings distribution around certain thresholds instead of by estimating abnormal accruals. Burgstahler and Dichev show that while tiny reported profits are common, tiny reported losses are uncommon. They also find that the reporting of small declines in earnings is significantly less frequent than expected, whereas the reporting of small increases in earnings is significantly more common than expected. They interpret their findings as evidence of earnings management to avoid reporting losses, to avoid reporting earnings declines, or to avoid failing to meet analysts' earnings expectations.

Specifically, they estimate that "8-12% of firms with small pre-managed earnings decreases manipulate earnings to achieve earnings increases" and that "30-40% of firms with small pre-managed losses manage earnings to create positive earnings" (Burgstahler and Dichev, 1997, p. 101).

The Burgstahler and Dichev (1997) paper has had a significant impact on accounting research; many subsequent studies use their methodology to examine earnings management, including Beatty *et al.* (2002), Dechev and Skinner (2002), Leuz *et al.* (2003), Burgstahler and Eames (2003, 2006), Frank and Rego (2006), Roychowdhury (2006), Jacob and Jorgensen (2007), Kerstein and Rai (2007), and Daniel *et al.* (2008).

Healy and Wahlen (1999, p. 368) observe that: [...] few studies have examined whether observed earnings management is attributable to a few firms or is widespread, both in the sample and in the population. This information is likely to be helpful for standard setters in assessing the pervasiveness of earnings management and the overall integrity of financial reporting. This study was undertaken to examine this issue, and we find that approximately 54-57 percent of firms in Taiwan with small pre-managed

earnings losses manipulate earnings to report positive earnings. This finding indicates that the extent to which Taiwan-listed firms manage earnings to avoid reporting losses is greater than that reported by Burgstahler and Dichev (1997) for US firms.

Our findings also show that firms reporting tiny profits have significantly larger excess income from asset sales (EIFAS) than those reporting tiny losses. This finding suggests that firms use asset sales to avoid reporting losses. In addition, when firms with EIFAS are excluded, the statistical difference for the intervals immediately to the left and immediately to the right of the zero return on assets (ROA) decreases significantly from -9.56 to -1.64 and from 5.72 to 1.62 , respectively. These findings provide additional evidence that firms use asset sales to avoid reporting losses.

The results of this study are likely to be useful not only for standard setters in assessing the extent of earnings management, but also in the ongoing debate over the choice between historical-cost (HC) and current-cost (CC) accounting (Ijiri, 1978; Financial Accounting Standards Board, 1980; *Wall Street Journal*, 1990). HC accounting numbers are considered reliable, whereas CC accounting numbers are regarded as being too subjective to be reliable, and reliability is one of the primary qualities that makes information useful for decision making (Financial Accounting Standards Board, 1980). According to the results of this study, however, HC accounting numbers may also be subject to earnings manipulation. Hence, the claim that HC accounting numbers are reliable may be questionable.

The remainder of this paper is organized as follows. Section 2 discusses key features of the institutional background and develops the hypotheses to be tested. Section 3 describes the sample selection and descriptive statistics. Section 4 reports the empirical results, and Section 5 concludes the paper.

2. Institutional background and hypothesis development

2.1 Statutory regulations governing financial reporting practices in Taiwan

A special institutional characteristic of the Taiwan stock market is the substantial role played by the government in accounting policy and practice. In 1984, Taiwan's certified public accountants (CPAs) established the accounting research and development foundation (ARDF) as an independent standard-setting body to upgrade and promote Taiwan's accounting standards. The board of the ARDF consists of 28 directors, with nine representatives from the government, nine CPAs, five representatives from academia, and five representatives from the banking and business sectors. Hence, the government plays a vital role in accounting policy making. The generally accepted accounting principles (GAAP) in the USA and the GAAP in Taiwan are quite similar because the latter basically follow the former with no or only slight adjustments. There is one important exception that is relevant to this study, i.e. although asset revaluation is not permitted in the USA, it is permitted in Taiwan.

2.2 Incentives for earnings management and hypothesis development

Several studies (Hayn, 1995; Burgstahler and Dichev, 1997; Degeorge *et al.*, 1999) have identified three earnings thresholds or benchmarks: the need to avoid reporting losses, the need to report increases in earnings, and the need to meet analysts' expectations for earnings. These studies show that firms rarely report small losses, but routinely report small profits. These researchers interpret their findings as evidence that managers manipulate earnings and alter operating decisions to avoid reporting losses.

DeGeorge *et al.* (1999) provide evidence of a hierarchy among these three earnings thresholds or benchmarks and find that relative to the other two, the need to avoid reporting losses is foremost. Once profits have been achieved, however, the need to report increases in earnings and the desire to meet analysts' expectations for earnings become an issue. In other words, if a firm has negative earnings, then sustaining an earnings increase or meeting analysts' expectations is redundant. Brown and Caylor (2005) find that the hierarchy among the three earnings benchmarks has reversed in recent years (1996-2002), that is, meeting analysts' expectations has become the primary objective. Moreover, Daniel *et al.* (2008) find that firms also tend to manage earnings to meet dividend thresholds.

As noted earlier, listed companies in Taiwan are required to report profits before they are allowed to issue bonds or new shares. Probably as a result, we find that in Taiwan, the original hierarchy of earnings thresholds is still applicable, i.e. managers consider the need to sustain earnings growth or to meet analyst expectations only after firms become profitable. Thus, similar to Jackson and Wilcox (2000) and Tung *et al.* (2008), we focus on one simple benchmark and examine whether managers time asset sales to avoid reporting losses.

The managers of Taiwan-listed firms have additional incentives to avoid reporting losses. First, Taiwan's firms rely heavily on stock dividends for financing. Of the capital that Taiwan-listed companies raised from 1981 to 1993, approximately 70 percent was through the distribution of stock dividends and the remaining 30 percent was through seasoned equity offerings (SEOs; Semkow, 1995). Stock dividends permit the capitalization of retained earnings[1] and capital funds[2] (paid-in capital) to incumbent shareholders. Shareholders prefer stock dividends to cash dividends because the former are taxed only at the par value of the stock and stockholders can earn capital gains, which are tax-exempt.

Second, retail investors, who account for the majority of Taiwan's stock market participants, prefer stock dividends because their issuance normally increases future stock prices, in turn leading to additional capital gains[3]. Hence, being able to report a profit is important for the success of a stock dividend offer.

In addition to the incentives motivating managers to manipulate reported earnings and thereby influence short-term stock price performance (Healy and Wahlen, 1999), prior research also shows that regulations can induce earnings management (Chen and Yuan, 2004; Haw *et al.*, 2005). For example, bank managers may create transactions or manage accruals for regulatory purposes (Scholes *et al.*, 1990; Collins *et al.*, 1995), and property-casualty insurers may manage their reserves to avoid reporting losses (Beaver *et al.*, 2003).

In particular, Taiwan's stock market regulations may induce firms to engage in earnings management to avoid reporting losses. Under the criteria governing the offering and issuance of securities by securities issuers statute, Taiwan-listed companies are required to have positive earnings for three consecutive years immediately prior to issuing new shares. Moreover, issuance of corporate bonds is not permitted unless a company's average reported earnings for the most recent three-year period is at least 100 percent of the total amount of interest payable on the corporate bonds to be issued.

Finally, according to the company law in Taiwan, a company cannot pay dividends or bonuses unless its losses have been covered and its legal reserves have been set aside.

If a firm has no surplus earnings, it is not allowed to distribute dividends or bonuses unless its legal reserves exceed 50 percent of its paid-in capital.

Thus, because there are both managerial and regulatory incentives for earnings management in Taiwan, we test the following hypothesis (stated in the alternative form):

H1. Firms manage earnings to avoid reporting losses.

A proxy for earnings management not only needs to be significant enough to matter, but it must also be discretionary (Schipper, 1989). Income from asset sales (IFAS, i.e. the sale of fixed assets and investments) is common among Taiwan-listed companies. More than 80 percent of our sample firms report non-zero gains or losses from asset sales. Further, gains from asset sales constitute a significant proportion of reported net income. For our sample firms, IFAS accounts for 6.6 percent of operating income, and 62 percent of non-operating income.

Taiwanese newspapers often report the use of asset sales by management to window-dress external financial reporting (e.g. by disposing of investments to avoid reporting losses). The following example (*Economic Daily News*, 28 April 2005, A3) illustrates a typical case of how Taiwan-listed firms use asset sales to avoid reporting losses:

In investors' conferences on the last day of the second season (April 27), UMC estimated that the company may suffer 3.0-3.6 billion [NTD] in operating losses during the second season. To mitigate negative impacts on stockholders, the company planned to sell equity securities to be able to report profits.

Further, reporting practices in Taiwan for fixed assets and investments also provide ample opportunities for earnings management. Fixed assets are recorded at book value (HC less depreciation) until the assets are sold. Although fixed asset impairment is not allowed in Taiwan, asset revaluation is. Also, marketable securities are recorded at the lower of cost or market value. When the cost is higher than the market value, a loss or unrealized holding loss is recorded; but when the market value is higher than the cost, the securities are valued at cost until they are sold. Generally, management has discretion over the timing of asset sales and which particular asset to sell; therefore, by controlling the timing and selection, management can increase or decrease reported earnings at relatively low cost.

This study focuses on a special component of earnings, i.e. asset sales, which occur frequently and are also material to reported earnings in the emerging Taiwan stock market. Asset sales by firms are worth testing empirically to examine whether they are related to loss-avoidance behavior. Thus, the second hypothesis is stated as follows:

H2. Firms use asset sales to avoid reporting losses.

3. Data description

3.1 Sample selection

The data used for this study are from the database of the *Taiwan Economic Journal* (TEJ). The sample covers the 23-year period from 1984 to 2006. In 1984, the Taiwan Financial Accounting Standards Committee and the Auditing Standards Committee were established; this is also when the first Financial Accounting and Auditing Standards were issued. The sample period ends in 2006 owing to data availability. Additional sample-selection criteria include the following:

- banking or financial firms are excluded from the sample to avoid contamination by the distinct characteristics of financial institutions;
- firms have to have a December fiscal year-end to ensure that all sample firms have the same returns accumulation period; and
- firms have to have financial statements available to ensure the availability of financial data.

This selection process yields 12,484 firm-year observations.

3.2 Descriptive statistics

Table I reports the summary statistics for the primary variables used in the study. The table shows that our sample consists of relatively fewer firms reporting losses than those in Burgstahler and Dichev (1997), who report negative earnings at the lower quartile in most of their sample years. Table I shows that the mean of net income (NNI), exclusive of IFAS and deflated by total assets at the beginning of the year, is lower than its median. The positive skewness indicates that most firms are at the low end of the NNI distribution.

EIFAS is measured as income from the sale of fixed assets and marketable securities, deflated by total assets at the beginning of the event year minus the median for the corresponding year and industry (by two-digit industry code)[4]. The mean EIFAS is 0.314 percent of total assets, indicating that it is material enough for many firms to manage reported earnings. Total IFAS, deflated by total assets at the beginning of the event year, is substantial as a percentage of total assets. The 75 percent quartile indicates 0.427 percent of total assets, whereas the median shows 0.0549 percent of total assets. The mean (median) of cash flow from operations (CFO) scaled by total assets is 5.73 percent (5.79 percent), indicating that its distribution is quite normal. Total assets are measured as the logarithm of the total assets (LOGTA)

Variable ^b	Mean (%)	SD (%)	Q1 (%)	Median (%)	Q3 (%)
NNI	-0.437	4.65	-1.98	0.00	0.275
EIFAS	0.314	1.43	-0.125	0.00	0.275
IFAS	0.431	1.46	0.0367	0.0549	0.427
CFO	5.73	10.80	0.457	5.79	11.53
DE	11.94	18.26	0.00	7.41	19.55
LOGTA	14.80	133.92	-2.22	14.66	15.59
GROWTH	70.60	19.29	-2.03	10.58	15.59
CURIO	208.60	227.52	116.29	157.13	232.4

Notes: ^aThe descriptive statistics are reported before deleting any outliers; ^bthe variables are defined as follows: NNI is net income exclusive of income from asset sales, deflated by total assets at the beginning of the event year; EIFAS is excess income from asset sales, deflated by total assets at the beginning of the event year, minus the median for the corresponding year and industry (by two-digit industry code); IFAS is income from asset sales deflated by total assets at the beginning of the event year; CFO is cash flow from operations deflated by total assets at the beginning of the event year; DE is the ratio of the book value of long-term debt to the book value of owners' equity at the beginning of the event year; LOGTA is the logarithm of total assets at the beginning of the event year; GROWTH is the change in net sales from the last year to the event year, deflated by total assets at the beginning of the event year; and CURIO is the ratio of current assets to current liabilities at the beginning of the event year

Table I.
Descriptive statistics
(*n* = 12,484)^a

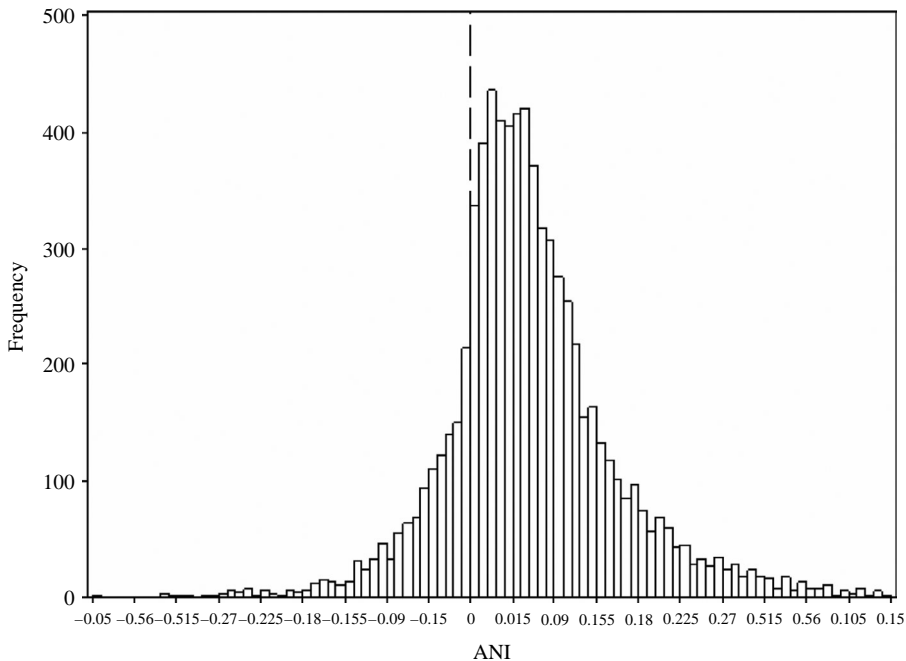
at the beginning of the event year. Similar to the results for CFO, the distribution of LOGTA assets is quite smooth. GROWTH is the change in net sales from the prior year to the event period. The mean (median) of growth is 70.60 percent (10.58 percent), indicating that the growth distribution of the sample is somewhat skewed by some fast-growth firms. The mean (median) of the DE ratio is 11.94 percent (7.41 percent), suggesting that DE ratios are lower than those in the US sample reported in Bartov (1993) and the Japanese sample reported in Herrmann *et al.* (2003).

One reason that our sample firms have low DE ratios is that large companies are able to increase their paid-in capital through large issues of shares, public offerings, preemptive rights issues, and the capitalization of retained earnings and reserves by offering stock dividends to incumbent shareholders (Semkow, 1995). Taiwan-listed companies normally raise capital by going public or through internal financing, rather than by borrowing. The current ratios (CURIO) of our sample firms are significantly higher than those of the sample firms and other Compustat firms reported in Bartov (1993). Thus, our sample firms appear to be financially healthy.

4. Empirical results

4.1 Univariate testing of H1: managers manage earnings to avoid reporting losses

Figure 1 presents a histogram of net income adjusted by total assets at the beginning of the event year[5]. Following Degeorge *et al.* (1999), the interval widths are



Notes: The distribution interval widths are 0.009 and the location of zero on the horizontal axis is marked by the dashed line, the first interval to the right of zero contains all observations in the interval (0, 0.009), the second interval contains (0.009, 0.018), and so on; “frequency” is the number of observations in a given earnings interval

Figure 1. The distribution of ANI divided by total assets at the beginning of the year for Taiwan-listed firms covering the period 1984-2006

approximately twice the inter-quartile range of scaled earnings times the inverse of the cube root of the sample size. The histogram interval widths are 0.009 with a range from -0.36 to $+0.45$. The figure shows a single-peaked and bell-shaped distribution with a discontinuity around zero. Following Burgstahler and Dichev (1997), we conduct a statistical test to examine the irregularity around zero based on the assumption that the expected number of observations in any given interval of the distribution is the average of the number of observations in the two adjacent intervals. The test statistic is the difference between the actual and the expected numbers of observations in an interval, divided by the estimated standard deviation of the difference. Under the null hypothesis of a smooth distribution, these standardized differences are approximately normally distributed, with a mean of zero and a SD of one. Figure 1 shows a significant discontinuity in the earnings distribution around zero, as expected. The statistical difference for the interval immediately to the left of zero is -9.56 , while that for the interval immediately to the right is 5.72 . Hence, under the assumption that the standardized differences are distributed normally with a mean of zero and a standard deviation of one, the test statistics are highly significant (at $p < 1$ percent).

Our findings are consistent with those reported by Bhattacharya *et al.* (2003), who measure three dimensions of reported earnings for each country in their sample: earnings aggressiveness, loss avoidance, and earnings smoothing. The authors also combine these three measures to obtain an overall earnings opacity time-series measure per country. Finally, these four measures are ranked from one (least) to five (most) for each country. For the dimensions of earnings aggressiveness, loss avoidance, earnings smoothing, and overall earnings opacity, Taiwan has a ranking of four, five, two, and four, respectively.

4.2 Prevalence of earnings management to avoid reporting losses

To assess the extent of earnings management to avoid reporting losses, we use an approach similar to that used by Burgstahler and Dichev (1997). We assume that in the absence of earnings management, the distribution of earnings is approximately symmetric and that the right half of the empirical distribution is mostly unaffected by earnings management to avoid reporting losses. With this model, the observed frequencies of the intervals in the right half of the distribution serve as measures of the expected frequencies in the corresponding intervals in the left half of the distribution. Operationally, we assume that in the absence of earnings management, the distribution of earnings shown in Figure 1 would be symmetric around 0.036 and that the managed values of earnings would not fall to the right of 0.036 . Thus, the estimated number of cases in which firms have engaged in earnings management is the difference between the expected and the observed numbers of observations. We estimate the number of cases of earnings management related to three regions of increasing width, that is, three intervals defined to include earnings management: $(-0.018, 0)$, $(-0.036, 0)$, and $(-0.054, 0)$. Our estimates for these three intervals are 418, 783, and 1,076, respectively.

We use three bases of comparison to assess the extent of these estimates. These estimates represent about 3.35-8.6 percent of the total 12,484 sample observations, and about 20-53 percent of the 12,002 observations that report negative net income. This study focuses on these three increasing intervals closest to zero. Earnings management to avoid reporting losses appears to account for 54-57 percent of the observations expected in the respective intervals in the absence of earnings management.

The findings indicate that earnings management to avoid reporting losses is more pervasive among Taiwan-listed firms than among US-listed firms.

In summary, our findings support our first hypothesis, that is, that managers manage earnings to avoid reporting losses. The findings show that managers' avoidance of loss reporting is reflected in the remarkably low frequencies with which tiny losses are reported and the remarkably high frequencies with which tiny profits are announced. This phenomenon of discontinuity of earnings irregularity near zero, apparent in Figure 1, is confirmed by our statistical tests. We also estimate the prevalence of earnings management to avoid reporting losses and find that it appears to account for approximately 54-57 percent of the observations expected in the respective intervals in the absence of earnings management.

4.3 Univariate testing of H2: managers use asset sales to avoid reporting losses

To test how firms use asset sales to avoid reporting losses, we group the distribution of annual net income (ANI) shown in Figure 1 by intervals. The first interval immediately to the right of zero is group one and the second interval to the right of zero is group two; the first interval immediately to the left of zero is group -1 and the second interval to the left of zero is group -2, and so on. Figure 1 shows there are 1,373 tiny profit firms (in groups 1 or 2) and 412 tiny loss firms (in groups -1 or -2). If asset sales are used to avoid reporting losses, one would expect tiny profit firms to have a higher EIFAS than do tiny loss firms. In other words, if firms use asset sales to bring negative earnings across the "red line" and report positive earnings, we would expect firms reporting tiny profits to have a higher EIFAS than those reporting tiny losses. In addition, firms reporting tiny losses are expected to have a lower EIFAS than the other firms in our sample since it is unreasonable to expect that they would boost asset sales to report small losses. Finally, if firms do use asset sales to bring earnings across the zero line and report positive earnings, this would help explain the unexpectedly high proportion of tiny profit firms and the low proportion of tiny loss firms. Consequently, one would expect to see a decline in the irregularity around zero after excluding firms with EIFAS.

Table II reports the summary statistics for the tiny profit firms, the tiny loss firms, and the other sample firms. In particular, Panel A presents the summary statistics for the tiny profit firms and all other firms in our sample. The panel shows that for the tiny profit firms, excess income from the sale of investments (EINV) deflated by total assets at the beginning of the event year minus the median for the corresponding year and industry (by two-digit industry code), CFO deflated by total assets at the beginning of the event year, and CURIO are significantly lower than those for the other sample firms. However, the other statistics (EIFAS, EFIA, and SIZE) are not significantly different between these two groups. Prior research (Cheng *et al.*, 1996) has shown that CFO is a good indicator of firm operating performance because it is relatively difficult to manipulate unless firms intentionally defer recognition of cash revenues or cash expenses.

Panel B of Table II presents the summary statistics for the tiny profit and tiny loss firms. The panel shows that EIFAS and EINV for the tiny profit firms are significantly larger than those for the tiny loss firms, but that there is no significant difference between these two groups in excess income from the sale of fixed assets (EFIA). These findings suggest that Taiwan-listed firms may primarily use the sale of investments to manage earnings. Our results are in sharp contrast to those of Bartov (1993) with a US

Variable ^a	Median	Mean	Median	Mean	z-statistic ^b
<i>Panel A: Tiny profit firms versus other sample firms</i>					
	Tiny profit firms (n = 1,373)		Other sample firms (n = 11,111)		
EIFAS	0.000014	0.0026	0	0.0032	1.49
EINV	0	0.0020	0	0.0028	2.42 **
EFIA	0	0.010	0	0.0075	-1.14
CFO	0.030	0.023	0.063	0.0615	12.55 ***
SIZE	14.44	14.38	14.35	14.45	0.32
CURIO	189.07	133.61	160.77	212.14	3.55 ***
<i>Panel B: Tiny profit firms versus tiny loss firms</i>					
	Tiny profit firms (n = 1,373)		Tiny loss firms (n = 412)		
EIFAS	0.000014	0.0026	-0.000061	0.0014	-1.97 **
EINV	0	0.0020	0	0.0011	-1.91 *
EFIA	0	0.010	0	0.00075	-0.81
CFO	0.030	0.023	0.023	0.018	-0.88
SIZE	14.44	14.38	14.48	14.46	0.22
CURIO	189.07	133.61	126.13	212.55	1.09
<i>Panel C: Tiny loss firms versus other sample firms</i>					
	Tiny loss firms (n = 412)		Other sample firms (n = 12,072)		
EIFAS	-0.00006	0.0014	0	0.0032	2.49 **
EINV	0	0.0011	0	0.0028	2.77 ***
EFIA	0	0.0007	0	0.00077	0.09
CFO	0.018	0.023	0.0059	0.0058	7.38 ***
SIZE	14.47	14.45	14.34	14.45	-0.08
CURIO	126.12	212.55	209.5	158.3	-0.27

Notes: *, **, and *** denote statistical significance at the 10, 5, and 1 percent levels, respectively (two-tailed); ^aEIFAS is excess income from asset sales deflated by total assets at the beginning of the event year, minus the median for the corresponding year and industry (by two-digit industry code); EINV is excess income from the sale of investments, deflated by total assets at the beginning of the event year, minus the median for the corresponding year and industry (by two-digit industry code); EFIA is excess income from the sale of fixed assets, deflated by total assets at the beginning of the event year, minus the median for the corresponding year and industry (by two-digit industry code); CFO is cash flow from operations deflated by total assets at the beginning of the event year; SIZE is the logarithm of the total assets at the beginning of the event year; and CURIO is the ratio of current assets to current liabilities at the beginning of the event year; ^bthe z-statistic is from either the Wilcoxon test of difference in mean ranks or the binomial test of difference in percentages

Table II.
Summary statistics for tiny profit firms, tiny loss firms, and other sample firms

sample and those of Herrmann *et al.* (2003) with a Japanese sample. These studies show that income from the sale of fixed assets account for the majority of IFAS among firms. The difference between sample firms in Taiwan and those in the USA and Japan may be explained by the following institutional characteristics of the Taiwan stock market. First, capital gains from the sale of marketable securities are tax-exempt in Taiwan. In contrast, gains from selling fixed assets must first be credited to non-operating income in the current fiscal year and transferred to capital surplus in the next fiscal year. Second, the tax rates for the disposal of land are high, ranging from 40 to 60 percent.

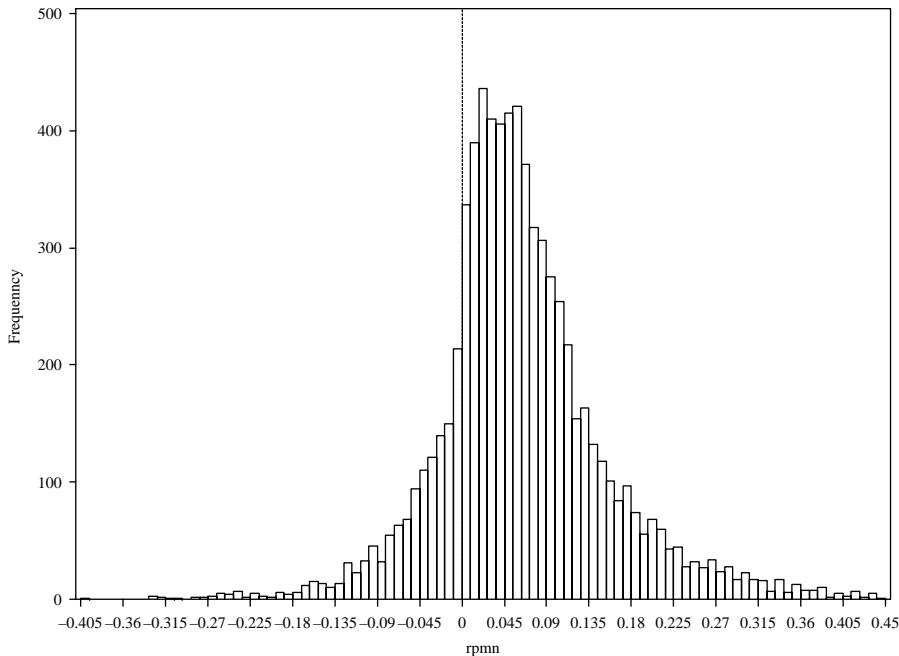
Panel B of Table II also shows that no significant difference in CFO, SIZE, or CURIO exists between tiny profit firms and tiny loss firms, suggesting that although

underlying economic conditions may have had no significant effect on these two groups of firms, they could time the sale of investments to manage reported earnings.

Panel C of Table II shows the summary statistics for the tiny loss firms and all the other sample firms. As expected, tiny loss firms have significantly lower EIFAS and EINV than other firms in our sample because firms have no reason to boost asset sales to report losses. The panel also shows that tiny loss firms have a significantly lower CFO than that of the other sample firms and that no significant difference exists in EFIA, SIZE, or CURIO between these two groups.

If firms use asset sales to bring earnings across the “zero line” and report positive earnings, this induces discontinuity around zero in the earnings distribution. The distribution of pre-managed earnings is expected to be relatively smooth around zero. Pre-managed earnings are measured by subtracting EIFAS for the event year from that year’s reported earnings. We also calculate the standard difference in the discontinuity distribution around zero.

Figure 2 shows the distribution of pre-managed earnings. Consistent with our expectation, the results show that standard differences of discontinuity in the earnings distribution around zero drop substantially. The statistical difference for the interval immediately to the left of zero is -1.64 , while that for the interval immediately to the right is 1.62 . These findings support our $H2$ that firms use asset sales to avoid reporting losses.



Notes: The distribution interval widths are 0.009 and the location of zero on the horizontal axis is marked by the dashed line; the first interval to the right of zero contains all observations in the interval (0, 0.009), the second interval contains (0.009, 0.018), and so on; “frequency” is the number of observations in a given earnings interval

Figure 2. The distribution of pre-managed earnings, estimated as net income minus EIFAS (rpm), scaled by beginning-of-the-year total assets for Taiwan-listed firms covering the period 1984-2006

5. Conclusion

This study examines empirically whether managers manipulate reported earnings by timing the sale of long-term assets and investments. We use an unconventional approach to investigate discontinuities in the distribution of reported earnings and examine whether firms use asset sales to avoid reporting losses. We do not examine earnings management using classification shifting as do Ronen and Sadan (2003) and McVay (2006).

Our findings suggest that Taiwan-listed firms generally avoid reporting losses. The statistical difference for the interval immediately to the left of zero ROA is -9.56 and that for the interval immediately to the right is 5.72 . Our results also show that the incidence of earnings management to avoid reporting losses appears to be high at around 54-57 percent of the observations expected in the respective partitions in the absence of earnings management. The findings indicate that manipulation of earnings to avoid reporting losses is more common in Taiwan-listed firms than in the USA sample examined by Burgstahler and Dichev (1997).

This study also investigates the relation between asset sales and loss-avoidance behavior. The findings show that the asset sales of tiny profit firms are significantly larger than those of tiny loss firms. In addition, after excluding asset sales from reported earnings, the statistical difference for the interval immediately to the left of zero ROA decreases from -9.56 to -1.64 , while that for the interval immediately to the right drops from 5.72 to 1.62 . These findings indicate a relatively smooth discontinuity around zero ROA after excluding earnings from asset sales and provide further evidence that Taiwan-listed firms employ asset sales to avoid reporting losses.

Our findings also suggest that Taiwan-listed firms may primarily use the sale of investments to manage earnings. Our results are in sharp contrast to those of Bartov (1993) with a USA sample and those of Herrmann *et al.* (2003) with a Japanese sample. These studies show that income from the sale of fixed assets accounts for the majority of IFAS among firms. The difference between sample firms in Taiwan and those in the USA and Japan may be explained by the following institutional characteristics of the Taiwan stock market. First, capital gains from the sale of marketable securities are tax-exempt in Taiwan. In contrast, gains from the sale of fixed assets must first be credited to non-operating income in the current fiscal year and transferred to capital surplus in the next fiscal year. Second, the tax rates for the disposal of land are high, ranging from 40 to 60 percent.

Despite the unique institutional features of Taiwan, our analyses have not produced other unique results that differ significantly from the findings of prior studies. Therefore, we suggest further studies to explore the following interesting issues:

- *Incentives for earnings management.* It would be interesting to distinguish between the effects of managerial incentives and regulatory incentives on the use of earnings management to avoid losses in Taiwan.
- *Methods of earnings management.* This paper uses EIFAS as a measure of earnings management. However, firms can also use discretionary accruals to manage earnings. Which method is more important? How and why do firms make a choice between these two methods?
- Given a longer sample period, can users of financial statements see through relatively straightforward methods of earnings management? If users of

financial statements find it relatively easy to detect the use of asset sales to manage earnings, why do firms continue using this simple method?

Beaver *et al.* (2007) show that the asymmetric effects of income taxes and special items for both profitable and loss-making firms contribute to a discontinuity at zero in the distribution of earnings, even in the absence of earnings management. This suggests that Burgstahler and Dichev's (1997) method is inappropriate for further studies on the interesting issues outlined above.

Dechow *et al.* (1995) note that even the best discretionary accrual models are so poorly specified that estimates of discretionary accruals include significant amounts of nondiscretionary accruals. Hence, research aimed at constructing an appropriate accrual model is needed to facilitate studies on the issues we highlight above.

Notes

1. Retained earnings include gains on the disposal of fixed assets, reserves for asset revaluations, and legal reserves. Unlike US firms, Taiwan-listed firms must first credit any gain from the disposal of property, plant, and equipment to non-operating income and then transfer it to capital surplus. According to business accounting laws in Taiwan, asset revaluation is strictly controlled, particularly the revaluation of land, and an amount equal to 40-60 percent of the appreciation is charged to long-term debt as a land value increment tax. The remainder of the appreciation is credited to a capital reserve account and can be used to offset a deficit or for stock dividends. The company law in Taiwan requires that a company set aside 10 percent of its ANI as a legal reserve until the aggregate reserve has reached an amount that matches the company's capital stock.
2. The company law in Taiwan permits paid-in capital to be used for distributing stock dividends.
3. For example, retail investors accounted for approximately 84.7 percent of market participants in 2002.
4. Tests were also performed using income from asset sales without subtracting the industry or year median values. The results are similar to those reported.
5. Using other scaled variables (such as the market value of equity and net sales) yields similar results.

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