A STUDY OF FOREIGN EARNINGS MANAGEMENT USING AN EMPIRICAL DISTRIBUTION APPROACH

by

NANCY MANZHEN FAN

Presented to the Faculty of the Graduate School of

The University of Texas at Arlington in Partial Fulfillment

of the Requirements

for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT ARLINGTON

August 2008

ACKNOWLEDGEMENTS

I express my appreciation to my dissertation advisor, Dr. Martin Taylor, for his guidance and encouragement for the last five years. I am very thankful to Dr. Chandra Subramaniam for his help and technical support throughout the dissertation process. I want to thank Dr. Li-Chin Jennifer Ho for reviewing the drafts and giving me suggestions for improvement. I am also grateful to my committee members, Dr. Peggy Swanson, and Dr. Mark Eakin, for their commitment to my success.

In addition, I would like to express my gratitude to my family and friends for their encouragement throughout the doctoral program.

June 26, 2008

ABSTRACT

A STUDY OF FOREIGN EARNINGS MANAGEMENT USING

AN EMPIRICAL DISTRIBUTION APPROACH

Nancy Manzhen Fan, Ph.D.

The University of Texas at Arlington, 2008

Supervising Professors: Martin Taylor

Effective January 1, 1998, SFAS 131 changed the way managers voluntarily disclose business, geographic and operating segments of their companies. Reporting geographic segments is specifically related to the reporting of overseas operations of multinational companies. This study analyzes the possibility of earnings management in foreign earnings and how SFAS 131 might have changed the patterns of foreign earnings distribution. I use an empirical distribution approach outlined by Burgstahler

and Dichev (1997) in examining whether foreign earnings are managed to avoid earnings decreases and losses.

Results show that foreign earnings are managed to avoid losses but not earnings decreases. In addition, SFAS 131 does not significantly reduce earnings management in foreign earnings. What is more important, however, is whether firms have reported an increased number of segments in the post-SFAS131 period. The empirical evidence is consistent with the fact that managers who voluntarily disclose information are less likely to engage in earnings management.

I also test earnings management related to domestic earnings. The study of domestic earnings is necessary because both foreign and domestic earnings are components of total earnings and can be used for earnings management purposes. In addition, because Beaver et al. (2007) suggest income taxes partially cause the discontinuity observed in Burgstahler and Dichev (1997), I use pretax foreign, pretax domestic, after-tax foreign and after-tax domestic earnings for all analyses in order to examine the income tax effect. I do not find taxes, especially foreign taxes, to be a significant factor in my study.

I further replicate Burgstahler and Dichev (1997) using the sample period of my study. Consistent with my findings, evidence of avoidance of losses is significant but not for avoidance of earnings decreases. Future research is necessary to address what causes the changes.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

FIGURE Page

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1 Overview of the Study

The 21st century is a period in which a rapid growth of foreign investment from U.S. multinational companies (abbreviated as MNCs) to the rest of the world has occurred. In an article titled "Foreign Earnings Fatten Up U.S. Corporate Results"[1], Joseph Quinlan, the chief market strategist for Bank of America, said that U.S. foreign affiliate income[2] would rise nearly 10% in 2006; and that total foreign affiliate profits were expected to exceed $240 billion -- almost twice the 2002 figures. According to the same article, roughly 70% of US sales to foreign markets came from MNCs' 23,000 foreign segments rather than direct export.

On May 10, 2007, the U.S. Census Bureau and Department of Commerce announced that in 2006, related party trade accounted for 40.9%, or $1,182 billion of total goods traded. "Related party trade" is defined as trade between U.S. companies and their subsidiaries abroad[3], or between U.S. subsidiaries of foreign companies with their parent companies. In 2006, total international trade increased by 12.3% compared

[1] The article was posted in USAToday.com on January 20, 2006.
[2] Foreign affiliation refers to foreign companies that U.S. companies do business with, or have investment in.
[3] It does not include domestic trading in this definition.

to 2005. The announcement provides evidence that transactions between MNCs and their subsidiaries are becoming more and more important.

While the rapid development of foreign operations might have brought MNCs huge profit margins, it also creates problems on how to report these foreign earnings. SFAS 131[4], *Reporting Disaggregated Information about a Business Enterprise*, currently governs reporting foreign operations and related earnings numbers. The statement was issued in 1997, superseded SFAS 14 and became effective for fiscal years beginning on or after January 1, 1998.

SFAS 131 requires companies to report disaggregated information about operating segments based on management's organization of the enterprise. Reportable segments may be based on line-of-business, geographic location, or a combination of both. Companies are required to report their foreign earnings in different geographic areas when they organize their operations based on geographic distribution. However, if companies organize their operations based on line-of-business, they will only be required to report foreign sales and long-lived assets in major countries.

This represents one of the major differences between SFAS 131 and SFAS 14. MNCs are no longer required to report foreign earnings under SFAS 131 if they report segments based on line-of-business. Bodnar & Weintrop (1997) test the differences of earnings response coefficients and conclude that the coefficient on foreign income is significantly larger than that of domestic income. It is a drawback if investors and analysts lose important information on the profitability of foreign subsidiaries. They

[4] SFAS refers to Statement of Financial Accounting Standards. It is at the higher hierarchy in the house of Generally Accepted Accounting Principles (commonly referred to GAAP).

might not be able to evaluate effectively the different growth opportunities in domestic and foreign markets if detailed information about foreign earnings is not disclosed in financial statements.

Hermann and Thomas (2000) survey 100 MNCs and find that only 12 of 74 firms disclosed foreign earnings from other geographical areas under SFAS 131, compared to 74 of 77 firms under SFAS 14 during the transition period. According to their study, this could mean that less information is being disclosed under SFAS 131. However, other researchers report an increase of information disclosure under SFAS 131. Street, Nichols & Gray (2000) sample 160 U.S.-domiciled Business Week Global 1000 companies. They find that SFAS 131 is effective in increasing the number of line-of-business segments reported by those who claimed to operate in one line-of-business under SFAS 14. In addition, Doupnik and Seese (2001) report more than 40% of the Fortune 500 companies report finer information[5], and 29% of the companies increase the number of segments reported from 1997 to 1998.

Some studies have compared SFAS 131 with SFAS 14 and have found that SFAS 131 has increased the amount of voluntary disclosure. These studies include but are not limited to Behn, Nichols & Street (2002)[6], Berger & Hann (2003)[7], Botosan & Stanford

[5] Finer information in Doupnik and Seese (2001) refers to information in a less aggregate level with a lower materiality cutoff point.
[6] Behn, Nichols & Street (2002) provide evidence that the predictive ability of SFAS 131 geographic sales data exceeds that of SFAS14 sales data.
[7] Berger & Hann (2003) find a significant improvement in forecast accuracy after the adoption of SFAS131.

(2005)[8], Ettredge, Kwon, Smith & Zarowin (2005)[9], Hope, Thomas & Winterbotham (2006)[10], Hope, Kang, Thomas & Vasvari (2006)[11].

Hunton, Libby and Mazza (2006), indicates that voluntary disclosure is negatively associated with the likelihood of earnings management. If SFAS 131 truly represents an improvement in voluntary disclosure, does this mean that managers are less likely to manage earnings after SFAS 131?

SFAS 131 governs the voluntary disclosure of MNCs' foreign geographical operation. It would be interesting to look specifically at how SFAS131 affects the voluntary disclosure of foreign operations of MNCs. Street et al. (2000) find that some MNCs report an increased number of segments after SFAS 131. Reporting an increased number of segments signals an improvement in voluntary disclosures. Given the negative relationship of voluntary disclosure and the likelihood of earnings management, does this mean that managers are less likely to manage earnings when they increase the reported number of segments?

The study of SFAS 131 has touched all areas except earnings management in accounting research. Given that MNCs have experienced a significant growth in foreign earnings and that earnings management has been an on-going academic topic since the early 1990's, my dissertation is intended to study whether earnings management is

[8] Botosan & Stanford (2005) find that the implementation of SFAS 131 reduces proprietary costs and encourages greater reliance on public information. Managers are less able to hide profit in segments operating in less competitive industries.
[9] Ettredge, Kwon, Smith & Zarowin (2005) find an increase in forward earnings response coefficients after SFAS 131.
[10] Hope, Thomas & Winterbotham (2006) conclude that improved overall disclosures under SFAS 131 align investors' beliefs in anticipation of the subsequent quarterly earnings announcement.
[11] Hope, Kang, Thomas & Vasvari (2006) employ Mishkin (1983) framework and show that that mispricing of foreign earnings is mitigated in the post-SFAS131 samples.

present in foreign operations of US-based MNCs, and whether the earnings management pattern has changed after SFAS 131.

I will use the term "foreign earnings management" to generalize my study. Few studies[12] explore the scope of earnings management in the foreign earnings component of U.S. MNCs. The complexity of foreign operations plus the insufficiency in disclosure by managers might be cited as reasons for insufficient research in the area. More fundamentally, the Jones' model and modified Jone's model might not be applicable in FEM because of the lack of information in such items as foreign sales, foreign account receivable and foreign property, plant and equipment.

Burgstahler and Dichev (1997) (hereafter B&D (1997)), however, provide me with another way of studying foreign earnings management. They demonstrate that earnings are managed to avoid earnings decreases and losses. There is a discontinuity at the zero threshold where there is a dip to the left of the zero threshold and a higher than expected frequency of observations to the right of the zero threshold. Their compelling evidences show signs of earnings management.

Their methodology has been widely adopted and further refined by researchers of earnings management. Degeorge et al. (1999) empirically explore earnings management to exceed each of three thresholds: report positive profits, sustain recent performance, and meet analysts' expectations. Their results show predominant positive profits. Glaum et al. (2004) compare the extent to which U.S. and German companies manage their earnings in order to exceed earnings thresholds. Other studies apply the

[12] Krull (2004) uses foreign earnings to study earnings management, but her study is from tax standpoint.

methodology of B&D (1997) in an international institutional environment. I list some of these studies and their contributions in CHAPTER 2.

The uniqueness of earnings management using foreign earnings is that cost allocation and transfer pricing have significant impact on how foreign earnings should be reported. The differential tax rate in the U.S. and abroad might motivate managers to shift taxable income into the U.S. when the domestic tax rate is lower (Collins et al (1998)). Krull (2004) addresses whether firms designate foreign earnings as permanently reinvested aboard to defer financial statement recognition of U.S. income taxes. Because of all these different incentives in managing earnings, the foreign earnings component might or might not be managed to avoid earnings decreases and losses. It might or might not demonstrate a discontinuity at the zero thresholds. It is, therefore, an empirical question.

As mentioned above, the adoption of SFAS 131 in 1998 fundamentally changes the voluntary disclosure of foreign earnings by MNCs. My dissertation explores whether there are any changes in the earnings management pattern in the post-SFAS131 period. Like B&D (1997), I use a cross-sectional, time-series distribution of changes in foreign earnings and foreign earnings levels. First, I study the full sample and hypothesize that foreign earnings are managed to avoid earnings decreases and losses[13]. I then partition the full sample into pre- and post-SFAS131 samples and hypothesize that earnings management is less obvious in the post-SFAS131 period. I further

[13] For brevity I use the same term "avoid earnings decreases and losses" as B&D (1997). When it is used after foreign earnings, it means "foreign earnings are managed to avoid decreases in foreign earnings and losses in foreign earnings".

partition the post-SFAS131 sample into firms reporting an increased number of segments versus firms reporting no change or decreased number of segments, and hypothesize that earnings management is less obvious for firms reporting an increased number of segments[14].

My first finding shows that foreign earnings are managed to avoid losses but not earnings decreases. This is not surprising given the replication results of B&D (1997) using data in my sample period show no significance in avoidance of earnings decreases. In addition, there is a hierarchical change. Brown & Caylor (2005)[15] find that in recent years, managers manage earnings in the order of avoidance of missing analyst forecast, avoidance of losses, then avoidance of earnings decreases. Nevertheless, my finding of non-significance in avoidance of earnings decreases is important, as no prior research has documented this finding.

As foreign earnings and domestic earnings are the two interrelated components of total earnings, using B&D (1997) to study foreign earnings management requires me to investigate not only foreign earnings but domestic earnings. My second finding is that when earnings are managed to avoid losses, it is the foreign earnings that are managed but not the domestic earnings in MNCs. This is consistent with the results from Duru and Reeb (2002), that international diversification might cause information asymmetry; it gives managers operating overseas greater latitude in managing foreign earnings if they so desire.

[14] See hypotheses development in CHAPTER 2 and research designs in CHAPTER 3 for further details.
[15] The finding of Brown & Caylor (2005) is different from Degeorge et al. (1999). In Degeorge et al. (1999), the hierarchy is avoidance of losses, avoidance of earnings decreases then avoidance of missing analyst forecast.

My third finding is that SFAS 131 does not change the foreign earnings management patterns. What matters, however, is whether managers increase their reported segments or not. The discontinuity for the post-SFAS131 sample is as obvious as the discontinuity for the pre-SFAS131 sample. However, when I separate the post-SFAS131 sample into a subset of samples with firms reporting an increased number of segments versus firms reporting a decrease or no change in number of segments, I find managers are less likely to manage earnings for those firms reporting an increased number of segments.

1.2 Significance of the Study

My dissertation is one of the few studying foreign earnings management. Prior studies on SFAS 131 focus primarily on earnings predictability and analysts' forecast accuracy in the pre- and post-SFAS131 periods. This study is the first to examine how voluntary disclosure under SFAS 131 affects the earnings management patterns.

The study of foreign earnings management is of interest to researchers, managers, investors, financial analysts and standard setters. Firstly, as global integration becomes an irreversible trend, U.S. MNCs report an increasing percentage of the foreign earnings as of total earnings for the latest a decade or two. For example, Duru & Reeb (2002) reports that on average 24% of total sales from S&P 500 are foreign sales.

Figure 1.1 shows the percentage changes in foreign and domestic income from 1992 to 2005 using all firms reporting both pretax domestic and foreign incomes in Compustat North America. As we can see, the percentage of foreign earnings ranges

from 33% in the year 1994 to 70% in 2001. It is relatively steady at around 47% in 2004 and 2005, representing 363 billion dollars in pretax foreign income (versus 410 billion dollars in pretax domestic income) for all companies combined.

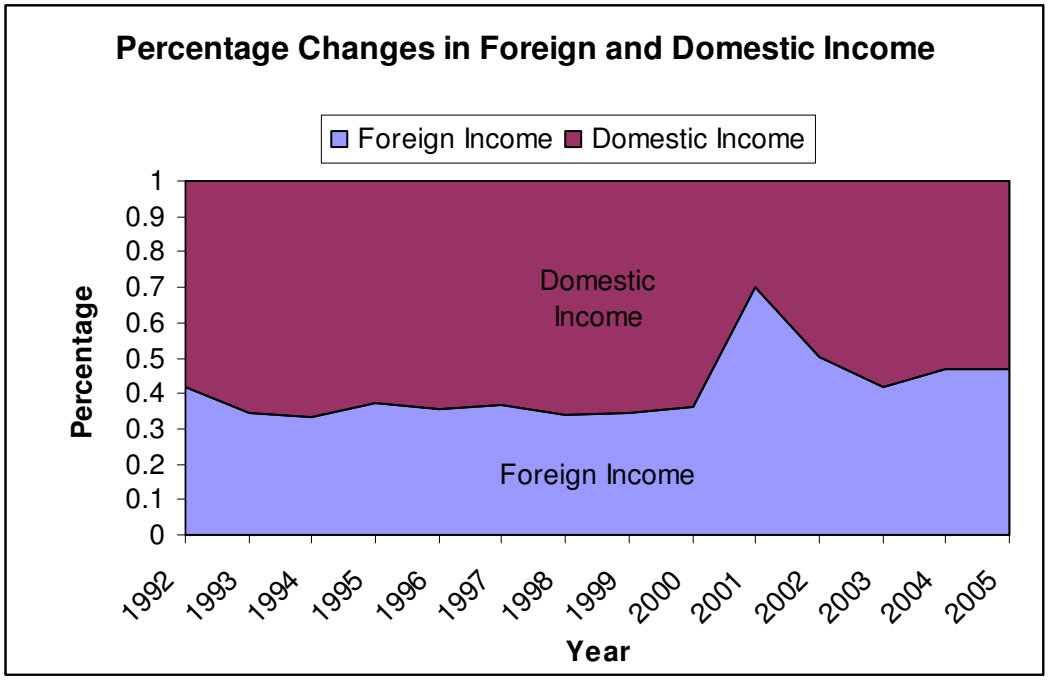


Figure 1.1 Percentage Changes in Pretax Foreign and Domestic Income over Years
Note: Data used consists all companies reporting both pretax domestic income (Data #272) and pretax foreign income (Data #273) in Compustat from 1992 to 2005.

Secondly, financial analysts are less intensively following foreign earnings. Study of foreign markets requires extensive knowledge about the legal system, market mechanism and cultural uniqueness of each foreign country. Financial analysts might not be comfortable in analyzing foreign markets given the constraints of language and location.

Thirdly, managers enjoy more discretion when operating abroad. Investors may find it difficult to determine if their operating decisions are sound and justifiable given

the environment they are operating in. This informational asymmetry between managers and investors might give managers an incentive for foreign earnings management if the possibility of detection is minimized.

In addition, the standard setters need to be aware of possible earnings management schemes using foreign earnings. This is especially true after SFAS 131 became effective because it does not require the disclosure of foreign earnings in enterprise-wide disclosures and could allow managers to shift foreign earnings among countries through transfer-pricing and cost allocation.

1.3 Organization of the Study

The reminder of this dissertation is organized as follows. CHAPTER 2 reviews prior research and develops hypotheses. CHAPTER 3 describes the research design. CHAPTER 4 is a descriptive data analysis. CHAPTER 5 discusses empirical results. CHAPTER 6 provides results of sensitivity tests. CHAPTER 7 concludes.

CHAPTER 2

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

As discussed in CHAPTER 1, my dissertation centers on how managers in MNCs manage their foreign operations to avoid earnings decreases and losses, and how voluntary disclosure has changed the way foreign earnings are managed. I use B&D (1997) as my methodology[16]. Accordingly, I focus my literature review primarily on foreign earnings; namely, how SFAS131 affects the reporting of foreign earnings, earnings management concepts and the study of earnings management using the B&D (1997) methodology. Other areas of literature that are related to my study will be discussed under the section titled "Other Related Literature".

2.1 SFAS 131 and Foreign Earnings

2.1.1 Mispriced Foreign Earnings

Data about foreign operations are difficult to find due to the macroeconomic, institutional and tax differences between domestic and overseas environments. Compustat only reports limited data about foreign operations. Foreign earnings are reported in Compustat as pretax foreign income (data273). With this limited resource, researchers are striving to understand the characteristics of foreign earnings. One of such study in the field is Thomas (2000). He found that the market consistently underestimates

[16] In CHAPTER 1, I briefly mentioned why I choose to use B&D (1997). I will go more in depth in current and next chapters.

the persistence of foreign earnings. In other words, investors do not value foreign earnings as much as they value domestic earnings. Thomas (2000) further investigates whether abnormal returns can be earned using public information about firms' domestic and foreign earnings. If the market underestimates the persistence of foreign earnings, it is possible to construct a zero-investment hedge portfolio of a long position in firms with large positive changes in foreign earnings and a short position in firms with large negative changes in foreign earnings, and this portfolio can consistently earn positive returns across years. Consistent with the author's expectations, the zero-investment hedge portfolio of a long position in firms with large positive changes in foreign earnings and a short position in firms with large negative changes in foreign earnings earns, on average, 6.8% of annual abnormal return across the years.

Thomas (2000) samples the period 1985-1995 and finds that the market underestimates the persistence of foreign earnings. However, in a more recent working paper[17], using a post-1998 sample and employing the Mishkin (1983) framework, the author finds that investors' mispricing of foreign earnings is mitigated. The author suggests the result might be linked to the increased segment disclosures under SFAS 131.

2.1.2 SFAS131 Related

SFAS 131---*Reporting Disaggregated Information about a Business Enterprise* was issued in 1997 and became effective for fiscal years beginning on or after January 1, 1998. There is much debate by researchers about whether the change from SFAS 14 to

[17] Hope, Kang, Thomas and Vasvari (2006)

SFAS 131 represents an improvement. Does SFAS 131 bring about finer disclosures to shareholders, investors and financial analysts?

Hermann & Thomas (1997) discuss the relevant theories on segment disclosures and relates the implications of these findings to the FASB/AcSB's[18] exposure draft. According to Hermann & Thomas (1997), research on segment disclosures includes three broad categories: predictive ability, security pricing, and risk assessment. They provide theoretical framework in analyzing the importance of geographic segment information for each category. In addition, Hermann & Thomas (1997) quote the fineness theorem. It is mathematically developed in information economics literature. Assuming X is a subset of Y, the information provided in X is at least as fine as the information provided in Y if every subset of X is contained in Y. Assuming no extra cost in reporting, a finer information structure will result in greater benefits to the decision maker. These benefits hold under all forms of probability and payoff functions theoretically.

Investors and financial analysts might need financial information at the segmental level because of the difference in the growth opportunities and risk factors in different geographic areas. According to Hermann & Thomas (1997), the fineness theorem applied to the area of geographic segment data suggests that the disclosure of disaggregated geographic data is preferable to the disclosure of consolidated data alone. Assuming managers do not incur extra cost in order to report detailed geographic data, providing these data at segmental level will result in finer information to investors and financial analysts.

[18] FASB/AcSB refers to Financial Accounting Standard Board/Accounting Standard Board.

Street et al. (2000) examine the segment disclosures of 160 companies from U.S. Global 1000 companies for both 1997 and 1998 to ascertain the impact and effectiveness of SFAS 131. They study whether SFAS 131 have resulted in a greater number of segments for some companies, particularly those operated in one line-of-business under SFAS 14. In addition, companies report additional items of information not previously required by SFAS 14. These items of information include: interest income, interest expense, income tax expense/benefit, other noncash items included in net profit/loss, unusual items, etc. Street et al. (2000) examine whether companies report more of these items about each segment and improve consistency of segment information with other parts of the annual reports, i.e., letter to shareholders, MD&A.

The findings indicate that SFAS 131 was effective in increasing the number of segments reported by some companies, particularly those operated in one line-of-business under SFAS 14. Overall results show that the items of information and the consistency of segment information increased significantly in 1998 as compared to 1997, suggesting SFAS 131 has supplied financial statement users with most of the benefits anticipated by the FASB.

However, the results also show that some companies continue to report segment information on a basis inconsistent with their introductory annual report information (i.e., letter to shareholders) and MD&A. An example of an inconsistent report would be additional product line information disclosed in the letter to shareholders but not in the segment disclosure. Another example would be companies provide detailed discussion of products in the MD&A but provide no such information in enterprise-wide disclosure.

Because of the FASB's decision not to define profit or loss at segment level, segment disclosures illustrate the lack of comparability in terms of financial data.

Hermann & Thomas (2000) compare the segment disclosures under SFAS 131 with those reported in the previous year under SFAS 14. The authors analyze the segment disclosures of 100 firms in the year before and the year of adoption of SFAS 131. They use descriptive statistics to detail the changes in segment definition, number of segments reported, items disclosed for each segment, and supplemental enterprise-wide disclosures about geographic areas.

Under SFAS 131, companies defining their primary operating segments by products and services are not required to provide additional disclosures of revenues and long-lived assets for each "material" country in the enterprise-wide disclosures[19]. Companies are not required to disclose enterprise-wide geographic information either. These represent a major deficiency compared to the geographic segment disclosure requirements in SFAS 14. However, according to Hermann & Thomas (2000), the management approach in defining segments under SFAS 131 has resulted in several improvements. These include the increased number of firms providing segment disclosure information; increased items for each operating segment disclosed and increased finer country-level level disclosure.

Doupnik & Seese (2001) sample the 500 largest U.S.-based companies as measured by revenues reported in the April 26, 1999 issue of Fortune magazine to

[19] Under SFAS 131, only companies defining their primary operating segments by geographic segments are required to provide revenue and long-lived assets by geographic areas; while previously under SFAS 14, these are necessary items to be reported even though companies do not define their primary segments by geographic segments.

evaluate whether foreign operation disclosures provided by companies in accordance with SFAS 131 result in a finer set of information[20] than those provided under SFAS 14. The primary research findings are as follows:

Firstly, managers in those companies that use relatively low materiality in dividing and reporting segments might want to signal that their companies are multinational and therefore offer potential diversification benefits to investors;

Secondly, at least 40% of the Fortune 500 companies that reported foreign operations provide finer information Under SFAS 131. However, the fineness of the geographic information reported has deteriorated for at least 28% of the sample;

Thirdly, 29% of the companies report an increased number of segments from 1997 to 1998. More than 50% of the companies report no change in the number of segments. In most situations, these companies still provide finer information because of a change in the aggregation level or the percentage of foreign revenues in the reported segments;

Finally, companies that provide country specific disclosures tend to provide a finer set of information than companies providing only a continental level of disclosure. For those companies that disclose no foreign earnings but foreign revenues only, their segment disclosure is not as disaggregated as those disclose both.

Hope et al. (2006) investigate whether the market's valuation of foreign earnings is a function of the firm's geographic segment disclosure. More specifically, the authors examine the effects of these three circumstances: the introduction of SFAS131, the

[20] "A finer set of information" means information at a more disaggregated level.

change in the number of geographic segments disclosed, and the inclusion of performance measures in geographic segment disclosures.

The authors include 11,328 firm-year observations (1,925 firms) spanning the period from 1985 to 2002 to determine whether the foreign earnings response coefficient is significantly positive with their proxies for increased disclosure. Overall, their results show that the foreign earnings response coefficient is increasing with the introduction of SFAS131, the increases in the number of geographic segments disclosed and the inclusion of performance measures in geographic segments. They advocate for the mandatory foreign earnings disclosure as a potential improvement of SFAS 131.

The studies discussed in this section provide me with a research setting. If foreign earnings are mispriced, will managers manage foreign earnings as much as they manage total earnings? If SFAS 131 represents an improvement of segment disclosure, will that means less foreign earnings management for the post-SFAS131 sample when compared to the pre-SFAS131 sample? In addition, if SFAS 131 brings about a change to financial disclosure and increases the reported segments for majority of companies, does it mean that managers are less likely to manage foreign earnings when compared with those in the companies reporting no change or decreased number of segments? These are some of the empirical questions researchers might be interested in.

2.2 Earnings Management

2.2.1 Definitions, Various Earnings Management Mechanisms and Research Methodologies

According to Schipper (1989), by "earnings management", she really means "disclosure management". It is a purposeful intervention with the intent of obtaining some private gain in the external financial reporting process, and it is opposed to the facilitation of the neutral operation of the process.

Schipper (1989) emphasizes on the purpose of private gain for managers to conduct earnings management. However, Healy & Wahlen (1999) focus on the managers' intent to impress stakeholders with better results or to get desirable contractual outcomes. According to Healy & Wahlen (1999), "earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers". Some of the recent researchers[21] adopt the same definition as Healy & Wahlen (1999).

There are various earnings management mechanisms. Managing accruals (e.g., Healy 1985; Jones 1991; McNichols and Wilson 1988; Rangan 1998; Teoh et al. 1998; Phillips et al. 2003) is the well-cited one. Operating income is the sum of cash from operation and accruals. When managers can not increase operating income through increasing cash inflow, they can use income-increasing accruals. Managers report higher

[21] Leuz et al. (2003) uses definition from Healy & Wahlen (1999) in examining systematic differences in earnings management across 31 countries. Roychowdhurry (2007) also uses definition from Healy & Wahlen (1999) in a discussion of earnings management through real activities manipulation.

current earnings by borrowing from future earnings. Accruals are mean reversion and when they reverse, managers are at risk of lower earnings in future periods. An example of using accruals for increasing income temporarily would be Teoh et al. 1998. In that paper, IPO[22] firms are documented to provide significantly less for uncollectible account receivable than matching firms without IPO issuing.

Choosing among acceptable accounting principles is another way to manipulate reported earnings. The straight-line depreciation method for recording expenses from the use of property, plant and equipment results in a flat rate of depreciation expense. However, changing it to such accelerated depreciation methods as double declining balance method will allow companies to record higher expenses in earlier years and lower expenses in later years of use of fixed assets. When companies need to save in "cookie jar" in certain years when performance is better, managers might opt to change to an accelerated depreciation method and record higher depreciation expenses in order to lower down operating incomes for those years.

In addition, both FIFO and LIFO[23] are acceptable methods in valuing inventory. Companies usually use either one of these two methods for both financial and tax reporting. Managers might change from FIFO to LIFO at times when price is inflationary. It allows managers to report higher cost of goods sold, lower profit margin thus results in tax savings. As Sunder (1973) points out, given rising prices, the LIFO

[22] IPO stands for "Initial Public Offering"
[23] FIFO stands for "first in first out" and LIFO stands for "last in first out"

method inventory costing leads to deferment of tax payments and consequently to an increase in the economic value of the firm.

Other evidences suggest that managers manage earnings through operational activities. Some examples include providing price discounts to increase sales and cutting R&D expense to manage earnings (e.g., Barber e al. 1991; Dechow and Sloan 1991; Bushee 1998). Roychowdhurry (2007) uses the term "real activities manipulation" for this type of earnings management. He provides evidence of companies that overproduce to report lower cost of goods sold, offer price discounts to increase sales, and reduce discretionary expenditures to improve profit margins.

If managers want to avoid scrutiny from auditors, classification shifting of core expenses to special items offers another low-cost alternative. McVay (2006) argues that managers overstate core earnings by shifting core expenses downwards. Higher core earnings are desirable to managers because they are considered more persistent and watched more closely by analysts. On the other hand, special items tend to be excluded from both pro forma and analysts earnings definitions. Another reason for engaging in classification shifting is that managers are not at risk of lower future earnings which would happen if they use accruals for earnings management.

Accounting academics have developed ways of detecting and measuring various earnings management mechanisms detailed in the above discussion. There are three methodologies commonly used in the studies of earnings management----aggregate accruals, specific accruals and the distribution of earnings after management. McNichols (2000) has a review of these three research methodologies.

The model of aggregate accruals, proposed by Jones (1991) and modified by Dechow et al. (1995), has been the most commonly used earnings management methodology in the literature. Jones (1991) models a linear relationship between total accruals and change in sales and property, plant and equipment. Dechow et al. (1995) argue that revenues can be manipulated through increasing sales on account, and therefore changes in accounts receivable, representing change in amount of credit sales, should be deducted from the original model. This modified version is referred to the modified Jones model.

Specific accruals, according to McNichols (2000), are applied to industry settings in which a single accrual is sizable and requires substantial judgment. Specific industries such as banking (e.g., Scholes et al., 1990) and property and casualty insurance (e.g., Petroni, 1992) are situation where different special accruals are used. These accruals are primarily loan loss reserves and claim loss reserves. Special accruals are not necessarily limited to these two industries only. For example, Teoh et al. (1998) use bad debt allowances as a special accrual to study IPO firms cross-sectionally.

The third methodology is to focus on the distribution of earnings around some specified benchmarks (thresholds), and examine whether there are low frequency of observations to the left of the thresholds and high frequency of observations to the right of the thresholds. These benchmarks are zero earnings, zero change in earnings and most recently, meeting analyst forecasts. B&D (1997) and Degeorge et al. (1999) are two classical papers in the field. More recently, McVay (2006) and Roychowdhurry (2007) look at firms specifically in the narrow interval to the right of the thresholds and

hypothesize that these firms are more likely to use the specific earnings management mechanism they talk about respectively[24]. These benchmark beaters tend to get the most benefit from earnings management.

The potential measurement problem in discretionary accruals has been criticized as a limitation of the Jones and modified Jones model[25]. According to McNichols (2000), these linear models do not consider long-term earnings growth and present little evidence for how aggregate accruals behave with or without earnings management. She suggests, "future progress in the earnings management literature is more likely to come from application of specific accrual and distribution-based tests than from aggregate accruals test."

My dissertation includes U.S. based MNCs except the regulated industries. As mentioned previously, if companies choose to report segments based on line-of-business rather than geographic areas, they don't need to disclose information about their foreign sales, long-live assets in each oversea operation except for a few major ones. Companies do not report other information such as account receivable, bad debt expense and depreciation expense on a segment basis. The insufficient information about MNCs foreign operations doesn't allow me to use specific accruals in modeling earnings management. With the measurement problem associated with aggregate accruals

[24] McVay (2006) focuses on classification shifting and Roychowdhurry (2007) focuses on real manipulation of operation activities.
[25]According to Collins & Hribar (2000) and Hansen (1999), to estimate accruals as the difference in succeeding balance sheet amounts induce measurement error due to the failure to adjust for merger/acquisition and divestiture activity.

discussed above, an empirical distribution approach outlined by B&D (1997) is more appropriate.

Section 2.2.2 discusses B&D (1997) and Section 2.2.3 discusses its application to both domestic and international studies of earnings management. The discussion on its application is not meant to be exclusive. To some extents, it might demonstrate that my application of B&D (1997) is justifiable given that mine, together with studies discussed in Section 2.2.3, are within the same stream of literature.

2.2.2 Introduction to Burgstahler and Dichev (1997)

B&D (1997), as well as other studies[26] of earnings management using a distributional approach, derive their ideas from Hayn (1995). Hayn (1995) reports evidences of firms avoiding losses:

> Interestingly, there is a point of discontinuity around zero. Specifically, there is a concentration of cases just above zero, while there are fewer than expected cases (assuming the above normal distribution) of small losses (i.e., just below zero). The frequency of observations in both the region just above and that just below zero departs significantly from the expected frequency under the normal distribution at the 1% significance level using the binomial test. These results suggest that firms whose earnings are expected to fall just below the zero earnings point engage in earnings manipulations to help them across the 'red line' for the year.(p.132)

B&D (1997) use transaction cost theory and prospect theory to explain why earnings are managed to avoid earnings decreases and losses. The transaction cost theory suggests that companies with higher earnings usually have favorable terms of transactions, and that some stakeholders use heuristic cutoffs at zero changes in earnings

[26] These studies include Dechow et al. (2003), Beaver et al. (2007), etc.

and zero level of earnings to determine the terms of contracts when the cost to acquire detailed information of a company is high.

Prospect theory developed by Kahneman and Tversky (1979) postulates that "decision-makers derive value from gains and losses with respect to a reference point, rather than from absolute levels of wealth." In other words, an individual benefits the most when an increase of wealth allows the individual to move from a loss to a gain. Zero change in earnings and zero level of earnings thus become two natural reference points in B&D (1997) in studying the managers' motivations in earnings management.

B&D (1997) assume, without earnings management, the distribution of earnings should be smooth and continuous. Because zero thresholds are the heuristic cutoffs for stakeholders, and managers have the most gain when they move across the zero thresholds. Managers have incentives to manipulate earnings cross the zero thresholds so that small losses become small profits, and small earnings decreases become small earnings increases. It thus creates a discontinuity at the zero threshold.

B&D (1997) rely on a large number of observations to study the distributional characteristic immediately to the left and right of zero thresholds. They use 64,466 observations spanning from 1976 to 1994 to depict the patterns of earnings distributions at the reference points. The paper is intuitive with histograms showing the discontinuity. They further provide evidence that cash flow from operations and changes in working capital, two components of earnings, are used to achieve earnings management.

2.2.3 Application of Burgstahler and Dichev (1997)

The novel approach adopted by B&D (1997) has been applied to recent studies of earnings management. According to ScienceDirect, 52 articles have cited B & D (1997).

Degeorge et al. (1999) investigate managers' incentives to attain three earnings' thresholds: to report profits, to sustain recent performance, and to meet analysts' expectations. Its contribution is to advance B&D (1997) in empirically demonstrating the desire of the managers' to meet analysts' expectations. From the CEOs' perspective, they have the incentive to increase current earnings at the expense of future performance when earnings are very close to shareholders' expectations. On the other hand, when their bonuses are near maximum, they have the incentive to reduce current earnings so that future thresholds are easier to meet.

Another contribution by Degeorge et al. (1999) is their finding that avoidance of losses is more prevailing than avoidance of earnings decreases and negative earnings surprises. Dechow et al. (2003), however, document that the listing requirements for the New York Stock Exchange (NYSE) changed in 1995 and companies were no longer required to have a positive income as a pre-requisite for listing on the exchange. Instead, the NYSE allowed loss firms to list if their revenues, market capitalization and operating cash flows exceeded certain thresholds imposed by the NYSE. In 1999, the NYSE allowed firms to list based on reported revenues and market capitalization. The finding of Dechow et al. (2003) is different from Degeorge et al. (1999) in that there is a general shift away from focusing on avoidance of earnings decreases and losses.

Brown and Caylor (2005) find a hierarchical change in the order of avoidance of missing analysts' forecasts, avoidance of losses and avoidance of earnings decreases since mid-1990s. One of the major differences between Brown and Caylor (2005) and B&D (1997) is that Brown and Caylor (2005) use quarterly earnings. Their results suggest the growing importance of the capital market as investors rewarded (penalized) firms for meeting (missing) analysts' expectations more than they did for meeting the other two thresholds, avoidance of losses and avoidance of earnings decreases.

Some researchers have studied banking industry which was excluded in the sample data in B&D (1997). Betty et al. (2002) hypothesize that public banks' shareholders rely more on heuristics cutoffs in evaluating firm performance than private banks' shareholders. When compared with private banks, public banks report fewer small earnings decreases and report longer strings of consecutive earnings increases. When earnings fall short of last year's level by small amount, mangers in public banks use the loan loss provision and security gain realizations to avoid earnings decreases. The asymmetric pattern of more small earnings increases is similar to that documented by B&D (1997). They suggest that earnings management might cause the predominance of small earnings increases in public banks.

The B&D (1997) methodology has been used to study earnings management in an international accounting setting. Glaum et al. (2004) sample 38,714 firm-year observations for U.S. companies and 3,524 firm-year observations for German companies for the years 1991 to 2000. They postulated that the patterns of threshold-oriented earnings management would differ between the two countries because of the

significant differences in their institutional environments. They found a similarity in the extent of earnings management to avoid losses and earnings decreases in both countries. However, because of the importance of capital market in relevant to Germany, earnings management to avoid negative earnings surprises is more evident in the U.S. than in Germany.

Shen & Chih (2005) extended the B&D (1997) methodology into the study of banks across 48 countries. Most countries impose strict regulatory requirements on bank to prevent the risk of widespread bank runs, e.g., capital adequacy ratio, liquidity ratio and non-performing loan ratio. The authors used 70,955 observations from 47,154 banks for the fiscal year from 1993 to 1999, and found that more than two-thirds of the countries exhibit a half bell-shaped distribution. The earnings distribution is different from non-financial industries in that the left hand side of the distribution is decidedly "shrunken". This represents a strong incentive of earnings management to avoid earnings decreases and losses in the banking industries.

Coppens & Peek (2005) investigate whether private companies engage in earnings management in eight countries in Europe. Managers in private companies do not face as intensive pressure from the capital market as public companies to report positive earnings and earnings increases. They found no evidence of avoidance of earnings decreases. However, they found that private companies avoid reporting small losses. They also examined the tax effect on the managers' incentive to report small positive earnings and earnings increases. In countries where financial and tax accounting practice are strongly aligned, firms do not avoid reporting small losses. This suggests managers in

private companies engage less in upward earnings management when alignment of tax and financial reporting is high.

Yu et al. (2006) utilizes the unique regulatory requirements in China as a setting to study whether firms manage earnings to meet the rights issue thresholds to raise capital. In 1994, the Chinese Securities Regulatory Committee (CSRC) required firm to have an average return-on-equity (ROE) of more than 10% in the previous three years before it could issue rights. The CSRC further tightened the requirement to more than 10% ROE for each of the previous three years in 1996. Due to the severe impact of the Asian Financial Crisis, the CSRC lowered the requirement in 1999. It required firms to have an average ROE above 10% in the past three years but not lower than 6% in any of these years. In 2001, CSRC lowered it requirement for the second time and firms need to only have an average ROC of above 6% in the previous three years for the right to raise capital.

These changes in thresholds do provide a unique setting for testing whether firms manage their ROE to meet the minimum requirements. Using the methodology from B&D (1997), they found results consistent with earnings management in response to changes in regulatory requirements during the period of 1994 to 2002. When the CSRC changes the criterion, companies manage their ROE to reach the minimum requirements. A higher percentage of companies meet the requirements slightly than miss the requirement slightly. Reflected in the histogram, a higher frequency of companies distributes to the right of the ROE thresholds.

Papers discussed in this subsection are meant to be representative, not exhaustive. It serves two purposes. First, earnings management is prevailing, regardless of the operating location and status of a company. It exists in both domestic companies and international companies; it exists in both public and private companies; and it exists in both regulated (e.g., banks) and unregulated companies. Secondly, the methodology outlined by B&D (1997) can be used to study earnings management in a cross sectional, time-series analysis. It applies to cross-border accounting and finance studies.

2.2.4 Alternative Interpretations of Burgstahler and Dichev (1997)

A number of researchers have questioned the results from B&D (1997). Some state that the presumption of earnings demonstrating a smooth distribution without earnings management is questionable. Dechow et al. (2003) examine whether firms with small profits have higher discretional accruals than firms with small losses as a result of managing their earnings to cross the thresholds. Using four different models for discretional accruals, they find that both types of firms have similar levels of discretionary accruals and similar proportions of positive discretionary accruals. Depending on how the null hypothesis is stated, if researchers assume that the discontinuity of the earnings distribution is caused by earnings management, their results can be interpreted as a Jones-type discretionary accruals doesn't really capture earnings management. If the researchers' null hypothesis is that the cause of discontinuity is unknown, then their inability to capture earnings management in small profit firms leave open the question of what the cause is.

Durtschi and Easton (2005) argue that the discontinuity in B&D (1997) is a result of a deflator. Beginning-of-the-year price or market capitalization reduces the loss observations immediately left of the zero point because loss firms tend to have a smaller beginning-of-the-year price or market capitalization than profit firms. It pushes the loss firms further left of the interval than immediately left of zero after scaling. Another reason is that the proportion of data with small losses that are deleted is greater than that of data with small profits simply because some of their beginning-of-year prices are not available in Compustat. In other words, sample selection bias allows the authors to observe a significant result for intervals immediately left and right of the zero point. Durtschi and Easton (2005) use earnings per share and find that the discontinuity found in B&D (1997) disappears.

Beaver et al. (2007) continue to question B&D (1997) but their results are quite different from Durtschi and Easton (2005) in that deflators and sample selection bias are not the causes of the discontinuity. They list the asymmetric effects of income tax and special items for profit and loss firms as reasons that contribute to a discontinuity at "zero" points in the distribution of earnings. Effective tax rates for profit firms are in general higher than those of the loss firms. They draw profit firms towards "zero" points but don't change the earnings distributions of the loss firms. In addition, special losses occur more often in the loss firms when compared with profit firms. They pull the loss firms away from zero and far into the negative spectrum of earnings distribution. However, special losses don't have much effect on the profit firms. Because of both effects from taxes and special losses, we observe the discontinuity documented in B&D

(1997). In other words, the discontinuity we observe might not be the result of management's discretionary behavior.

Jacob & Jorgensen (2007) re-examine the discontinuity using firms as their own controls. Earnings management is more likely to occur in the fourth quarter as exhibited in higher discretionary accruals in that quarter. The higher discretionary accruals will also reverse in the following quarters. If we aggregate quarterly earnings into annual earnings with annual periods ending at interim quarter-ends, we will probably observe a smoother earnings distribution using alternative annual periods. The results are consistent with the authors' expectation. Jacob & Jorgensen (2007) validate the B&D (1997) findings. They indicate that the discontinuity is not induced by scaling as suggested by Durtschi and Easton (2005), nor is the discontinuity induced by asymmetric tax treatment of gains and losses as suggested by Beaver et al. (2007). The paper provides future researchers with a certain level of comfort that the observation of discontinuity around benchmarks can be interpreted as a sign of earnings management.

Overall, the papers discussed in this subsection are persuasive in that methodologies are under constant development. During this process, we gain a better understanding of the prevailing phenomena of earnings management, and are better equipped with tools in studying the phenomena too. We will need to incorporate those refinements and changes towards original methodology in our studies. In my dissertation,

studying foreign earnings management, I will need to incorporate refinements and changes[27] made to B&D (1997) in designing my research.

2.3 Other Related Literature

My dissertation is the study of how foreign earnings are managed to avoid earnings decreases and losses, and how foreign earnings' distributions changed after SFAS 131. The above literature review focuses on foreign earnings, SFAS 131 and earnings management. Other literatures that are related to my topic and need to be discussed too. These are disclosure transparency, prospect theory, information asymmetry, transfer-pricing and international taxation issues. I discuss them in four subsections and relate the discussion to my research topic.

2.3.1 Disclosure Transparency

As discussed previously, Hermann & Thomas (2000) and Street et al. (2000) indicate that SFAS 131 improves the overall transparency of segment reporting. The following is a discussion of the literature about the negative association of disclosure transparency with earnings management. Through this discussion, I hope to be able to build a negative association between the transparency of SFAS 131 and earnings management. In other words, SFAS 131 has led to a reduction in earnings management.

Hirst & Hopkins (1998) investigate whether the evaluation of buy-side financial analysts of stock prices differs when companies use a clear reporting format on

[27] One example of such refinements and changes would be the calculation of test-statistics. Beaver et al. (2007) make change to B&D (1997) that results in a relatively conservative way of calculation. Please see CHAPTER 3 for further discussion.

comprehensive income and components. A clear reporting format[28] explicitly displays all comprehensive income activities and incorporates both realized and unrealized gains (losses) for marketable securities into the primary financial statements. The results show that a clear reporting format allows buy-side financial analysts to see through earnings management and evaluate stock price more accurately.

Hunton, Libby & Mazza (2006) conduct an experimental study on whether increased transparency in the reported format is useful in curtailing earnings management. Subjects sell available-for-sales securities to increase (decrease) earnings when it falls behind (beat) analysts' forecasts. Such behavior decreases significantly when the more transparent format for reporting comprehensive income is used. Their results show that easier detection of earnings management that resulted from greater transparency in financial reporting might in fact reduce the earnings management behavior.

Both Hirst & Hopkins (1998) and Hunton, Libby & Mazza (2006) suggest that managers are less likely to engage in earnings management when a more transparent reporting is adopted. Field et al. (2001) further point out that rational managers would not engage in earnings management in the absence of expected benefits. Such benefits might include a better compensation contract from compensation committees or a reduced political cost from trade unions or government agencies. If easier detection of earnings management reduces the expected benefits, then greater reporting transparency should reduce the prevalence of earnings management.

[28] In accordance to SFAS 130 *Reporting Comprehensive Income*, issued by FASB in June 1997.

Research discussed in this subsection shows a negative association between transparent disclosure and earnings management. Hermann & Thomas (2000) and Street et al. (2000) indicate that SFAS 131 improves the overall transparency when compared with SFAS 14. These improvements include companies increasing the number of segments reported, reporting detailed information about each segment and consistency about footnote disclosures with in the MD&A and the letter to shareholders. For those companies that have increased their transparency in segment reporting, chances are that managers are less likely to engage in earnings management.

2.3.2 Prospect Theory

My dissertation studies whether foreign earnings are managed to avoid earnings decreases and losses. The question becomes why overseas managers would like to manage foreign earnings in such a way to avoid earnings decreases and losses. Prospect theory developed by Kahneman and Tversky (1979) might provide me with an explanation.

Prospect theory is the most widely accepted alternative to expected utility theory and is important in the study of accounting issues. It is different from the expected utility theory in several aspects. The most important one of them is the notion of value in lieu of utility. Utility is defined in terms of net wealth. However, value is defined in terms of gains or losses when compared with a reference point. According to Kahneman and Tversky (1979), decision makers derive value from gains and losses with respect to a reference point, rather than from absolute levels of wealth.

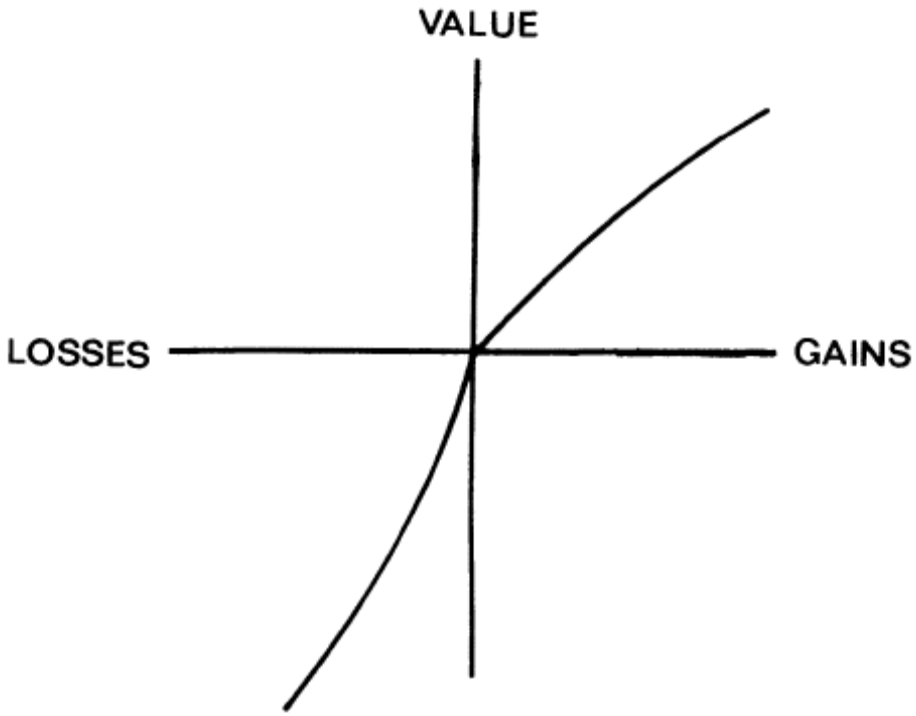


Figure 2.1 Value function from Kahneman and Tversky (1979)

Figure 2.1 is the value function adopted from Kahneman and Tversky (1979). The curve lying above the horizontal axis is the value function for gains. It is concave and not very steep. The curve lying below the horizontal axis is the value function for losses. It is convex and relatively steep. Depending on how a problem is framed, decision makers tend to be risk averse when the reference point is defined such that an outcome is viewed as gains. They tend to be risk-taking when the reference point is defined such that an outcome is viewed as losses. Furthermore, because value is always defined with respect to a reference point, prospect theory predicts that when reference point shifts, preferences will be affected.

A manager in charge of overseas' operation of a MNC might improve his (her) reputation when the performance of his (her) unit improves from last year. Alternatively, one might receive a bonus if he (she) is able to turn a unit from a loss to a profit. When chief executive officer (CEO) of a MNC evaluates the performance of the senior manager in charge of overseas' operations, he (she) might use heuristic cutoffs for an easier evaluation process. Although the CEO might have different reference points, zero change in foreign earnings and zero foreign earnings naturally become two rules of thumbs for the evaluation process.

The manager in charge of a foreign operation faces as much incentive as a CEO in charge of the overall operation, to manage foreign earnings to avoid earnings decreases and losses. In other words, prospect theory that explains phenomena observed in B&D (1997) allows me to hypothesize that foreign earnings are managed to avoid earnings decreases and losses. The two natural reference points become change in foreign earnings and level of foreign earnings.

2.3.3 Information Asymmetry

According to Ashbaugh & Pincus (2001), analysts typically have more knowledge about their home countries than they do of foreign countries. In other words, analysts are likely to have less information about foreign operations than domestic operations of MNCs. Duru & Reeb (2002) further investigate the relationship between international diversification and the accuracy of consensus analysts' earnings forecasts. Their findings are consistent with those of Ashbaugh & Pincus (2001) in that

international diversification is associated with less accurate forecasts, and analysts issue more optimistic forecasts to cultivate a better relationship with managers.

Krull (2004) also refers to the high information asymmetry setting in which the foreign subsidiaries operate. Foreign operations are often complex with subsidiaries located in many different countries. Financial statements are consolidated and contain little information about each individual subsidiary. Information is difficult to acquire from other sources due to language barriers and lack of knowledge about foreign markets.

Information asymmetry gives greater flexibility and latitude to managers who are responsible for the foreign operations. It allows the managers to use greater discretion in managing foreign earnings. A higher level or an increase in foreign earnings might translate into a promotion, a bigger bonus and increase the reputation of the manager.

Besides prospect theory, B&D (1997) use transactions costs theory to explain why earnings are managed to avoid earnings decreases and losses. Transactions costs theory assumes that the costs of storing, retrieving, and processing information are high, and as a result some stakeholders use heuristic cutoffs at zero levels or zero changes in earnings for decision-making processes. Information asymmetry in an international setting is similar to transactions costs theory in that costs for information are high. I further use information asymmetry to hypothesize that managers avoid reporting earnings decreases and losses in foreign earnings[29].

[29] Further discussion follows in hypotheses development in Section 2.4.

2.3.4 Transfer-pricing and International Taxation

U.S. Multinational Companies investing abroad are often involved in transactions among headquarters and subsidiaries. Transactions like these are of particular concern to tax authorities because they can be used to shift income to the jurisdiction with the lower tax rate. Countries adhere to the arm's-length standard in determining the appropriate amount of tax. Under the arm's-length standard, the amount that a foreign subsidiary pays to headquarters in U.S. should be equal to the amount that an unrelated party would pay if it engaged in a comparable transaction under comparable conditions.

Waegenaere, Sansing and Wielhouwer (2006) use an analytical model to study the effect of transfer-pricing rule inconsistency on the strategies and payoffs of the taxpayer and the tax authorities. The government adopts more aggressive audits if taxpayers use inconsistent pricing. It therefore deters taxpayers from shifting income to the country with the lower tax rate.

Krull (2004) reports U.S. Multinational Companies designate earnings from foreign subsidiaries as "permanently reinvested" under Accounting Principle Board (APB) Opinion No. 23. The purpose of the designation is to defer the recognition of U.S. tax expenses on repatriations. When earnings fall short of analysts' forecasts, managers are more likely to designate foreign earnings as "permanently reinvested" to defer the tax expenses upon repatriations. This is one of the few studies that multinational companies use pretax foreign income for earnings management purposes.

Transfer-pricing and international tax issues can get extremely complicated. These issues make this study worth pursuing as the empirical results might be different[30] from those of domestic studies without these issues. However, because foreign income used in this study is the aggregate number from different foreign subsidiaries, these effects are not considered in the research design so as to simplify the questions.

2.4 Hypotheses

According to Beaver et al. (2007), effective tax rates for profit firms are higher than those for the loss firms. The difference in tax rates draws profit firms towards "zero" points but do not change the earnings distributions of the loss firms. Beaver et al. (2007) point out the asymmetric tax effect for the profit and loss firms partially causes the discontinuity in B&D (1997). If earnings and change in earnings demonstrate discontinuities at zero thresholds, does it mean that pretax income will have a continuous and smooth[31] distribution if the difference in tax rates is no longer an issue in pretax income?

To answer this question requires me to compare the distributions using both pretax and after-tax income. If the distribution using pretax income is continuous while discontinuity exists for distribution using after-tax income, then the explanation offered by Beaver et al. (2007) seems to be plausible. However, if the distribution using pretax

[30] While earnings might be managed to avoid missing analysts' forecast, avoid losses and earnings decreases, it is not necessary the case for foreign earnings. Collins et al. (1998) provides an explanation in that the differential tax rate might motive managers to shift taxable income to a jurisdiction with lower tax rate. Senior managers for overseas operations thus face a different motivation from those in domestic operations.

[31] B&D (1997) assume the cross-sectional distributions of earnings changes and earnings levels are relatively smooth without earnings management.

income also shows a discontinuity, then the explanation offered by Beaver et al. (2007) might not be appropriate.

Ashbaugh & Pincus (2001) and Duru & Reeb (2002) found that international diversification makes it difficult for analysts to accurately evaluate a firm's performance. The complexity of foreign operations (Krull (2004)) gives further flexibility to managers in charge of overseas operations. The information asymmetry allows overseas managers to manage foreign earnings more conveniently when compared with those managers in charge of domestic operations. If pretax income is separated into pretax foreign and pretax domestic income, will they demonstrate different distributions because of different degree of earnings management? Similarly, if after-tax income is separated into after-tax foreign and after-tax domestic income, will they also demonstrate different distributions?

If earnings are managed to avoid earnings decreases and losses as indicated in B&D (1997), the above three questions represent a three-layer study of earnings management and as researchers continue to question, the earnings management related studies are becoming more detailed and refined. B&D (1997) starts from after-tax total earnings, and Beaver et al. (2007) continues on tax effect study. They have touched on the first two layers of study. I intend to study on the third, detailed layer. On this layer of study, I separate total earnings into after-tax foreign income and after-tax domestic income. I also separate pretax total earnings into pretax foreign income and pretax domestic income. My primary focus is on the study of both pretax and after-tax foreign

earnings. However, studying pretax and after-tax domestic earnings is necessary[32] and relevant too.

Prospect theory postulates that decision makers derive value from gains and losses with respect to reference points. Managers might get bigger bonuses and a better reputation if they are able to report earnings above certain thresholds. When the CEO is evaluating the performance of on-site managers in each foreign subsidiary, he (she) might also use reference points such as "profits" versus "losses", "increased foreign earnings when compared with last year" versus "decreased foreign earnings when compared with last year". In addition, Information asymmetry means that on-site managers in each subsidiary might have detailed accounting and financial information inaccessible to the CEO, shareholders, investors and financial analysts. This makes it easier for them to manipulate foreign earnings. Based on these analyses, I hypothesize:

1(a) Foreign earnings are managed to avoid earnings decreases[33].

(b) Foreign earnings are managed to avoid losses.

According to Hermann & Thomas (2000) and Street et al. (2000), SFAS 131 increases the overall transparency of segment reporting. After SFAS 131, companies increase the number of reported segments and give detailed information about each segment. Companies also disclose their foreign operations in segment reporting and increase overall transparency.

[32] B&D (1997) study total earnings, which includes both after-tax domestic and after-tax foreign earnings. Since I replicate B&D (1997) and use replication results to explain my findings, studying domestic earnings become necessary. Please see CHAPTER 3 & 5 for further discussion.

[33] Foreign earnings are managed to avoid decreases and losses in foreign earnings. It applies to the rest of discussion about foreign earnings.

As discussed previously, Hirst & Hopkins (1998) suggest more transparent disclosures lead to greater detection of earnings management. Hunton, Libby and Mazza (2006) indicate the likelihood of earnings management is negatively associated with greater disclosure transparency. Furthermore, Fields et al. (2001) argue that rational managers would less likely engage in earnings management without the expected value[34]. If easier detection of earnings management reduces the expected value, then greater reporting transparency should reduce the prevalence of earnings management.

B&D (1997) attribute the discontinuity at zero thresholds to the prevalence of earnings management. If the likelihood of earnings management is negatively associated with greater disclosure transparency, and if SFAS 131 truly increases the overall transparency of segment reporting as documented in Hermann & Thomas (2000) and Street et al. (2000), we might be able to observe a lesser degree of discontinuity because of the reduced likelihood of earnings management.

The above analysis suggests that if we separate the full sample into pre- and post-SFAS131 samples, we might be able to observe changes in the patterns of foreign earnings distribution. For example, a comparatively smooth distribution for the post-SFAS131 sample although it might still exhibit discontinuity. That leads me to the second pair of hypotheses:

2(a) The discontinuity is less obvious[35] for the post-SFAS131 sample in avoidance of earnings decreases.

[34] Examples of expected value would be a better compensation contract from compensation committees or a reduced political cost from trade unions or government agencies.
[35] See CHAPTER 3 for operational definition in testing "obviousness".

(b) The discontinuity is less obvious for the post-SFAS131 sample in avoidance of losses.

According to Hermann & Thomas (2000), The mean (median) number of operating segments disclosed for all firms under SFAS 131 is 3.8 (3.5). The mean (median) number of segments disclosed under SFAS 14 was 3.4 (3). SFAS 131 has resulted in a slightly finer disaggregation of segment information. In terms of geographic disclosure that is related more closely with foreign operations, Street et al. (2000) compare the numbers of geographic areas reported in 1997 and 1998. 43% of their sample companies report no change in the number of geographic areas, 35% of companies report an increase and 22% of companies report a decrease in the number of geographic areas.

Hermann & Thomas (2000), Street et al. (2000) and Doupnik & Seese (2001) indicate that companies increase the number of segments reported as they implement SFAS 131. Hermann & Thomas (1997) use signaling theory to explain that, without adequate disclosure of segments, investors may suspect that management intentionally conceals the extent of its operations in a high-risk country. This will result in a higher assessment of the overall risk from investors. On the other hand, an increase in reported segments might signal the willingness of the managers to communicate more information to investors. They might be less involved in managing foreign earnings when compared with managers who report a decreased number or no change in reported segments.

Companies might report business, geographic and operating segments. Foreign operations are usually disclosed in geographic segments. From 2000 to 2006, the average

number of geographic segments is steadily at about 55% of total number of segments[36]. Increase in the total number of segments might be a result of increase in business and operating segments. However, since geographic segment is the single most important component of total segments percentage wide, I use change in the total number of segments to proxy for the degree of voluntary disclosure in foreign earnings[37]. An increase in the number of segments represents a more transparent disclosure, vice versa.

Although companies might report an increased number of segments for voluntary disclosure purpose, they might disclose merger and acquisition activities in their segment reporting as well. These are genuine business activities and have less to do with voluntary disclosure of reporting more segments after SFAS 131. While testing whether an increase in reported segments signal a lesser degree of earnings management, it is important to control merger and acquisition activities[38]. I hypothesize the third pair of hypotheses as following:

3(a) The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of earnings decreases.

(b) The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of losses.

[36] Panel B of Table 4.7 reports the average number of business, geographic, operating and total segments from 2000 to 2006.

[37] Ideally, I should have used changes in geographic segments to proxy for the degree of voluntary disclosure in foreign earnings. However, such research design will substantially reduce the sample size as companies with foreign operations might choose to report their segments based on business or operating segments. They might not disclose their geographical information at all if geographical structure is not their internal managerial organization. This represents a limitation of the study and it is further explained in CHAPTER 7.

[38] Please see CHAPTER 4 for data selection criterion.

CHAPTER 3

RESEARCH DESIGN

Aggregate accruals, specific accruals and the distribution of earnings after management are the three common methodologies in studying earnings management. I choose the distributional approach for my study primarily for the following reasons:

Firstly, the information reported in segment reporting is based on internal organization and is not necessary the same with what is reported under GAAP. Companies do not need to report foreign sales, foreign property, plant and equipment if their segment reporting is based on line-of-business rather than on geographic areas. Even if they choose to report segments based on geographic areas, different companies can still choose to report in different degree of fineness[39]. This means that I do not have sufficient nor consistent information in estimating aggregate accruals.

Secondly, companies do not report information such as account receivables, bad debt expense and depreciation expense on a segment basis. Some of this information is necessary for studying earnings management using special accruals. Given these constraints, the distributional approach outlined by B&D (1997) is a more appropriate methodology to use in this study.

[39] For instance, companies can choose to report on US/others, continental, regional or national basis.

Finally, there are advantages associated with using distributional approach. While accruals only detect earnings management caused by accruals, the distributional approach detects earnings management by both accruals and cash flow. It also represents current trend as some recent studies[40] are focusing on the small loss and small profit firms, firms missing or beating analysts' forecast by small margins. All these studies need to use the distributional approach in order to identify such sample firms. As a result of the above analysis, I use B&D (1997) as a blue print to guide my research design.

3.1 Variable Definition

While my study focuses on foreign earnings management, studying domestic earnings is necessary given the research design of using B&D (1997). B&D (1997) study total earnings. Since total earnings is a function of foreign earnings, domestic earnings and taxes, to effectively use the finding of B&D (1997) to explain my results, I will need to analyze domestic earnings along with foreign earnings.

B&D (1997) scale total earnings by the market value at the end of year t-2. The basic purpose of scaling is to reduce the heterogeneity and difference in firm size. There are other approaches to homogenize firms, including but not limited to scaling by book value, sales or total assets other than scaling by market value. B&D (1997) reports qualitatively similar results by using other scaling denominators.

[40] Three recent examples are McVay (2006), Roychowdhurry (2007) and Brown and Pinello (2007).

To calculate the avoidance of earnings decreases, the change of pretax foreign income is scaled by the market value at the end of year t-2[41]:

$$\frac{ForeignIncome_t - ForeignIncome_{t-1}(Data273)}{Closing\ Price_{t-2}(Data199) * SharesOutstanding_{t-2}(Data25)}$$

To calculate the avoidance of losses, the pretax foreign income is scaled by the market value at the end of year t-1:

$$\frac{ForeignIncome_t(Data273)}{Closing\ Price_{t-1}(Data199) * SharesOutstanding_{t-1}(Data25)}$$

Hope et al. (2006) computes after-tax foreign income as pretax foreign income (Data273) adjusted for foreign taxes where foreign taxes are measured as the sum of foreign income taxes (Data64) and deferred foreign taxes (Data270).

Similar to the change of pretax foreign income, the change of pretax domestic income is calculated as:

$$\frac{DomesticIncome_t - DomesticIncome_{t-1}(Data272)}{Closing\ Price_{t-2}(Data199) * SharesOutstanding_{t-2}(Data25)}$$

And pretax domestic income is calculated as:

$$\frac{DomesticIncome_t(Data272)}{Closing\ Price_{t-1}(Data199) * SharesOutstanding_{t-1}(Data25)}$$

After-tax domestic income is the difference between pretax domestic income and domestic taxes. Domestic taxes are measured as the difference of total income taxes (Data16) and foreign taxes.

[41] Note that B&D (1997) scale total earnings by the market value at the end of year t-2. Since pretax foreign earnings, pretax domestic earnings and taxes jointly determine the amount of total earnings, I use the same scaling method.

3.2 Test Statistics

Following B&D (1997), I use a test-statistic based on the assumption that the expected number of observations in an interval is the average of the two adjacent intervals. The test-statistic[42] in any given interval is the difference between the actual and expected number of observations, divided by the estimated standard deviation of the difference.

Assume: N: the total number of observations;

Pi: the probability that an observation will fall into interval i;

The estimated standard deviation of the difference is:

$$\sqrt{NP_i(1-P_i)+0.25N(P_{i-1}+P_{i+1})(2-P_{i-1}-P_{i+1})}$$ [43]

Assume: n: the actual number of observations in the interval i;

$E(n_i)$: the expected number of observations in the interval i;

The test-statistic is:

$$\frac{n_i - E(n_i)}{\sqrt{NP_i(1-P_i)+0.25N(P_{i-1}+P_{i+1})(2-P_{i-1}-P_{i+1})}}$$

Whether the test-statistic is positive or negative depends solely on whether the actual number of observations in a certain interval is greater or less than the expected one. The calculation of the expected number of observations is based on the average of

[42] Test statistic is referred to standardized difference in B&D (1997).

[43] In calculating the standard deviation of the difference, B&D (1997) use:

$$\sqrt{NP_i(1-P_i)+0.25N(P_{i-1}+P_{i+1})(1-P_{i-1}-P_{i+1})}$$

Beaver et al.(2006) point out that the correct one should be:

$$\sqrt{NP_i(1-P_i)+0.25N(P_{i-1}+P_{i+1})(2-P_{i-1}-P_{i+1})}$$

actual number of observations in the two immediately adjacent intervals. It means that the expected number of observations is highly dependent on the actual number of observations in the two immediately adjacent intervals. As pointed out by B&D (1997), "While standardized differences reflect the proportionate discontinuity, they also depend on the number of observations, which varies across the earnings intervals."

B&D (1997) compare the test-statistic in testing whether the incentive for earnings management is increasing in the length of the previous run of consecutive earnings increases and in the length of the previous run of consecutive positive earnings. A large test-statistic in absolute value is interpreted as strong incentive in earnings management.

I hypothesize that earnings management is less obvious for post SFAS131 subset of sample in the second pair of hypotheses. And I hypothesize that earnings management is less obvious for companies that have increased the number of reported segments in the third pair of hypotheses. Similar to B&D (1997), I operationize "obviousness" by testing the significance of the difference in the test-statistics. A significant difference in test-statistics is considered to be more "obvious", and vice versa.

More specifically, I use "t-test" for formal testing purposes in the second and third pairs of hypotheses. "t-test" assumes that t-statistics are distributed as a student-t distribution.

T-statistic: independently, identically distributed as (0, $\frac{Df}{Df-2}$) (note: Df means degree of freedom);

$t_1 - t_2$: independently, identically distributed as (0, $\frac{2Df}{Df-2}$);

$\frac{t_1 - t_2}{\sqrt{\frac{2Df}{Df-2}}}$: independently, identically distributed as N(0,1);

Since Df is sufficiently large in my study, $\frac{t_1 - t_2}{\sqrt{\frac{2Df}{Df-2}}} \approx \frac{t_1 - t_2}{\sqrt{2}}$.

This is a one-tailed testing, I compare $\frac{t_1 - t_2}{\sqrt{2}}$ with the following critical values for conventional level of significance:

2.326 for 1% significance;

1.645 for 5% significance and;

1.282 for 10% significance.

3.3 Interval Width

The conventional interval width, according to Beaver et al. (2006), is \$0.005 for the market value deflated specification. However, B&D (1997) use \$0.0025 for scaled change of earnings ranging from -0.15 to +0.15 in testing avoidance of earnings decreases, and \$0.005 for scaled earnings level ranging from -0.25 to +0.35 in testing avoidance of losses. I follow B&D (1997) by using an interval width of \$0.0025 in testing avoidance of earnings decreases, and \$0.005 in testing avoidance of losses. I also

change the interval width as part of the robustness tests[44] (e.g., $0.00125 and $0.005 in testing avoidance of earnings decreases, and $0.0025 and $0.01 in testing avoidance of losses.).

[44] Please see CHAPTER 6 for further discussion.

CHAPTER 4

DATA AND DESCRIPTIVE STATISTICS

4.1 Data for Replication of Burgstahler and Dichev (1997)

As discussed in CHAPTER 3, I use the empirical distribution approach by B&D (1997) in designing research for this study. To determine if the finding of avoidance of earnings decreases and losses in B&D (1997) still applies to recent data, I replicate B&D (1997) using data consistent with my sample periods.

Consistent with B&D (1997), I use total income (Data172) in the entire database of Compustat North America and scale it by market value of the previous years[45], excluding only regulated (e.g., utilities) firms and financial institutions (Standard Industrial Classification (SIC) codes between 4400 and 5000 and between 6000 and 6500). The scaled change of earnings and the scaled level of earnings are truncated at upper and lower 1% to eliminate the outliers in each year. Note that all procedures in handling data strictly follow B&D (1997). Table 4.1 is a descriptive statistics for the replication in the full period.

The analysis is executed in full period, pre-SFAS131 period and post-SFAS131 period. For testing of avoidance of earnings decreases, the full period is the sample

[45] Change of total earnings is scaled by market value at the end of year t-2 and earnings level is scaled by market value at the end of year t-1 as discussed in CHAPTER 3.

Table 4.1 Descriptive Statistics for Replication of Burgstahler and Dichev (1997)

Panel A Scaled change in total income

Year	N	Mean	Std. dev.	25%	50%	75%
1992	1483	0.01676	0.29639	-0.04964	0.0074	0.06031
1993	1530	0.03025	0.24367	-0.02921	0.01108	0.0626
1994	1627	0.04677	0.20067	-0.00842	0.01937	0.07333
1995	1753	0.02152	0.16483	-0.01832	0.01356	0.05398
1996	1831	0.01058	0.18067	-0.03131	0.01157	0.04663
1997	1970	0.00944	0.17108	-0.02594	0.00972	0.0463
1998	2064	-0.00989	0.16894	-0.04416	0.00248	0.0324
1999	2055	0.01316	0.15166	-0.02623	0.00835	0.04567
2000	1994	-0.00869	0.26864	-0.04546	0.00367	0.04583
2001	2030	-0.04021	0.22058	-0.07836	-0.01718	0.01771
2002	2093	0.03836	0.3857	-0.03932	0.00862	0.06631
2003	2023	0.08491	0.38078	-0.00747	0.01618	0.08869
2004	1966	0.04986	0.40729	-0.01122	0.02239	0.09404
2005	1864	0.00817	0.18376	-0.02167	0.00697	0.04398
2006	1595	0.01903	0.11757	-0.01287	0.00989	0.04493
Total	27,878					

Panel B Scaled total income

Year	N	Mean	Std. dev.	25%	50%	75%
1991	1509	-0.03731	0.30875	-0.03609	0.05059	0.08613
1992	1566	-0.02562	0.24041	-0.03574	0.04013	0.07329
1993	1671	-0.00766	0.1917	-0.01689	0.41572	0.07257
1994	1819	0.01968	0.13979	0.00728	0.05244	0.0787
1995	1888	0.02078	0.16237	0.01068	0.05963	0.09277
1996	2053	0.01587	0.1691	0.00341	0.05155	0.08263
1997	2194	0.00952	0.16129	-0.00133	0.0461	0.07911
1998	2213	-0.0086	0.15414	-0.02322	0.03532	0.0643
1999	2169	-0.01143	0.20511	-0.02707	0.04013	0.07635
2000	2149	-0.01787	0.23729	-0.03147	0.03263	0.07856
2001	2190	-0.14014	0.50897	-0.12668	0.00464	0.04994
2002	2145	-0.1779	0.787	-0.12484	0.00553	0.05061
2003	2058	-0.0902	0.4345	-0.08761	0.03481	0.071
2004	2000	-0.00171	0.19046	-0.01441	0.03672	0.06667
2005	1929	-0.00138	0.1483	-0.01227	0.03753	0.0629
2006	1648	0.01259	0.1358	0.00174	0.04409	0.07136
Total	31,201					

Notes:
1. Scaled change in total income is the after-tax total earnings(Compustat item #172) at year t minus the after-tax total earnings at year t-1, to be divided by market value at the end of fiscal year t-2 (Compustat item #25 x Compustat item #199);
2. Scaled total income is the after-tax total earnings (Compustat item #172) at year t divided by market value at the end of fiscal year t-1 (Compustat item #25 x Compustat item #199).

period from 1992[46] to 2006, the pre-SFAS131 period is from 1992 to 1997, and the post-SFAS131 period is from 2001 to 2006. For testing of avoidance of losses, the full period is the sample period from 1991 to 2006, the pre-SFAS131 period is from 1991 to 1997, and the post-SFAS131 period from 2000 to 2006. I exclude data in 1998 and 1999 as 1998 – 1999 is the implementation period for SFAS 131[47].

4.2 Descriptive Statistics

For my study, I include annual data from 1991 to 2006[48] in the entire database of Compustat North America, excluding only regulated (e.g., utilities) firms and financial institutions. Following B&D (1997), I also eliminate the upper and lower 1% of the observations for each variable for each year to avoid the effect of extreme values. Variables that have observations truncated are: pretax foreign income, after-tax foreign income, pretax domestic income and after-tax domestic income.

Table 4.2 Panel A shows the data selection process. Deleting firms reporting "missing data" or "0" for earnings in all sample years is necessary because Compustat might report a firm with no foreign operation as "0" earnings. Deleting these observations biases against finding favorable results. In addition, firms incorporated outside the U.S. do not have to observe the requirement of SFAS 131, and as a result, they are deleted. Panel B is the distribution of firms by industry using two-digit SIC

[46] Note that the calculation of change of earnings require two years of earnings data, that is why the sample period for testing avoidance of earnings decreases starts one year later than testing avoidance of losses.
[47] In accordance with Hope, O.-K., W. Thomas, and G.Winterbotham, 2006. Geographic Earnings Disclosure and Trading Volume. Working paper, University of Toronto and University of Oklahoma
[48] I further include data of 1990 for the scaling purpose.

code. Of the 3,180 firms selected, 562 firms are in business service and account for 17.7% of the total sample firms. A total of 58 industries are covered by the sample firms.

Table 4.2 General Sample Descriptions

Panel A Sample selection

Total number of firms with data273[49] available in at least one year from 1991 to 2006	4,521
Less: Regulated firms (SIC 4400-5000 and 6000-6500)	(440)
Firms reporting "missing data" or "0" for Data273 in all years	(374)
Firms reporting "missing data" or "0" for Data272[50] in all years	(8)
Firms incorporated[51] in foreign countries	(519)
Final sample firms	3,180

Panel B Distribution of firms by industry

SIC	Industry Classification	OBS.	PECT.
01	Agriculture Production-Crops	10	0.31
02	Agriculture Production-Lvstk, Animal Spec	1	0.03
07	Agricultural Services	2	0.06
09	Fishing, Hunting & Trapping	1	0.03
10	Metal Mining	12	0.38
12	Coal Mining	6	0.19
13	Oil and Gas Extraction	93	2.92
14	Mng, Quarry Nonmtl Minerals	4	0.13
15	Bldg Constr - Gen Contr, Op Bldr	17	0.53
17	Construction - Special Trade	9	0.28
20	Food and Kindred Products	54	1.7
21	Tobacco Products	7	0.22
22	Textile Mill Products	27	0.85
23	Apparel & Other Finished Pds	41	1.29
24	Lumber and Wood Pds, Ex Furn	12	0.38
25	Furniture and Fixtures	22	0.69
26	Paper and Allied Products	50	1.57
27	Printing, Publishing & Allied	42	1.32
28	Chemicals & Allied Products	281	8.84
29	Pete Refining & Related Inds	29	0.91
30	Rubber & Misc Plastics Prods	59	1.86
31	Leather and Leather Products	12	0.38
32	Stne, Clay, Glass, Concrete Pd	23	0.72

[49] Data273 is the pretax foreign income.
[50] Data272 is the pretax domestic income.
[51] Compustat North America uses the term "incorporate". It also means "register as a legal entity".

Table 4.2 - *Continued*

33	Primary Metal Industries	56	1.76
34	Fabr Metal, Ex Machy, Trans Eq	69	2.17
35	Indl, Comml Machy, Computer Eq	374	11.8
36	Electr, Oth Elec Eq, Ex Cmp	385	12.1
37	Transportation Equipment	108	3.4
38	Meas Instr, Photo Gds; Watches	288	9.06
39	Misc Manufacturing Industries	54	1.7
40	Railroad Transportation	5	0.16
41	Transit & Passenger Trans	2	0.06
42	Motor Freight Trans, Warehouse	13	0.41
50	Durable Goods - Wholesale	81	2.55
51	Nondurable Goods - Wholesale	40	1.26
52	Bldg Matl, Hardwr, Garden - Retl	3	0.09
53	General Merchandise Stores	8	0.25
54	Food Sotres	6	0.19
55	Auto Dealers, Gas Stations	3	0.09
56	Apparel and Accessory Stores	14	0.44
57	Home Furniture & Equip Store	7	0.22
58	Eating and Drinking Places	14	0.44
59	Miscellaneous Retail	35	1.1
65	Real Estate	11	0.35
67	Holding, Other Invest Offices	19	0.6
70	Hotels, Other Lodging Places	6	0.19
72	Personal Services	11	0.35
73	Business Services	562	17.7
75	Auto Repair, Services, Parking	11	0.35
76	Misc Repair Services	3	0.09
78	Motion Pictures	29	0.91
79	Amusements, Recreation	16	0.5
80	Health Services	22	0.69
81	Legal Services	1	0.03
82	Educational Services	13	0.41
87	Engr, Acc, Resh, Mgmt, Rel Svcs	75	2.36
89	Services, Nec	1	0.03
99	Nonclassifiable Establishmnt	21	0.66
	Total	3180	100%

Note:
“SIC” stands for “Standard Industrial Classification”, “Obs.” stands for “Observations” and “PECT.” stands for “Percentage”.

4.3 Data for the First Pair of Hypotheses

I include data from 1991 to 2006 in testing Hypothesis H1a. Because of the calculation of change in earnings requires two consecutive years of earnings data, the data in testing Hypothesis H1b is from 1992 to 2006.

Table 4.3 and Table 4.4 list the number of firms by year used in testing of the first pair hypotheses. Table 4.3 uses pretax foreign income and Table 4.4 uses after-tax foreign income. As discussed previously, the testing of avoidance of earnings decreases and losses in foreign earnings inevitably requires the similar analysis of domestic earnings because of the constraint imposed by B&D (1997). Table 4.5 uses pretax domestic income and Table 4.6 uses after-tax domestic income in testing domestic earnings being managed to avoid earnings decreases and losses[52].

Table 4.3 Descriptive Statistics for the First Pair of Hypotheses by Year for Scaled Values of Change in Pretax Foreign Income and Pretax Foreign Income

Panel A: Scaled change in pretax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
1992	880	-0.00153	0.07606	-0.01587	-0.00046	0.01211
1993	910	-0.00032	0.07404	-0.01392	-0.00041	0.01081
1994	973	0.01297	0.05599	-0.00238	0.0047	0.01927
1995	1022	0.01199	0.05296	-0.00321	0.00524	0.0198
1996	1065	0.00338	0.04829	-0.00901	0.00258	0.01368
1997	1137	0.00492	0.0485	-0.00607	0.00222	0.0136
1998	1129	-0.00213	0.04125	-0.01018	0.00048	0.01029
1999	1089	0.00406	0.04226	-0.00558	0.00182	0.01356
2000	1042	0.01187	0.05897	-0.00553	0.00286	0.01868
2001	1089	-0.00524	0.05874	-0.01358	-0.00097	0.0066
2002	1150	0.01683	0.10881	-0.00616	0.00149	0.01532
2003	1181	0.01176	0.08861	-0.00296	0.00346	0.01682
2004	1223	0.02159	0.08991	-0.00183	0.00676	0.02659
2005	1281	0.00301	0.04713	-0.00616	0.0015	0.01195
2006	1139	0.00792	0.04219	-0.00234	0.00273	0.01404
Total	16,310					

[52] For brevity, I use the same term as B&D (1997). More specifically, it means that domestic earnings are managed to avoid decreases and losses in domestic earnings.

Table 4.3 - *Continued*

Panel B: Scaled pretax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
1991	936	0.02861	0.08663	0	0.01645	0.04716
1992	972	0.0171	0.07873	-0.00066	0.01164	0.03747
1993	1039	0.01108	0.05964	-0.00242	0.01	0.03089
1994	1107	0.01982	0.04682	0.00096	0.01271	0.03721
1995	1141	0.0243	0.0486	0.00178	0.01746	0.04374
1996	1250	0.02063	0.04746	0.00015	0.01293	0.03691
1997	1279	0.0187	0.04756	0.00047	0.01374	0.03554
1998	1260	0.01071	0.04576	0	0.01021	0.02768
1999	1219	0.01418	0.06542	0.00029	0.01325	0.03698
2000	1206	0.02021	0.07114	0	0.01112	0.03818
2001	1257	0.00645	0.10486	-0.00339	0.00762	0.03091
2002	1301	0.01246	0.11984	-0.00197	0.00769	0.03105
2003	1321	0.02469	0.09301	0.00025	0.01589	0.04761
2004	1395	0.02621	0.05482	0.00135	0.01431	0.04059
2005	1427	0.01821	0.04585	0.00047	0.01258	0.03646
2006	1254	0.02186	0.05038	0.00208	0.01577	0.04081
Total	19,364					

Notes:

1. Scaled change in pretax foreign income is the pretax foreign earnings(Compustat item #273) at year t minus the pretax foreign earnings at year t-1, to be divided by market value at the end of fiscal year t-2 (Compustat item #25 x Compustat item #199);
2. Scaled pretax foreign income is the pretax foreign earnings (Compustat item #273) at year t divided by market value at the end of fiscal year t-1 (Compustat item #25 x Compustat item #199).

Table 4.4 Descriptive Statistics for the First Pair of Hypotheses by Year for Scaled Values of Change in After-tax Foreign Income and After-tax Foreign Income

Panel A: Scaled change in after-tax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
1992	691	-0.00347	0.07048	-0.01466	-0.00009	0.01070
1993	717	0.00261	0.07712	-0.01221	-0.00033	0.00953
1994	786	0.01179	0.05895	-0.00337	0.00353	0.01757
1995	831	0.00887	0.0487	-0.00381	0.00337	0.01381
1996	865	0.00264	0.04494	-0.00747	0.00145	0.01143
1997	930	0.00282	0.04713	-0.0056	0.00122	0.00966
1998	929	-0.00394	0.03868	-0.00937	0.00043	0.00762
1999	892	0.00322	0.03504	-0.00521	0.00131	0.01102
2000	867	0.00888	0.05152	-0.00524	0.00224	0.01624
2001	898	-0.00571	0.05114	-0.01177	-0.0011	0.00496
2002	941	0.01649	0.10244	-0.00515	0.00156	0.01297
2003	970	0.00898	0.06555	-0.00276	0.00289	0.01461
2004	1028	0.018	0.08297	-0.00238	0.00561	0.02447
2005	1084	0.00055	0.04609	-0.00574	0.00126	0.01011
2006	985	0.0067	0.04	-0.00175	0.00246	0.01203
Total	13,414					

Table 4.4 - *Continued*

Panel B: Scaled after-tax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
1991	765	0.01373	0.08032	-0.00121	0.01003	0.03333
1992	791	0.00512	0.07386	-0.00221	0.00729	0.02533
1993	861	0.00225	0.06173	-0.00452	0.00619	0.02231
1994	921	0.01158	0.04364	0	0.00796	0.02583
1995	964	0.01453	0.04302	0	0.01084	0.03038
1996	1050	0.01204	0.03873	-0.001	0.00825	0.02735
1997	1081	0.01037	0.04093	-0.00074	0.00859	0.02497
1998	1057	0.00347	0.04084	-0.0009	0.00621	0.01906
1999	1030	0.00529	0.05758	-0.00035	0.00883	0.0245
2000	1027	0.01135	0.05332	-0.0014	0.00741	0.025
2001	1061	-0.00789	0.11557	-0.00706	0.0042	0.02047
2002	1091	0.00055	0.09734	-0.00421	0.00517	0.02279
2003	1130	0.01262	0.08033	-0.00011	0.01136	0.03448
2004	1213	0.01735	0.04817	0.00065	0.00977	0.02957
2005	1241	0.01098	0.04376	0	0.00928	0.02811
2006	1110	0.01284	0.04785	0.00084	0.01143	0.03117
Total	16,363					

Notes:

1. Scaled change in after-tax foreign income is the pretax foreign earnings(Compustat item #273) adjusted for foreign taxes at year t minus the pretax foreign earnings adjusted foreign taxes at year t-1, to be divided by market value at the end of fiscal year t-2 (Compustat item #25 x Compustat item #199). The foreign taxes are measured as the sum of foreign income taxes(Compustat item #64) and deferred foreign taxes(Compustat item #270);
2. Scaled foreign earnings is the pretax foreign earnings (Compustat item #273) adjusted for foreign taxes at year t divided by market value at the end of fiscal year t-1 (Compustat item #25 x Compustat item #199). The foreign taxes are measured in the same way as note 1.

Table 4.5 Descriptive Statistics for the First Pair of Hypotheses by Year for Scaled Values of Change in Pretax Domestic Income and Pretax Domestic Income

Panel A: Scaled change in pretax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
1992	888	0.03548	0.24688	-0.03285	0.01665	0.08452
1993	919	0.01598	0.18394	-0.03317	0.00858	0.05645
1994	981	0.04233	0.15796	-0.00661	0.0211	0.07436
1995	1031	0.02005	0.1397	-0.02188	0.01101	0.05191
1996	1080	0.01157	0.13738	-0.03349	0.0123	0.05127
1997	1149	0.0078	0.11805	-0.02401	0.01054	0.04716
1998	1139	-0.01088	0.13008	-0.04484	0.00036	0.03409
1999	1099	0.00955	0.12423	-0.02958	0.00617	0.04512
2000	1051	-0.00446	0.17975	-0.04108	0.00179	0.04109
2001	1098	-0.0382	0.17723	-0.08042	-0.01819	0.0162
2002	1159	0.06078	0.33202	-0.02313	0.0114	0.07111
2003	1187	0.06992	0.60431	-0.01726	0.00709	0.05194
2004	1226	0.02762	0.36804	-0.0133	0.01609	0.07182

Table 4.5 – *continued*

2005	1283	0.01779	0.12411	-0.01572	0.00876	0.0394
2006	1144	0.01192	0.08082	-0.01315	0.00634	0.03673
Total	16,434					

Panel B: Scaled pretax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
1991	942	-0.04094	0.34388	-0.46866	0.04817	0.0996
1992	981	-0.00007	0.19887	-0.19186	0.46198	0.08866
1993	1047	0.00556	0.18626	-0.01874	0.05011	0.09094
1994	1118	0.03743	0.12055	0.00886	0.05718	0.0977
1995	1156	0.0393	0.14157	0.00759	0.06327	0.11269
1996	1261	0.03467	0.12657	0.00285	0.05445	0.10028
1997	1290	0.02599	0.13619	0.00394	0.04846	0.09329
1998	1269	0.00339	0.1417	-0.19393	0.03333	0.07479
1999	1227	0.00164	0.1753	-0.02019	0.03617	0.08436
2000	1217	-0.00766	0.21063	-0.03244	0.02924	0.08546
2001	1266	-0.13435	0.53732	-0.11159	0.00001	0.05148
2002	1306	-0.14178	0.86754	-0.08631	0.0039	0.05676
2003	1329	-0.0537	0.31034	-0.07026	0.01993	0.07387
2004	1397	-0.0081	0.17554	-0.02388	0.02414	0.0638
2005	1428	0.00322	0.12289	-0.01629	0.02629	0.06267
2006	1255	0.01088	0.11493	-0.0078	0.03186	0.06825
Total	19,489					

Notes:

1. Scaled change in pretax domestic income is the pretax domestic earnings(Compustat item #272) at year t minus the pretax domestic earnings at year t-1, to be divided by market value at the end of fiscal year t-2 (Compustat item #25 x Compustat item #199);
2. Scaled pretax domestic income is the pretax domestic earnings (Compustat item #272) at year t divided by market value at the end of fiscal year t-1 (Compustat item #25 x Compustat item #199).

Table 4.6 Descriptive Statistics for the First Pair of Hypotheses by Year for Scaled Values of Change in After-tax Domestic Income and After-tax Domestic Income

Panel A: Scaled change in after-tax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
1992	697	0.02548	0.23167	-0.02448	0.01074	0.06121
1993	724	0.0175	0.18509	-0.02007	0.00676	0.03916
1994	793	0.03762	0.14878	-0.00619	0.01427	0.05725
1995	839	0.01502	0.12603	-0.01861	0.00729	0.03924
1996	875	0.00323	0.10839	-0.02523	0.00775	0.03569
1997	936	0.00285	0.09247	-0.02124	0.00669	0.03111
1998	933	-0.01122	0.11715	-0.03255	-0.00165	0.02078
1999	897	0.00488	0.10567	-0.02098	0.00427	0.03063
2000	872	-0.01219	0.17263	-0.03354	-0.00039	0.02534
2001	902	-0.03336	0.16471	-0.05901	-0.01328	0.01162
2002	946	0.05104	0.29247	-0.02041	0.00756	0.04725
2003	973	0.0567	0.46304	-0.0128	0.00539	0.04382

Table 4.6 - *continued*

2004	1028	0.01481	0.45235	-0.00841	0.01221	0.05794
2005	1086	0.01342	0.12875	-0.01509	0.00435	0.02789
2006	991	0.00923	0.08091	-0.01316	0.0047	0.02623
Total	13,492					

Panel B: Scaled after-tax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
1991	770	-0.06994	0.3434	-0.04681	0.02787	0.06302
1992	798	-0.02418	0.20242	-0.01807	0.02963	0.0552
1993	868	-0.01688	0.1904	-0.02005	0.03308	0.05824
1994	930	0.01718	0.10676	0.00387	0.03802	0.06441
1995	976	0.01732	0.12298	0.00066	0.04092	0.07277
1996	1059	0.01444	0.10715	-0.00076	0.0352	0.06388
1997	1090	0.00614	0.12106	-0.00009	0.03229	0.06017
1998	1062	-0.01051	0.131	-0.01639	0.02035	0.04861
1999	1035	-0.01692	0.15893	-0.02046	0.02212	0.05432
2000	1032	-0.02022	0.17859	-0.02724	0.0177	0.05291
2001	1065	-0.14193	0.55034	-0.09189	-0.00336	0.03302
2002	1094	-0.13666	0.72621	-0.07874	0.002	0.03602
2003	1136	-0.061747	0.29142	-0.06471	0.01232	0.05073
2004	1214	-0.02052	0.17204	-0.0253	0.01828	0.04371
2005	1243	-0.0103	0.12299	-0.01421	0.01925	0.04421
2006	1111	-0.00191	0.10626	-0.00888	0.02235	0.04613
Total	16,483					

Notes:

1. Scaled change in after-tax domestic income is the pretax domestic earnings(Compustat item #272) adjusted for domestic taxes at year t minus the pretax domestic earnings adjusted domestic taxes at year t-1, to be divided by market value at the end of fiscal year t-2 (Compustat item #25 x Compustat item #199). The domestic taxes are measured as total income taxes (Compustat item #16) less foreign taxes. And foreign taxes are measured as the sum of foreign income taxes(Compustat item #64) and deferred foreign taxes(Compustat item #270);
2. Scaled after-tax domestic income is the pretax domestic earnings (Compustat item #272) adjusted for domestic taxes at year t divided by market value at the end of fiscal year t-1 (Compustat item #25 x Compustat item #199). The domestic taxes are measured in the same way as note 1.

4.4 Data for the Second Pair of Hypotheses

To further understand whether earnings management patterns reflected in the earnings distribution change after SFAS 131, I divide the full sample into pre-SFAS131 and post-SFAS131 samples. In addition, to test the second pair of hypotheses, I

eliminate observations with fiscal year end on December 1998 to December 1999 as 1998 – 1999 is the implementation period of SFAS 131.

Moreover, testing of avoidance of earnings decreases requires a difference of earnings for two consecutive years. The post-SFAS131 sample has data from January 2001 to December 2006 (6 years), correspondently, data for the pre-SFAS131 period should be from January 1992 to December 1997. The post-SFAS131 period for the testing of avoidance of losses is from January 2000 to December 2006 (7 years), correspondently, data for the pre-SFAS131 period should be from January 1991 to December 1997.

The pre-SFAS131 sample includes 2,011 firms. The post-SFAS131 sample includes 2,260 firms. There are 1,440 firms (approximately 70%) included in both the pre-SFAS131 and the post-SFAS131 sample.

4.5 Data for the Third Pair of Hypotheses

Data from the post-SFAS131 period only (January 2000 to December 2006) is used to test whether earnings management patterns differ between companies reporting an increased number of segments and companies reporting a decreased or no change in the number of segments. To separate these two groups, I use the number of reported segments in the fiscal year end of both 1997 and 2000. If a company reports more segments at the end of the fiscal year 2000 compared with what is reported at the end of the fiscal year 1997, I count it as having an increased number of segments. Otherwise, it is considered as having a decreased or no change in number of segments.

A company might report a change in segments because of genuine business needs and not be caused by earnings management. Acquisitions and mergers are events that will affect a firm's reported segments. There are only four data items reporting a company's acquisition and merger activities in Compustat. These are, Data360 for acquisition/merger pretax, Data361 for acquisition/merger after-tax, Data362 for acquisition/merger basic EPS effect, and Data363 for acquisition/merger diluted EPS effect.

A firm reporting any of these four data items is considered having acquisitions and mergers and therefore, deleted from the sample. Table 4.7 Panel A describe the sample used to test the third pair of hypotheses. Panel B tabulates the average number of segments reported by sample firms in the post SFAS 131 period. Compustat groups segments based on business, geographic and operating segments. On average, the total number of segments reported by companies has declined steadily from 5.26 segments in 2000 to 3.53 segments in 2006.

Table 4.8 and Table 4.9 list the number of firms by year used to test the third pair of hypotheses. The difference between the two tables is that Table 4.8 uses pretax foreign earnings observations and Table 4.9, after-tax foreign earnings observations. Similarly, Table 4.10 lists the number of firms using pretax domestic earnings observations and Table 4.11 uses after-tax domestic earnings observations.

Table 4.7 Sample Descriptions for the Third Pair of Hypotheses

Panel A Sample selection	
Number of firms reporting increased segments from year 1997 to 2000	1177
Less: acquisition and merger	(234)
Total sample firms for increased segments	943
Versus	
Number of firms reporting no change in segments from year 1997 to 2000	330
Less: acquisition and merger	(45)
Total firms for reporting no change in segments	285
And	
Number of firms reporting decreased segments from year 1997 to 2000	368
Less: acquisition and merger	(50)
Total firms for reporting decreased segments	318
Total sample firms reporting no change or decreased segments	603[53]

Panel B Average number of segments reported in post-SFAS131 period

Year	Business	Geographic	Operating	Total
2000	2.07	2.77	0.42	5.26
2001	1.94	2.69	0.39	5.02
2002	1.82	2.66	0.38	4.86
2003	1.73	2.55	0.37	4.65
2004	1.65	2.51	0.4	4.56
2005	1.59	2.4	0.36	4.35
2006	1.3	1.92	0.31	3.53

Note:
1. The tabulation is averaged on a total of 1,546 firms (Sum of 943 firms reporting an increased number of segments and 603 firms reporting a decreased or no change in number of segments).
2. The column "Total" is the sum for "Business", "Geographic" and "Operating" segments.

[53] Calculated as 285 plus318

Table 4.8 Descriptive Statistics for the Third Pair of Hypotheses by Year for Scaled Values of Change in Pretax Foreign Income and Pretax Foreign Income

Panel A: Samples with increases in number of segments reported-- Scaled change in pretax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
2001	575	-0.00772	0.04817	-0.01775	-0.00238	0.00694
2002	563	0.01327	0.10117	-0.00763	0.00157	0.01843
2003	562	0.00808	0.06888	-0.00417	0.00424	0.01844
2004	571	0.01835	0.07914	-0.00149	0.00924	0.02951
2005	570	0.00594	0.05222	-0.00706	0.00219	0.01375
2006	467	0.00831	0.0519	-0.0037	0.0032	0.01504
Total	3,308					

Panel B: Samples with decreases or no change in number of segments reported-- Scaled change in pretax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
2001	271	0.00423	0.10652	-0.00932	-0.00002	0.01023
2002	278	0.02382	0.15269	-0.00604	0.00038	0.01065
2003	269	0.02557	0.12112	-0.00146	0.00302	0.02038
2004	272	0.04161	0.29706	-0.00209	0.00356	0.02407
2005	287	0.00189	0.05398	-0.00456	0.00082	0.00858
2006	240	0.0036	0.03768	-0.00192	0.0018	0.01194
Total	1,617					

Panel C: Samples with increases in number of segments reported -- Scaled pretax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
2000	637	0.02548	0.0625	0.00094	0.01434	0.04338
2001	615	0.01102	0.10325	-0.00405	0.01028	0.03532
2002	614	0.0151	0.08643	-0.00114	0.01204	0.03527
2003	618	0.02738	0.08745	0.00143	0.02055	0.05465
2004	619	0.02843	0.04939	0.00321	0.01969	0.0437
2005	603	0.02458	0.04691	0.00365	0.01785	0.04407
2006	488	0.02761	0.05035	0.00586	0.02056	0.0476
Total	4,194					

Panel D: Samples with decreases or no change in number of segments reported-- Scaled pretax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
2000	313	0.00684	0.13036	-0.00532	0.0041	0.02895
2001	318	0.00938	0.17924	-0.00571	0.00393	0.02765
2002	313	0.0397	0.3516	-0.00169	0.0044	0.02733
2003	306	0.0701	0.40561	0	0.01147	0.04549
2004	325	0.04464	0.16807	0.00001	0.00958	0.0383
2005	313	0.01936	0.05991	0	0.00766	0.03223
2006	261	0.02063	0.05831	0.00026	0.00883	0.03656
Total	2,149					

Table 4.8 - *Continued*

Notes:

1. Samples in all panels are post SFAS131data. Data period for testing avoidance of earnings decreases is from 2001 to 2006 and for testing avoidance of losses from 2000 to 2006.
2. Scaled change in pretax foreign income is the pretax foreign earnings(Compustat item #273) at year t minus the pretax foreign earnings at year t-1, to be divided by market value at the end of fiscal year t-2 (Compustat item #25 x Compustat item #199);
3. Scaled pretax foreign income is the pretax foreign earnings (Compustat item #273) at year t divided by market value at the end of fiscal year t-1 (Compustat item #25 x Compustat item #199).

Table 4.9 Descriptive Statistics for the Third Pair of Hypotheses by Year for Scaled Values of Change in After-tax Foreign Income and After-tax Foreign Income

Panel A: Samples with increases in number of segments reported-- Scaled change in after-tax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
2001	477	-0.008	0.04405	-0.01542	-0.00203	0.00535
2002	466	0.01581	0.10442	-0.00669	0.00169	0.0155
2003	469	0.00289	0.06317	-0.0042	0.00342	0.01338
2004	480	0.01295	0.0798	-0.00168	0.00729	0.02589
2005	485	0.005	0.04989	-0.00558	0.0022	0.01216
2006	412	0.00468	0.04833	-0.00287	0.00265	0.01239
Total	2,789					

Panel B: Samples with decreases or no change in number of segments reported-- Scaled change in after-tax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
2001	219	-0.00418	0.09992	-0.00927	-0.00066	0.0071
2002	217	0.02041	0.13629	-0.00578	0.00084	0.0142
2003	209	0.02392	0.08839	-0.00095	0.00245	0.01939
2004	217	0.17399	1.97313	-0.00168	0.00447	0.0245
2005	237	0.00013	0.05809	-0.00469	0.00083	0.00778
2006	198	0.00304	0.03072	-0.00127	0.00136	0.0091
Total	1,297					

Panel C: Samples with increases in number of segments reported -- Scaled after-tax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
2000	545	0.01621	0.04632	-0.00041	0.01018	0.03014
2001	526	-0.00418	0.11934	-0.00869	0.00577	0.02409
2002	518	0.01002	0.07765	-0.00275	0.00757	0.02593
2003	533	0.01254	0.0729	0	0.01334	0.03709
2004	540	0.01714	0.04053	0.00163	0.01378	0.03376
2005	529	0.01496	0.04505	0.00216	0.01245	0.03293
2006	438	0.01572	0.05098	0.00321	0.01428	0.03546
Total	3,629					

Table 4.9 - *Continued*

Panel D: Samples with decreases or no change in number of segments reported-- Scaled after-tax foreign income

Year	N	Mean	Std. dev.	25%	50%	75%
2000	260	-0.00076	0.09871	-0.0045	0.00235	0.02064
2001	260	-0.01097	0.16058	-0.00833	0.00224	0.02008
2002	250	-0.00637	0.14314	-0.00592	0.00225	0.01854
2003	249	0.04477	0.25786	-0.00062	0.00824	0.03881
2004	271	0.03036	0.10955	0	0.0085	0.0291
2005	263	0.01427	0.05042	0	0.00679	0.0272
2006	226	0.01447	0.05982	0.0001	0.00827	0.02976
Total	1,779					

Notes:

1. Samples in all panels are post SFAS131data. Data period for testing avoidance of earnings decreases is from 2001 to 2006 and for testing avoidance of losses from 2000 to 2006.
2. Scaled change in after-tax foreign income is the pretax foreign earnings(Compustat item #273) adjusted for foreign taxes at year t minus the pretax foreign earnings adjusted foreign taxes at year t-1, to be divided by market value at the end of fiscal year t-2 (Compustat item #25 x Compustat item #199). The foreign taxes are measured as the sum of foreign income taxes(Compustat item #64) and deferred foreign taxes(Compustat item #270);
3. Scaled after-tax foreign income is the pretax foreign earnings (Compustat item #273) adjusted for foreign taxes at year t divided by market value at the end of fiscal year t-1 (Compustat item #25 x Compustat item #199). The foreign taxes are measured in the same way as note 2.

Table 4.10 Descriptive Statistics for the Third Pair of Hypotheses by Year for Scaled Values of Change in Pretax Domestic Income and Pretax Domestic Income

Panel A: Samples with increases in number of segments reported-- Scaled change in pretax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
2001	578	-0.04448	0.17181	-0.08042	-0.0234	0.01387
2002	566	0.03825	0.33013	-0.02696	0.01044	0.07146
2003	563	0.02942	0.20103	-0.01887	0.00474	0.05661
2004	573	0.04415	0.29312	-0.01356	0.01696	0.07989
2005	571	0.01439	0.11319	-0.01782	0.00701	0.03862
2006	469	0.01628	0.07966	-0.00931	0.00811	0.03927
Total	3,320					

Panel B: Samples with decreases or no change in number of segments reported-- Scaled change in pretax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
2001	274	-0.03704	0.32065	-0.07753	-0.00918	0.03651
2002	283	0.07573	0.42289	-0.02662	0.01166	0.09705
2003	273	0.15022	1.50989	-0.02224	0.0115	0.05654
2004	274	-0.04312	1.15248	-0.01735	0.01328	0.08215
2005	288	0.05093	0.24976	-0.01446	0.0104	0.05192
2006	243	0.00824	0.11451	-0.01746	0.00453	0.03346
Total	1,635					

Table 4.10 - *Continued*

Panel C: Samples with increases in number of segments reported -- Scaled pretax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
2000	640	0.00413	0.17229	-0.01715	0.03328	0.08599
2001	619	-0.11895	0.54186	-0.10983	0.00424	0.06058
2002	615	-0.10274	0.51241	-0.09087	0.0036	0.06121
2003	621	-0.05456	0.30558	-0.06105	0.02251	0.07323
2004	621	0.00137	0.15199	-0.01489	0.02926	0.06697
2005	603	0.00837	0.12927	-0.01005	0.02844	0.06378
2006	489	0.02491	0.10209	0.00325	0.04179	0.07294
Total	4,208					

Panel D: Samples with decreases or no change in number of segments reported-- Scaled pretax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
2000	317	-0.05157	0.44341	-0.08439	0.02018	0.08859
2001	320	-0.232	0.82883	-0.17566	-0.00492	0.04922
2002	316	-0.29946	1.882	-0.0958	0.00806	0.06612
2003	311	-0.04662	0.68856	-0.08396	0.02393	0.09874
2004	325	-0.03738	0.38002	-0.04127	0.02129	0.07276
2005	314	-0.00007	0.16599	-0.01687	0.03148	0.07783
2006	262	0.00962	0.15797	-0.0155	0.03752	0.08125
Total	2,165					

Notes:

1. Samples in all panels are post SFAS131data. Data period for testing avoidance of earnings decreases is from 2001 to 2006 and for testing avoidance of losses from 2000 to 2006.
2. Scaled change in pretax domestic income is the pretax domestic earnings(Compustat item #272) at year t minus the pretax domestic earnings at year t-1, to be divided by market value at the end of fiscal year t-2 (Compustat item #25 x Compustat item #199);
3. Scaled pretax domestic income is the pretax domestic earnings (Compustat item #272) at year t divided by market value at the end of fiscal year t-1 (Compustat item #25 x Compustat item #199).

Table 4.11 Descriptive Statistics for the Third Pair of Hypotheses by Year for Scaled Values of Change in After-tax Domestic Income and After-tax Domestic Income

Panel A: Samples with increases in number of segments reported-- Scaled change in after-tax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
2001	479	-0.04005	0.1653	-0.05901	-0.01361	0.00958
2002	468	0.03724	0.24774	-0.02494	0.00645	0.04643
2003	468	0.03053	0.19156	-0.01264	0.00443	0.04749
2004	481	0.03183	0.3083	-0.00963	0.01304	0.05618
2005	486	0.00923	0.10708	-0.01663	0.00206	0.02838
2006	414	0.01596	0.0879	-0.00717	0.0058	0.0275
Total	2,796					

Table 4.11 - *Continued*

Panel B: Samples with decreases or no change in number of segments reported-- Scaled change in after-tax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
2001	220	-0.02962	0.33727	-0.05908	-0.00809	0.0268
2002	220	0.09396	0.62398	-0.02013	0.00931	0.06896
2003	212	0.12435	1.22629	-0.01963	0.00681	0.04488
2004	217	-0.61057	8.3019	-0.01218	0.01119	0.06824
2005	237	0.04495	0.26772	-0.01461	0.00602	0.02805
2006	201	0.00629	0.08703	-0.01559	0.00321	0.02152
Total	1,307					

Panel C: Samples with increases in number of segments reported -- Scaled after-tax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
2000	547	-0.01201	0.15166	-0.01945	0.02129	0.05115
2001	529	-0.12289	0.5287	-0.08415	0.00074	0.03771
2002	518	-0.09549	0.40057	-0.08004	0.002	0.0404
2003	535	-0.06218	0.30293	-0.05074	0.01333	0.05072
2004	544	-0.01138	0.14671	-0.01622	0.02074	0.04206
2005	529	-0.00533	0.13351	-0.00996	0.02248	0.04467
2006	439	0.01011	0.09412	0.0019	0.0302	0.05027
Total	3,641					

Panel D: Samples with decreases or no change in number of segments reported-- Scaled after-tax domestic income

Year	N	Mean	Std. dev.	25%	50%	75%
2000	261	-0.06873	0.35452	-0.06827	0.01056	0.05372
2001	261	-0.27451	0.93189	-0.17512	-0.01123	0.03047
2002	252	-0.27316	1.74878	-0.09913	0.00519	0.04267
2003	253	-0.0522	0.40592	-0.0738	0.01704	0.06451
2004	270	-0.04058	0.32672	-0.04522	0.01767	0.04578
2005	264	-0.02033	0.15905	-0.01639	0.02239	0.04941
2006	227	-0.0002	0.12049	-0.01887	0.02846	0.05617
Total	1,788					

Notes:

1. Samples in all panels are post SFAS131data. Data period for testing avoidance of earnings decreases is from 2001 to 2006 and for testing avoidance of losses from 2000 to 2006.

2.Scaled change in after-tax domestic income is the pretax domestic earnings(Compustat item #272) adjusted for domestic taxes at year t minus the pretax domestic earnings adjusted domestic taxes at year t-1, to be divided by market value at the end of fiscal year t-2 (Compustat item #25 x Compustat item #199). The domestic taxes are measured as total income taxes (Compustat item #16) less foreign taxes. And foreign taxes are measured as the sum of foreign income taxes(Compustat item #64) and deferred foreign taxes(Compustat item #270);

3. Scaled after-tax domestic income is the pretax domestic earnings (Compustat item #272) adjusted for domestic taxes at year t divided by market value at the end of fiscal year t-1 (Compustat item #25 x Compustat item #199). The domestic taxes are measured in the same way as note 2.

CHAPTER 5

EMPIRICAL RESULTS

5.1 Replication Results for Burgstahler and Dichev (1997)

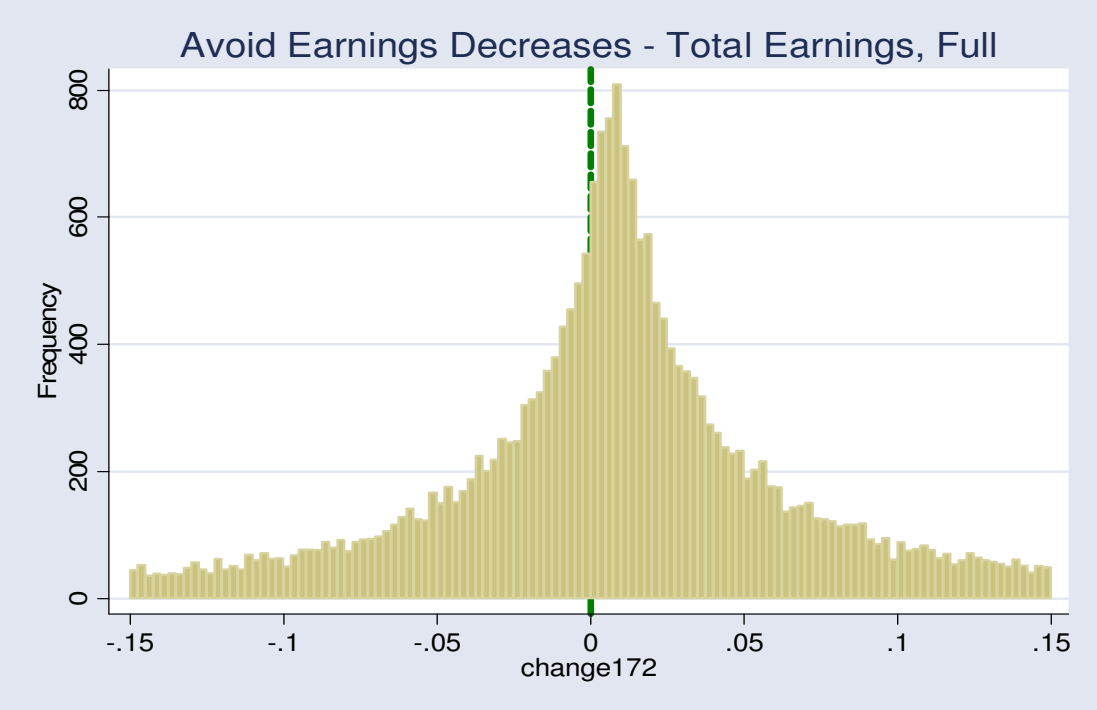
I have used B&D (1997) in both theory development and research design for this study. Replication of B&D (1997) results using data for the period (1991-2006) is important as Brown and Caylor (2005) indicate that there has been a hierarchical change in the importance of benchmarks[54]. Because of the change, some benchmarks that were important during the sample period (1977-1994) in B&D (1997) might not be as important in the sample period of my study (1991 – 2006).

5.1.1 Replication Using Full Sample Period 1991-2006

Figure 5.1 graphs results of the replication for the full sample period, 1991 to 2006. The majority of observations in the graph for avoidance of losses fall to the right of the zero threshold when compared with the graph for avoidance of earnings decreases. This evidence is consistent with managers' priority of avoidance of losses over avoidance of earnings decreases. There is a small dip[55] immediately to the left of the zero threshold in the graph for avoidance of losses.

[54] Brown and Caylor (2005) point out that meeting analysts' forecast is the most important benchmark since mid-1990s, followed by avoidance of losses then avoidance of earnings decreases.
[55] Prior research considers the "dip" a discontinuity and that it is caused by earnings management.

Panel A



Panel B

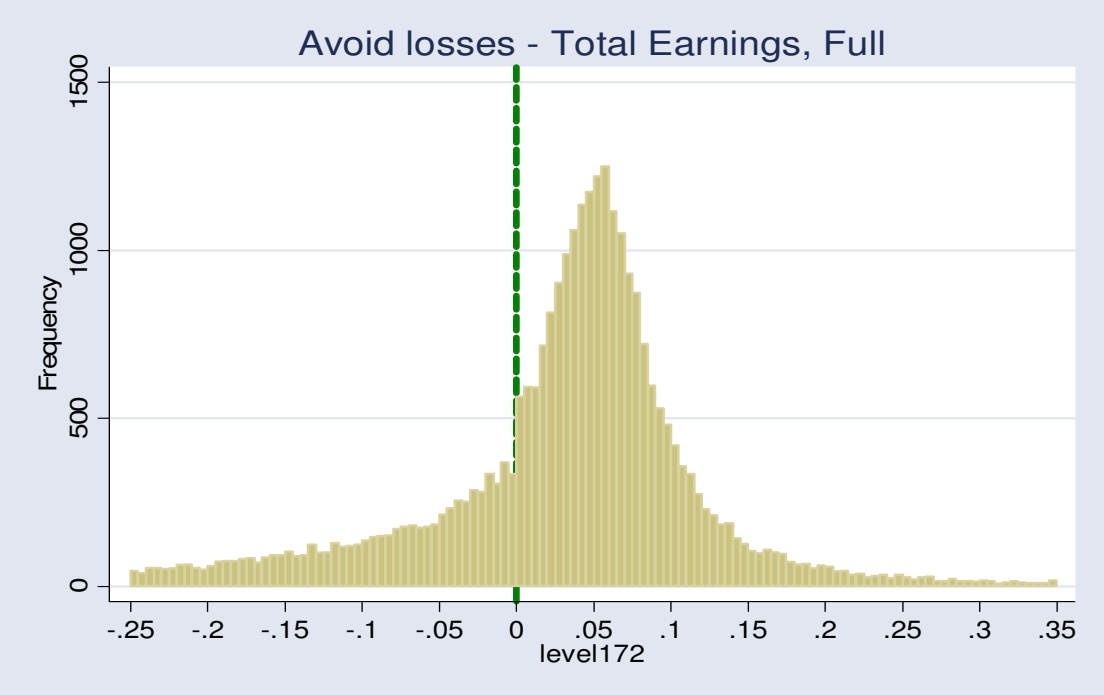


Figure 5.1 Graphing Results for Replication of Burgstahler and Dichev (1997) Using Sample Period from 1991 to 2006

Table 5.1 Panel A presents the test results of the replication. Using the interval width used by B&D (1997), I do not find a significant result at any conventional level in testing avoidance of earnings decreases. However, I do find a significant result at the 1% level for avoidance of losses. The non-significance in testing avoidance of earnings decreases is an important finding as no prior research has documented such a result.

Degeorge et al. (1999) found that following avoidance of losses, avoidance of earnings decreases is the second important threshold. Graham et al. (2005) surveyed the managers in 312 public firms and 85% of the managers in the survey claim that avoiding quarterly earnings decreases is the threshold they most seek to achieve. These two findings suggest that avoidance of earnings decreases is an important threshold to managers. Although this benchmark is the least important in the Brown and Caylor (2005) study, none of these findings have a non-significant result and indicate that avoidance of earnings decreases is no longer important. My dissertation is the first to suggest that earnings were not managed to avoid earnings decreases from 1991 to 2006.

5.1.2 Replication Using Pre-SFAS131 Sample Period 1991-1997

I separate the full sample period into the pre- and post-SFAS131 sample periods to test the second pair of hypotheses that the discontinuity is less obvious for the post-SFAS131 sample in avoidance of earnings decreases and losses. Since my replication of B&D (1997) shows that earnings were no longer managed to avoid earnings decreases from 1991 to 2006, it is important that I replicate the study using both pre- and post-SFAS131 sample periods so as to understand whether result differs in both periods. In

addition, the replication results can be used to explain some of my findings for the second pair of hypotheses.

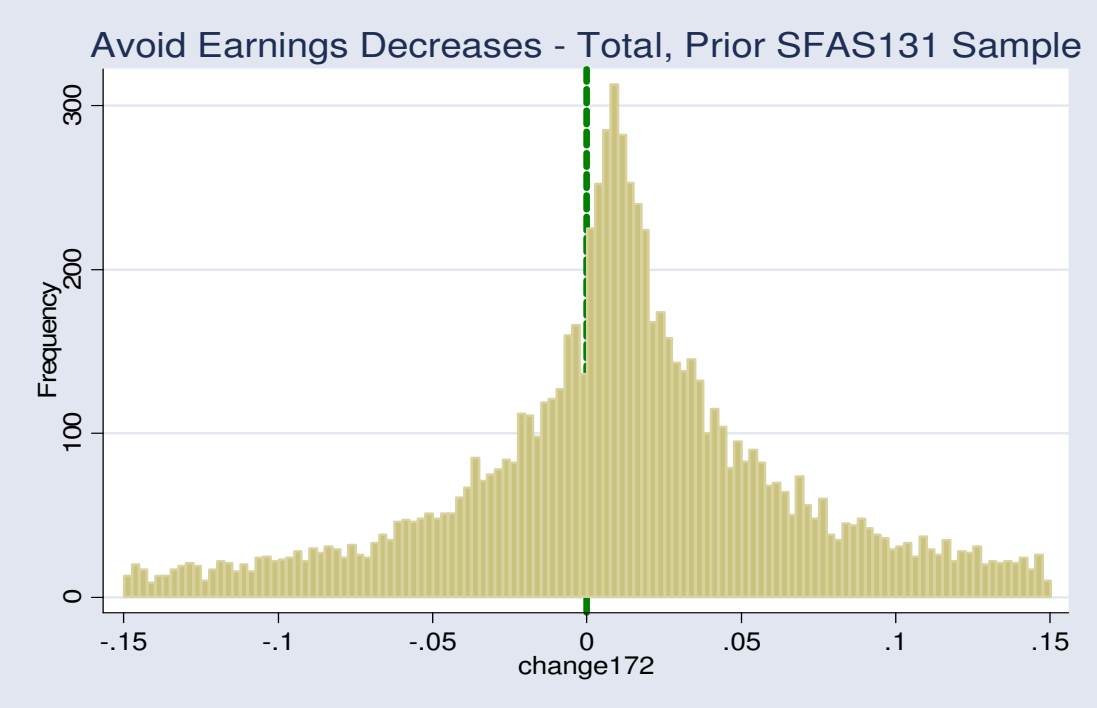
Figure 5.2 shows the graphing results of the replication for the pre-SFAS131 sample period (1991-1997). Similar to Figure 5.1, the majority of observations in the graph for avoidance of losses fall to the right of the zero threshold when compared with the graph for avoidance of earnings decreases. There are dips immediately to the left of the zero thresholds in both graphs.

Table 5.1 Panel B shows the testing results of the replication for the pre-SFAS131 sample period. The result for testing avoidance of earnings decreases is significant at 1% level for the left interval. The result for testing avoidance of losses is also significant at 1% level, both for the left and right intervals. The first four years (1991-1994) of my pre-SFAS131 sample period happen to be the last four year of the sample period in B&D (1997). That explains my consistent findings with those of B&D (1997). Overall, earnings are managed to avoid earnings decreases and losses from 1991 to 1997.

5.1.3 Replication Using Post-SFAS131 Sample Period 2000 - 2006

Figure 5.3 shows the graphing results of the replication for the post-SFAS131 sample period (2000-2006). Similar to Figure 5.1 and 5.2, the majority of observations in the graph for avoidance of losses fall to the right of the zero threshold when compared with the graph for avoidance of earnings decreases. However, there is no dip immediately to the left of the zero thresholds in either one of the graphs.

Panel A



Panel B

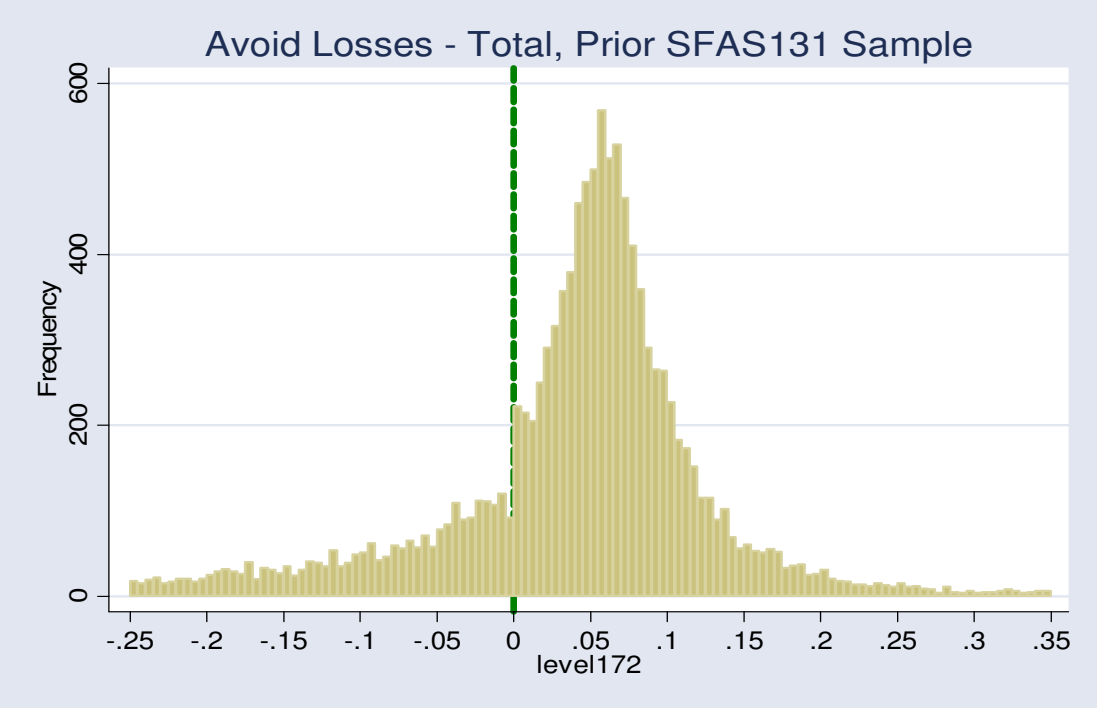
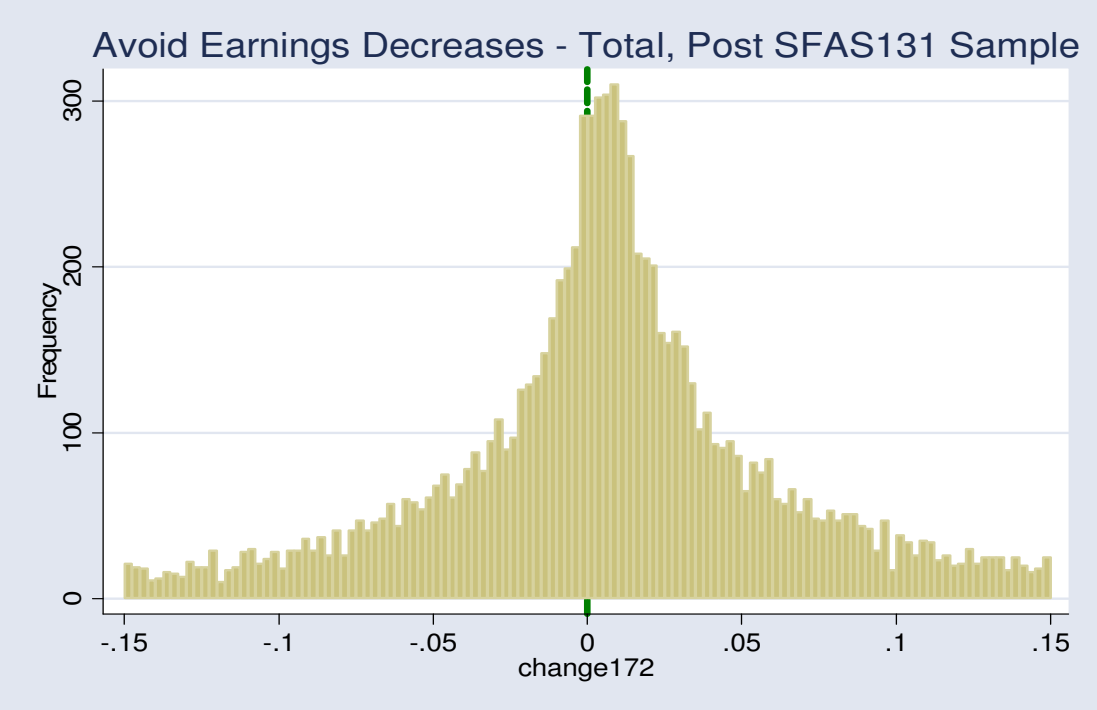


Figure 5.2 Graphing Results for Replication of Burgstahler and Dichev (1997) Using Pre-SFAS131 Sample Period from 1991 to 1997

Panel A



Panel B

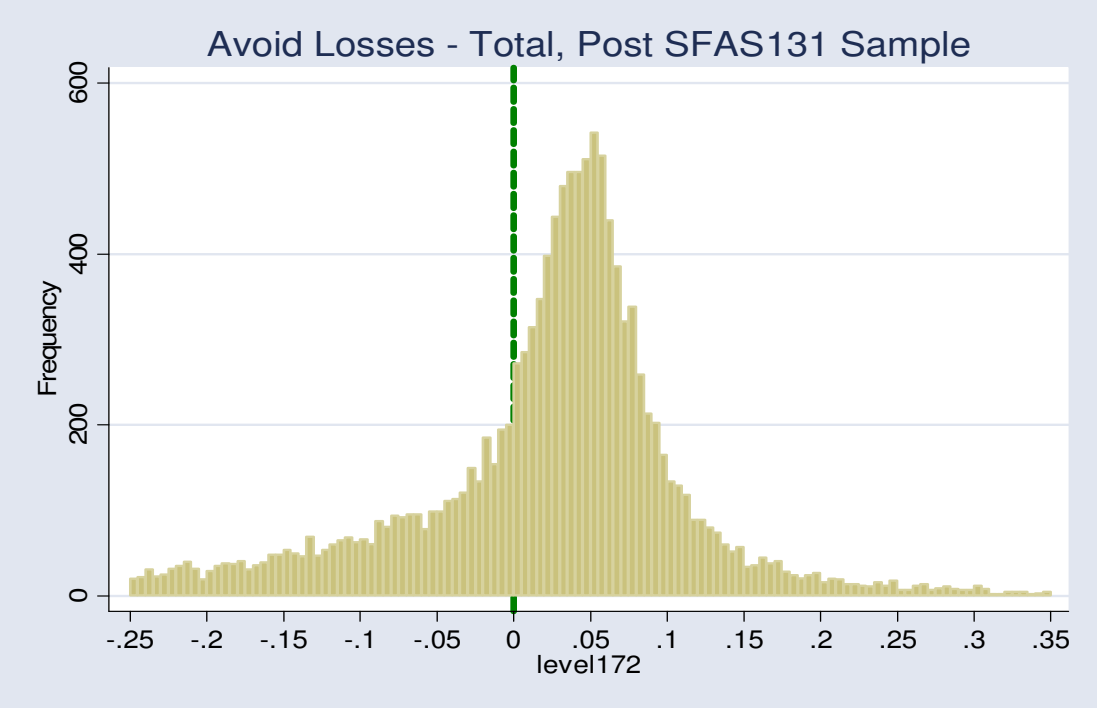


Figure 5.3 Graphing Results for Replication of Burgstahler and Dichev (1997) Using Post-SFAS131 Sample Period from 2000 to 2006

Table 5.1 Panel C shows the testing results of the replication for the post-SFAS131 sample period. The result for the left interval in testing avoidance of earnings decreases is significant at 10% for the opposite direction[56]. The results in testing avoidance of losses are significant at 5% level for the left interval and 10% level for the right interval. These results suggest that earnings are managed to avoid losses but not earnings decrease from 2000 to 2006.

The results from Panel A, B and C of Table 5.1 together suggest that earnings are consistently managed to avoid losses. Earnings are managed to avoid earnings decreases until mid-1990s. No evidence suggests that earnings are managed to avoid earnings decreases from 2000 to 2006.

In the following sections, I discuss the empirical results for the three pairs of hypotheses. Results for foreign earnings are discussed first, followed by domestic earnings. In each discussion, I show both graphing and testing results.

5.2 Results for the First Pair of Hypotheses

5.2.1 Foreign Earnings

Figure 5.4 and 5.5 show the graphing results for the first pair of hypotheses. Panel A and B of Figure 5.4 show the results for testing whether foreign earnings are managed to avoid earnings decreases. Panel A uses pretax foreign income and Panel B uses after-tax foreign income. Panel A and B of Figure 5.5 show the results for testing whether foreign earnings are managed to avoid losses. Panel A uses pretax foreign income and Panel B uses after-tax foreign income.

[56] A significant result in the opposite direction simply means that earnings management does not occur in a direction of avoidance of earnings decreases and losses.

Table 5.1 Testing Results for Replication of Burgstahler and Dichev (1997)

Panel A Full sample period from 1991 to 2006

a. Testing results for avoidance of earnings decreases

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	543	576	-0.98	Not
0 to.0025	655	639	0.45	Not

b. Testing results for avoidance of losses

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	335	467	-4.67	***
0 to.005	564	465	3.13	***

Panel B Pre-SFAS131 sample period from 1991 to 1997

a. Testing results for avoidance of earnings decreases

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	138	189	-2.84	***
0 to.0025	213	197	0.8	Not

b. Testing results for avoidance of losses

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	89	171	-5.11	***
0 to.005	222	154	3.56	***

Panel C Post-SFAS131 sample period from 2000 to 2006

a. Testing results for avoidance of earnings decreases

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	287	251	1.57	Opposite *
0 to.0025	289	296	-0.27	Not

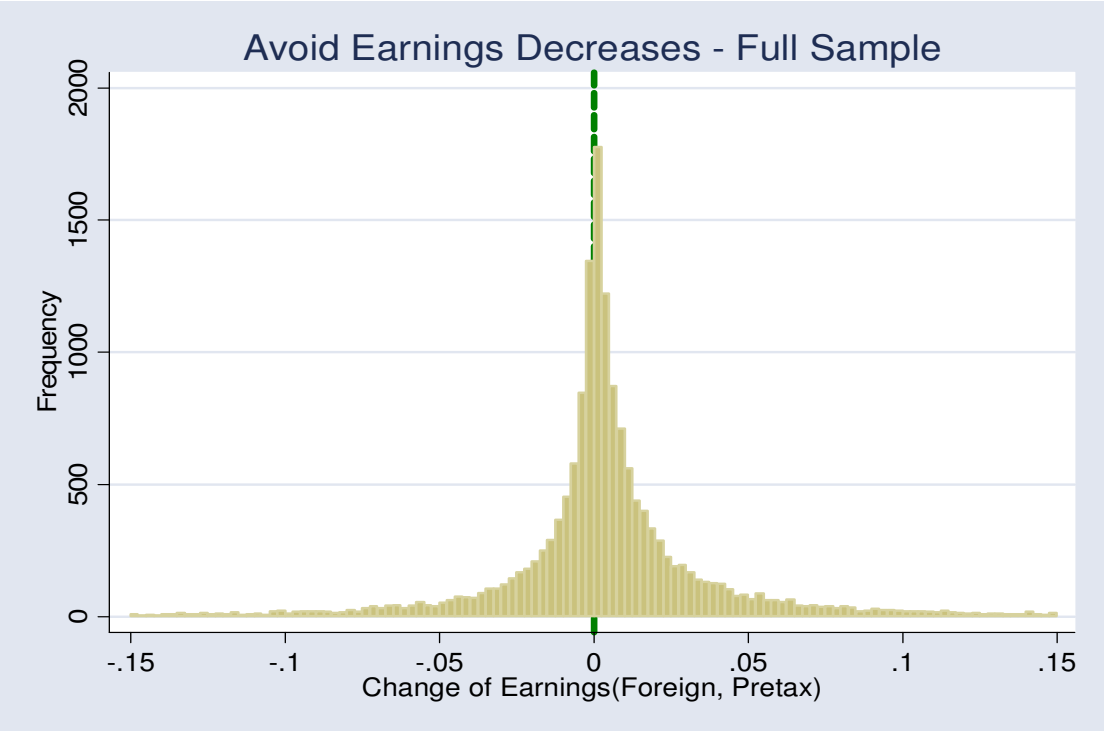
b. Testing results for avoidance of losses

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	196	235	-1.87	**
0 to.005	273	242	1.4	*

Note:

1. “Obs.” stands for “number of observations”;
2. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance.

Panel A



Panel B

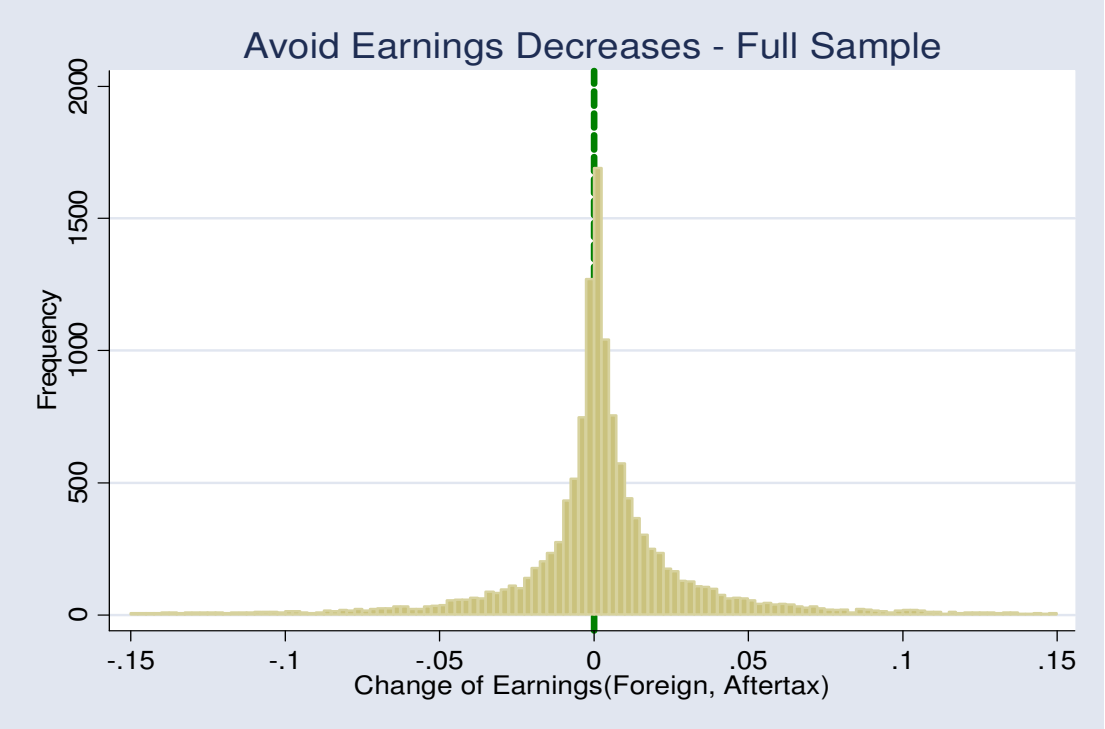
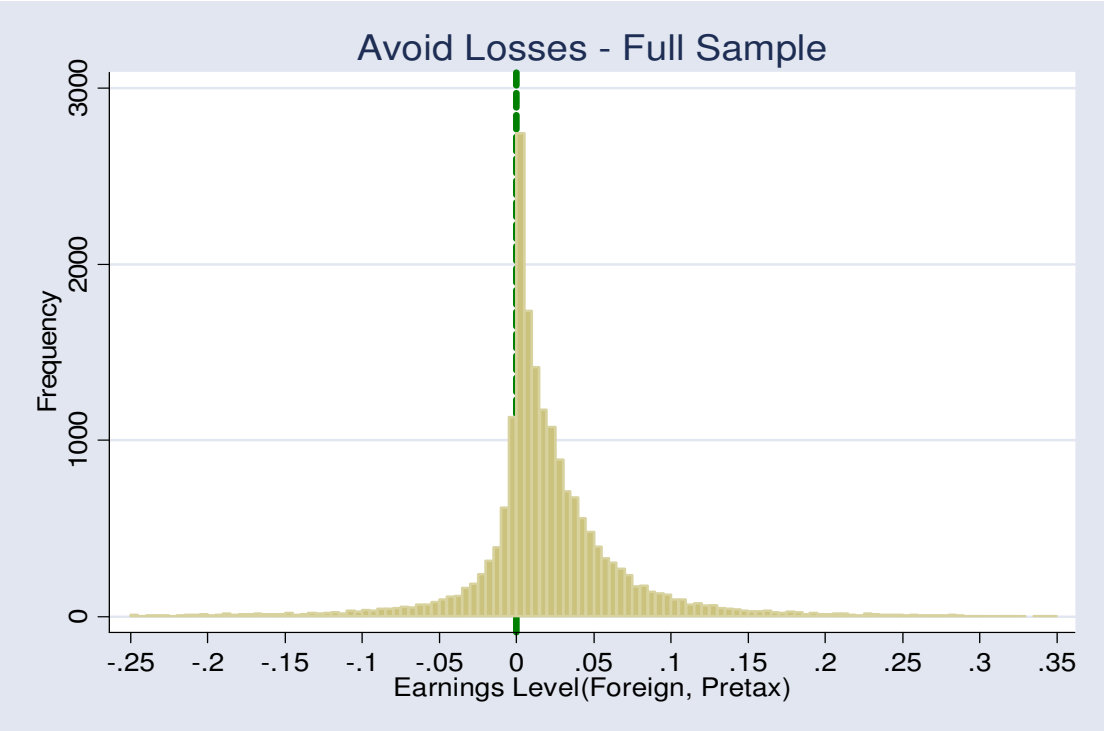


Figure 5.4 Graphing Results of the First Pair of Hypotheses (1)

Panel A



Panel B

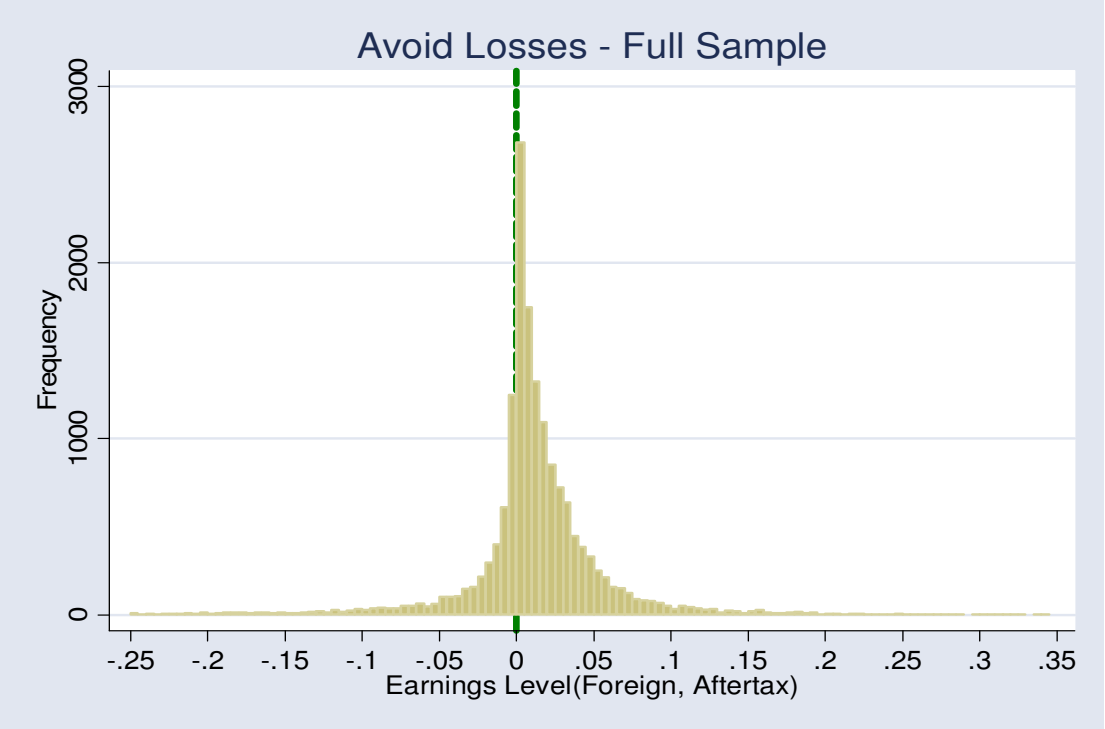


Figure 5.5 Graphing Results of the First Pair of Hypotheses (2)

Table 5.2 tabulates the actual observations for interval immediately to the left and right of the zero thresholds. The actual observations for intervals immediately to the right of the zero thresholds are always greater than those that fall into the intervals immediately to the left of the zero thresholds. The greatest difference is 1,612[57] in Panel C. These differences explain the spikes to the right of the zero thresholds for all panels in Figure 5.4 and Figure 5.5.

Table 5.2 Panel A and B show the testing results for Hypothesis 1a -- foreign earnings are managed to avoid earnings decreases. Panel A uses pretax foreign income and Panel B uses after-tax foreign income. Although the testing results for the interval immediately to the right of the zero thresholds are significant at 1% level, the testing results for intervals immediately to the left of the zero thresholds are not significant. Regardless whether pretax foreign income or after-tax foreign income is used, I find no evidence of foreign earnings are managed to avoid earnings decreases[58].

Table 5.2 Panel C and D show the testing results for Hypothesis 1b -- foreign earnings are managed to avoid losses. Panel C uses pretax foreign income and Panel D uses after-tax foreign income. Regardless of left or right intervals, all test results are significant at 1% level, for both pretax and after-tax foreign incomes. The test-statistics show that foreign earnings are managed to avoid losses in foreign earnings. Degeorge et al.(1999) reports the prevalence of avoiding loss over avoiding earnings decreases and negative earnings surprises. Brown and Caylor (2005) put avoidance of losses as the

[57] Calculated as 2745 minus 1133 in Panel C of Table 5.2.
[58] The significant results found for the intervals immediately to the right of the zero thresholds do not indicate earnings management. What matters, however, is whether there are significant results for the intervals immediately to the left of the zero thresholds.

second benchmark that managers would like to meet or beat. The significant result of avoidance of losses here is consistent with their findings.

Overall, the findings that foreign earnings are managed to avoid losses but not earnings decreases are consistent with the replication results. I do not find foreign taxes to be a factor that changes foreign earnings' distribution pattern. In contrast to Beaver et al. (2007)[59], foreign taxes can not explain the discontinuity documented in B&D (1997).

Table 5.2 Test Results for the First Pair of Hypotheses

Panel A Testing results for avoidance of earnings decreases (test using pretax foreign income).

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	1346	1311	0.71	Not
0 to.0025	1776	1284	9.36	***

Panel B Testing results for avoidance of earnings decreases (test using after-tax foreign income).

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	1273	1220	1.13	Not
0 to.0025	1690	1158	10.57	***

Panel C Testing results for avoidance of losses (test using pretax foreign income).

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	1133	1682	-10.75	***
0 to.005	2745	1434	21.6	***

Panel D Testing results for avoidance of losses (test using after-tax foreign income).

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	1249	1648	-5.78	***
0 to.005	2684	1497	19.77	***

Note:
"Obs." stands for "number of observations" and *** stands for 1% significance.

[59] According to Beaver et al. (2007), the effective tax rate is higher for profit firms than for loss firms, it draws profit firms to the zero thresholds. The study does not differentiate foreign and domestic taxes.

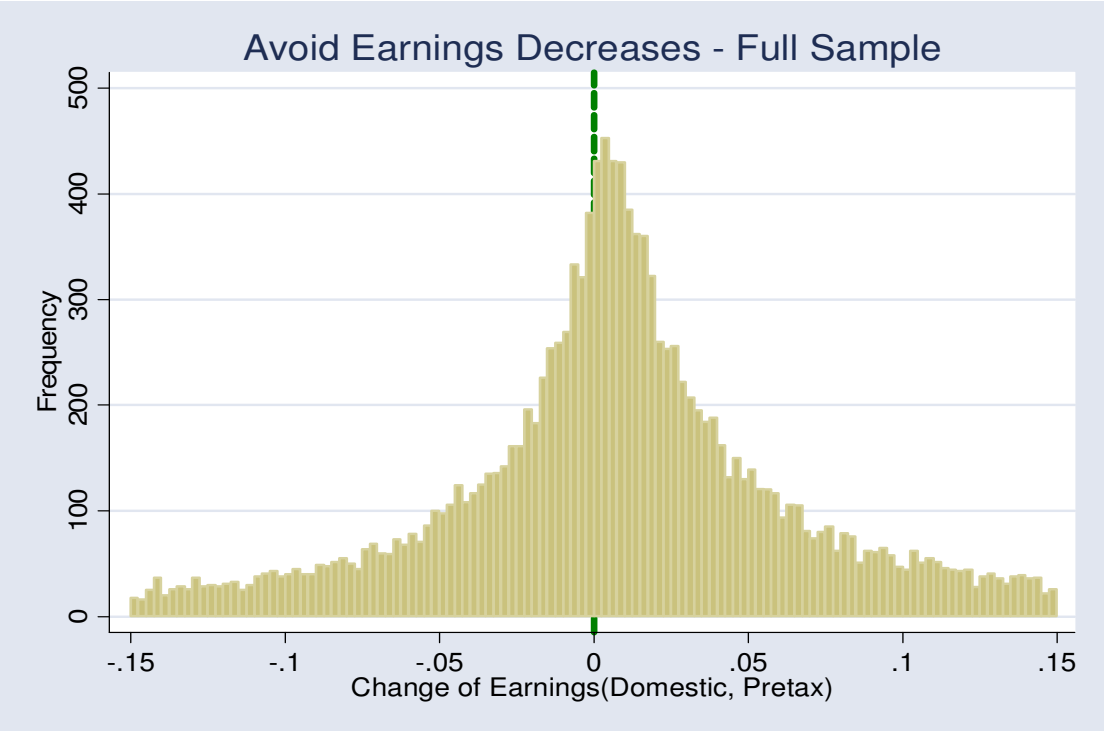
5.2.2 Domestic Earnings

To find out whether foreign earnings solely or partially cause the replication results to be different from those of B&D (1997), I analyze domestic earnings in the same way I analyze foreign earnings. Figure 5.6 and 5.7 show the graphing results of domestic earnings. Panel A and B of Figure 5.6 show the results for testing whether domestic earnings are managed to avoid earnings decreases. Panel A uses pretax domestic income and Panel B uses after-tax domestic income. Panel A and B of Figure 5.7 show the results for testing whether domestic earnings are managed to avoid losses. Panel A uses pretax domestic income and Panel B uses after-tax domestic income.

Table 5.3 shows that the actual observations immediately to the left and right of the zero thresholds are in hundreds in all panels. This is different from Table 5.2 where actual observations for foreign earnings are in thousands. This difference explains that observations for domestic earnings are generally spreading throughout the spectrums in all graphs. Graphs using domestic earnings are not as spiking as those using foreign earnings.

Table 5.3 Panel A and B show the test results of avoidance of decreases in domestic earnings. Panel A uses pretax domestic income and Panel B uses after-tax domestic income. Panel C and D show the test results of avoidance of losses. Panel C uses pretax domestic income and Panel D uses after-tax domestic income. Except the two results in Panel C, all other results show insignificance.

Panel A



Panel B

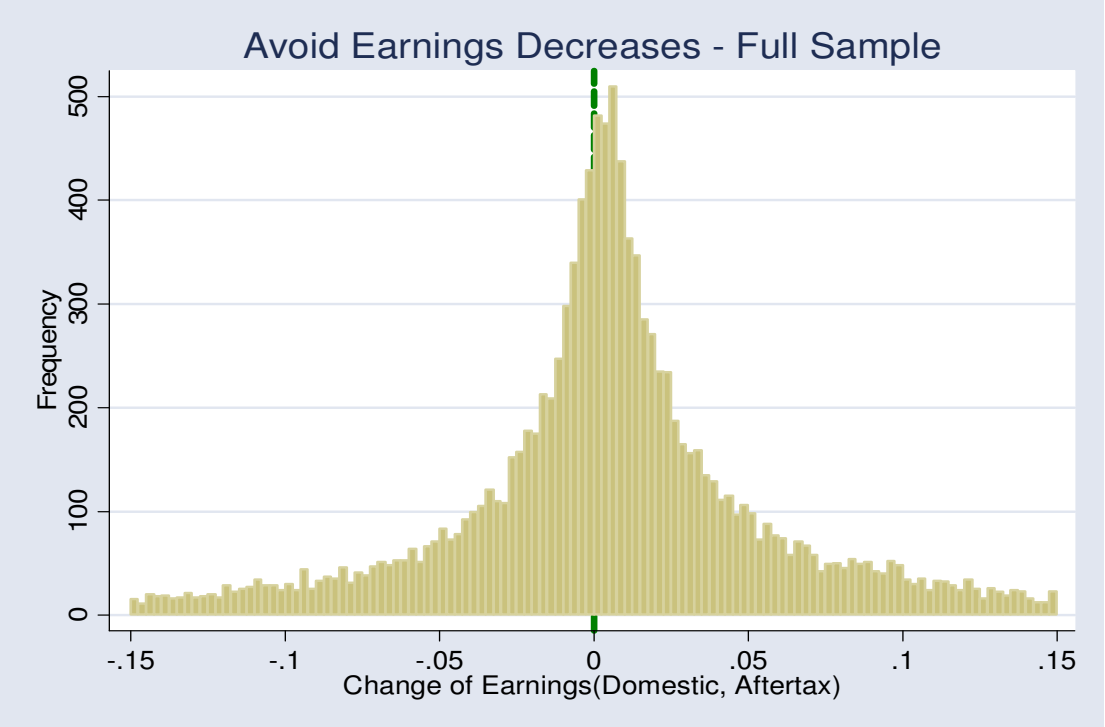
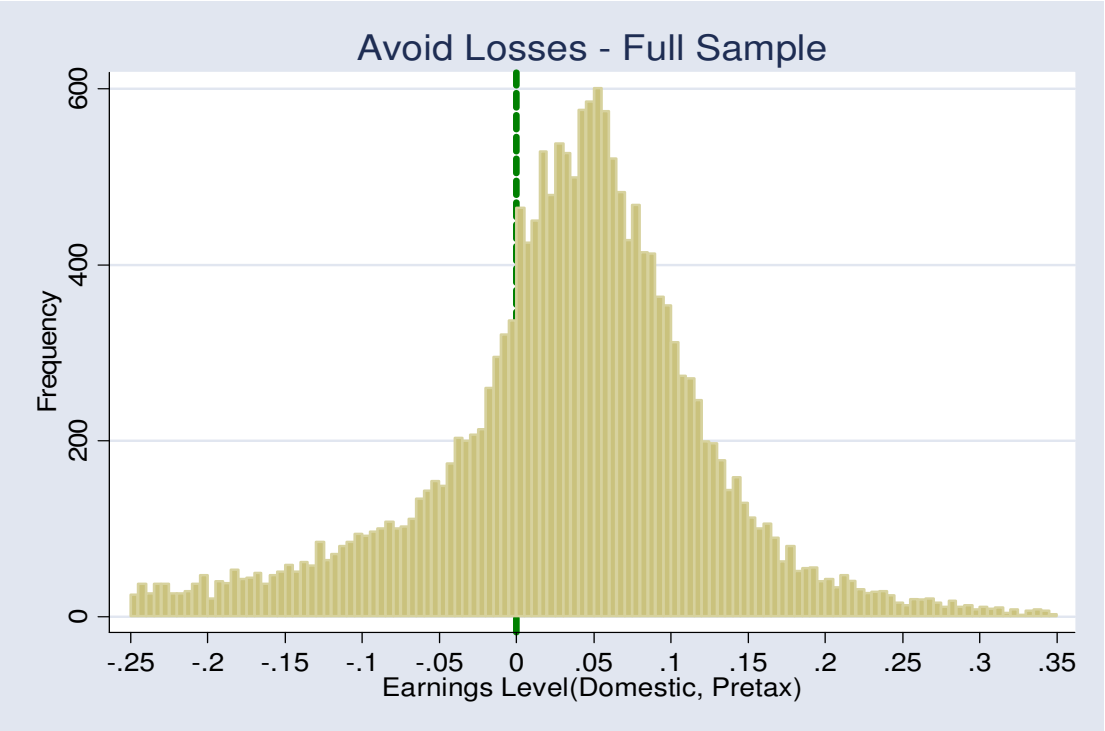


Figure 5.6 Graphing Results of the First Pair of Hypotheses (Domestic) (1)

Panel A



Panel B

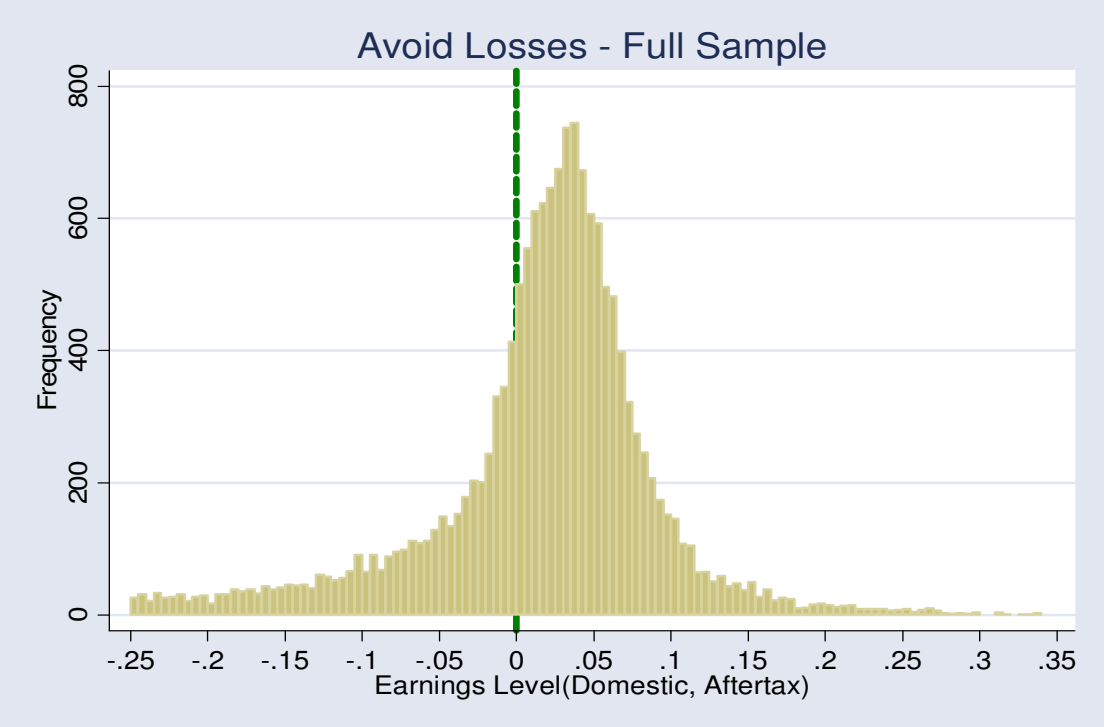


Figure 5.7 Graphing Results of the First Pair of Hypotheses (Domestic) (2)

Table 5.3 Test Results for the First Pair of Hypotheses (Domestic)

Panel A Testing results for avoidance of earnings decreases (test using pretax domestic income).

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	382	376	0.22	Not
0 to.0025	431	418	0.47	Not

Panel B Testing results for avoidance of earnings decreases (test using after-tax domestic income).

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	429	442	-0.43	Not
0 to.0025	482	452	1.02	Not

Panel C Testing results for avoidance of losses (test using pretax domestic income).

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	337	393	-2.09	**
0 to.005	465	381	2.92	***

Panel D Testing results for avoidance of losses (test using after-tax domestic income).

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	413	423	-0.35	Not
0 to.005	501	484	0.55	Not

Note:
1. “Obs.” stands for “number of observations”;
2. *** stands for 1% significance and ** for 5% significance.

The non-significant results for both Panel A and B show that domestic earnings are no longer managed to avoid decreases in domestic earnings. This is consistent with the finding in testing foreign earnings. Together they explain the finding in replicating B&D (1997) that earnings are no longer managed to avoid earnings decrease.

The result for avoidance of losses using pretax domestic earnings is significant at 5% level for the left interval and 1% level for the right interval immediately adjacent to the zero threshold. However, the result using after-tax domestic earnings is not

significant at any conventional level. My finding shows that domestic taxes have effect on the distribution of domestic earnings in avoidance of losses.

Summarizing the overall findings so far, earnings are managed to avoid losses but not earnings decreases. Managers manage foreign earnings, but not domestic earnings, to achieve avoidance of losses. Foreign taxes do not have effect on the foreign earnings' distribution. However, domestic taxes have some effect on the domestic earnings' distribution.

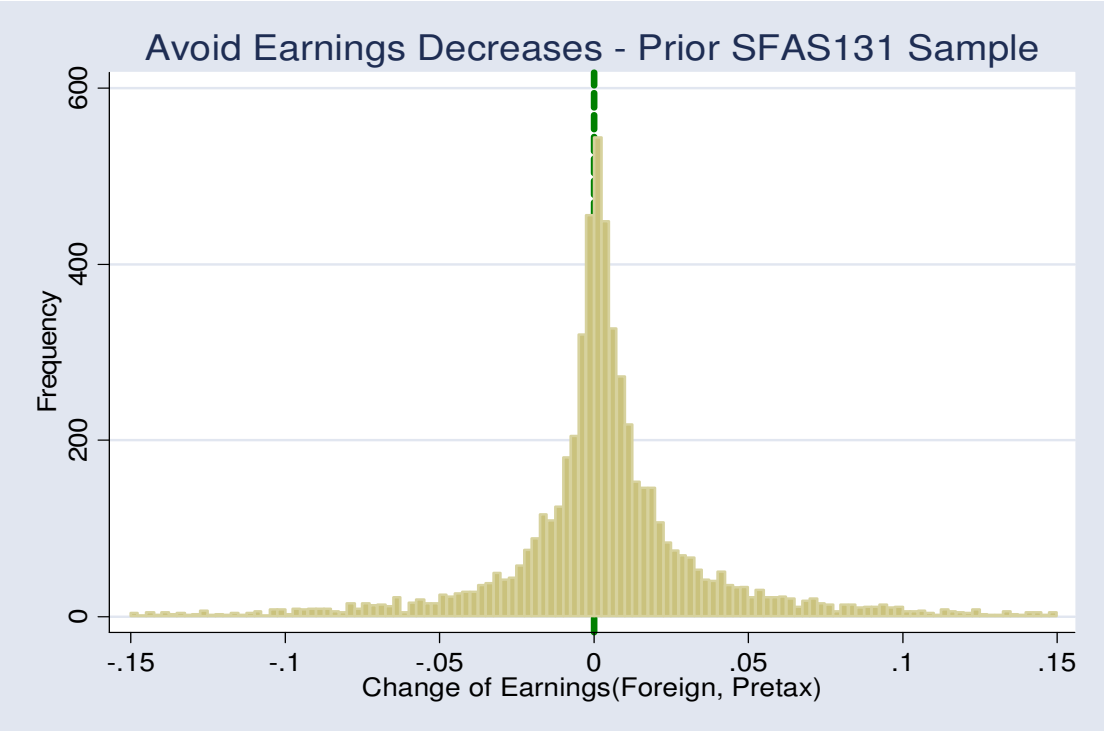
5.3 Results for the Second Pair of Hypotheses

5.3.1 Foreign Earnings

Figure 5.8, Figure 5.9, Figure 5.10 and Figure 5.11 show the graphing results for the second pair of hypotheses. I separate the full sample into pre-SFAS131 and post-SFAS131 sample to test the discontinuity is less obvious for the post-SFAS131 sample. Figure 5.8 and Figure 5.9 are the graphing results for Hypothesis 2a -- The discontinuity is less obvious for the post-SFAS131 sample in avoidance of earnings decreases. Figure 5.8 uses pretax foreign income and Figure 5.9 uses after-tax foreign income. Similarly, Figure 5.10 and Figure 5.11 are the graphing results for Hypothesis 2b -- The discontinuity is less obvious for the post-SFAS131 sample in avoidance of losses. Figure 5.10 uses pretax foreign income and Figure 5.11 uses after-tax foreign income.

Panel A and B of Table 5.4 show the test results of Hypothesis 2a. Panel A uses pretax foreign income and Panel B uses after-tax foreign income. Both Panels yield similar results. Note that t (Post) reports t-statistics for post-SFAS131 samples and t (Prior) reports t-statistics for pre-SFAS131 samples. The t-statistics are not significant

Panel A



Panel B

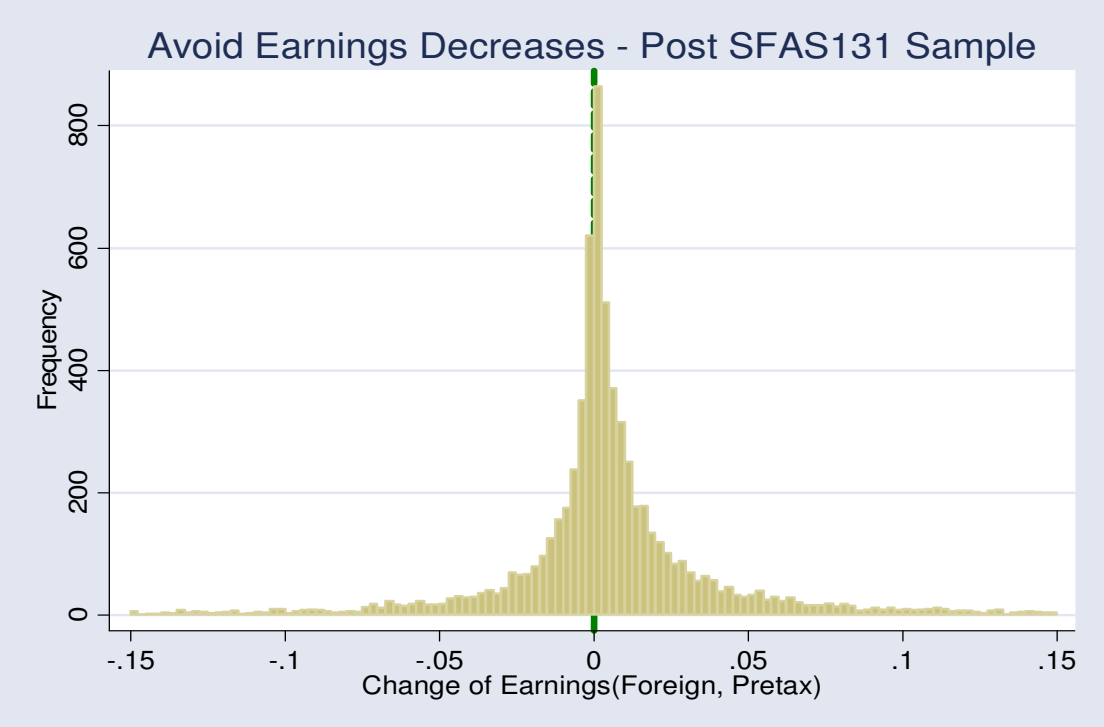
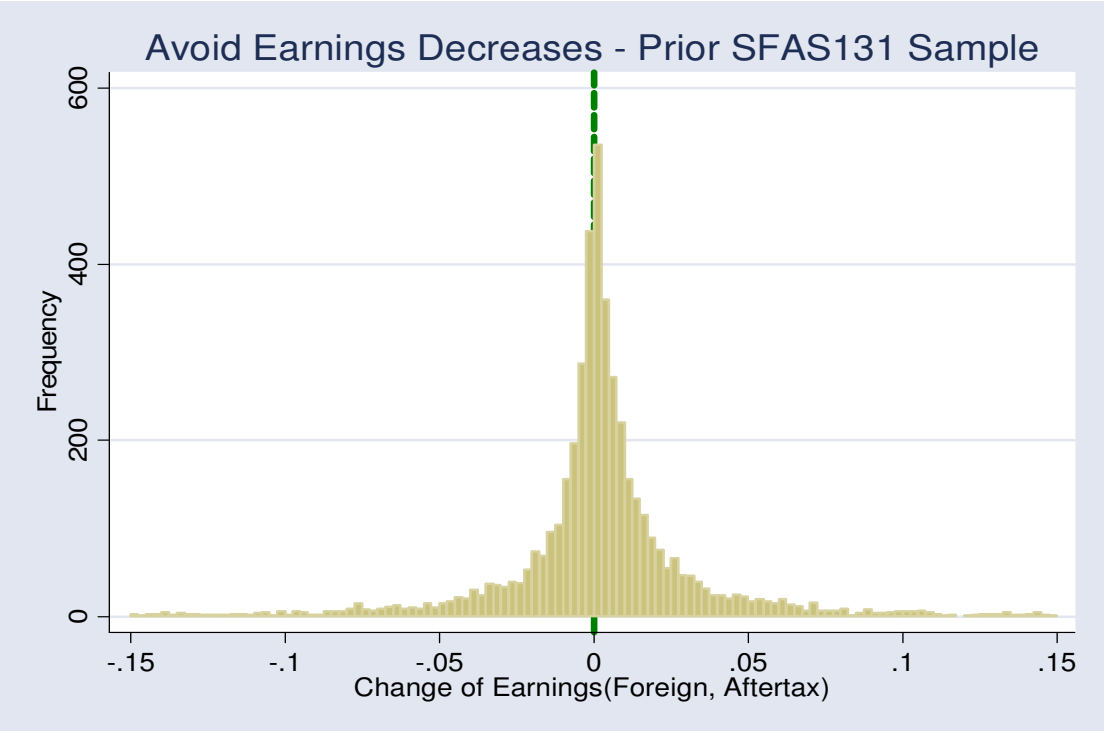


Figure 5.8 Graphing Results of the Second Pair of Hypotheses (1)

Panel A



Panel B

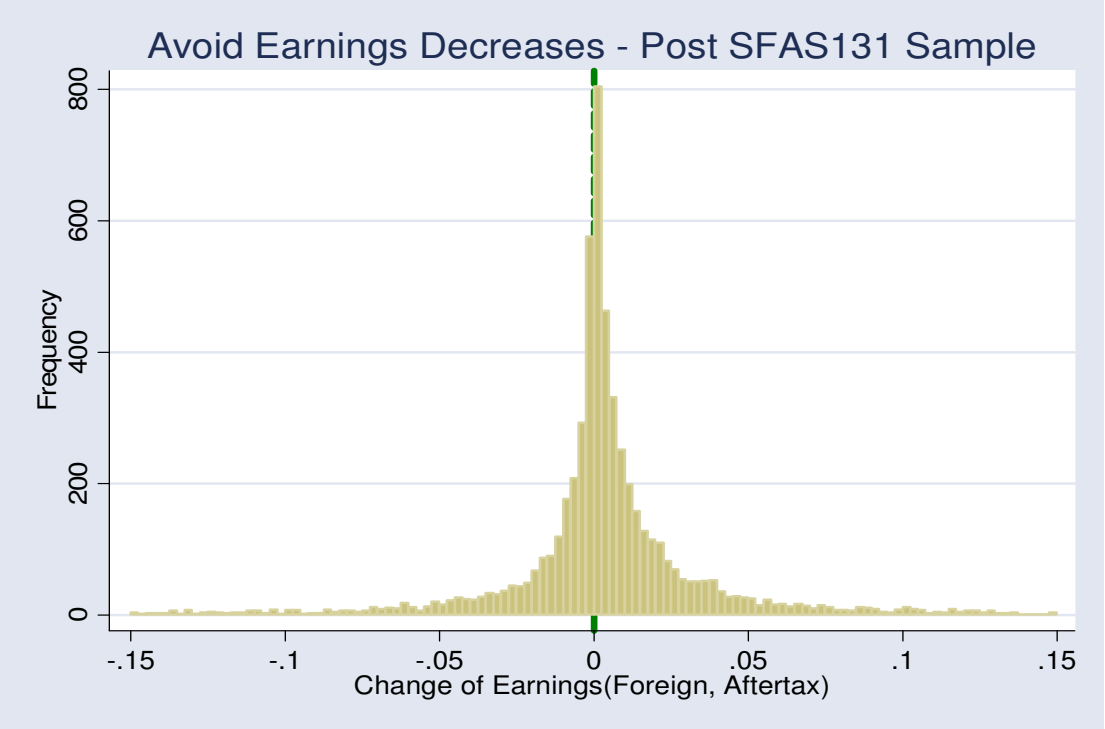
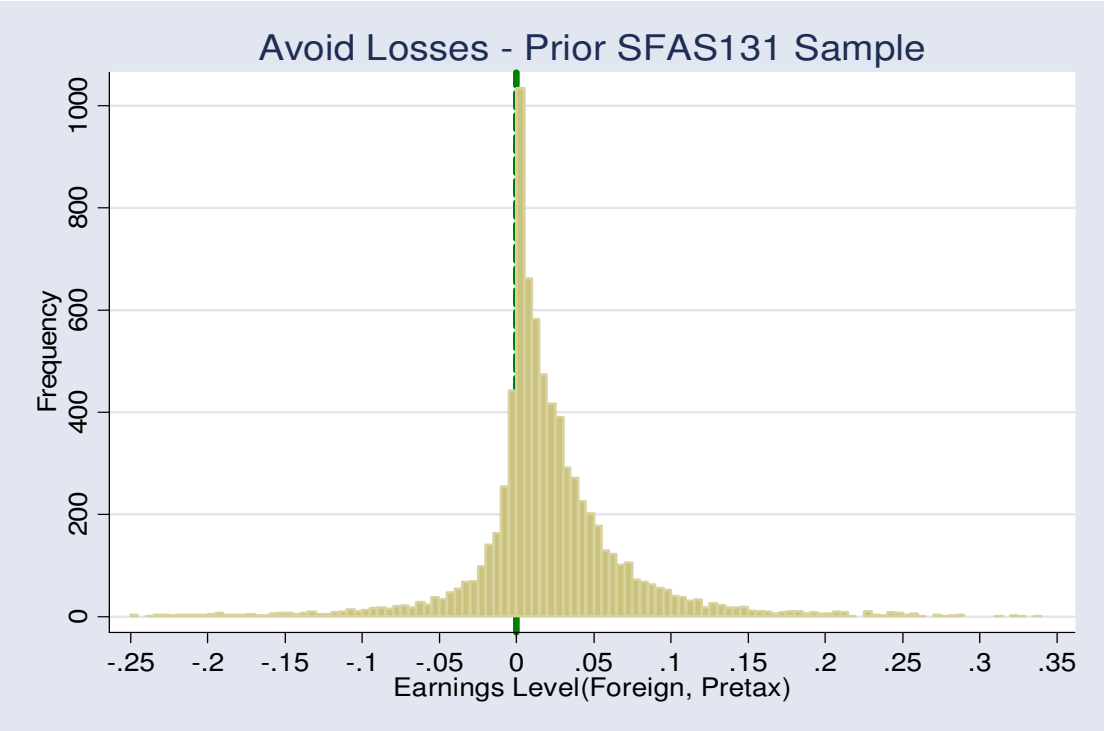


Figure 5.9 Graphing Results of the Second Pair of Hypotheses (2)

Panel A



Panel B

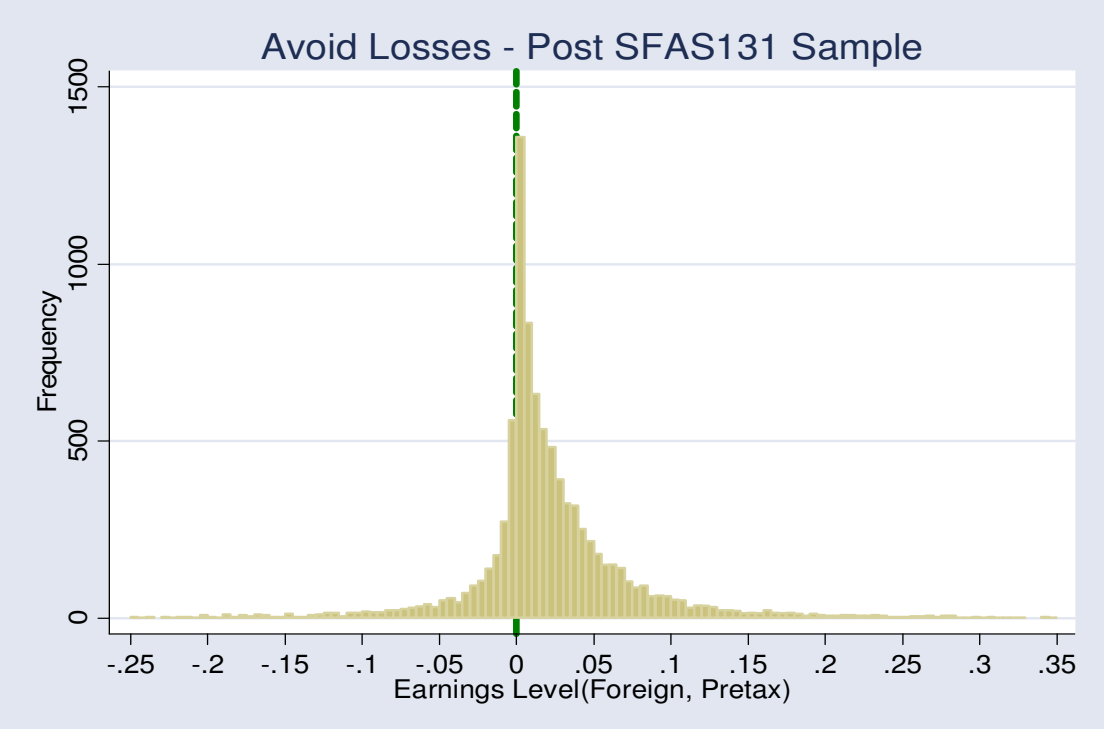
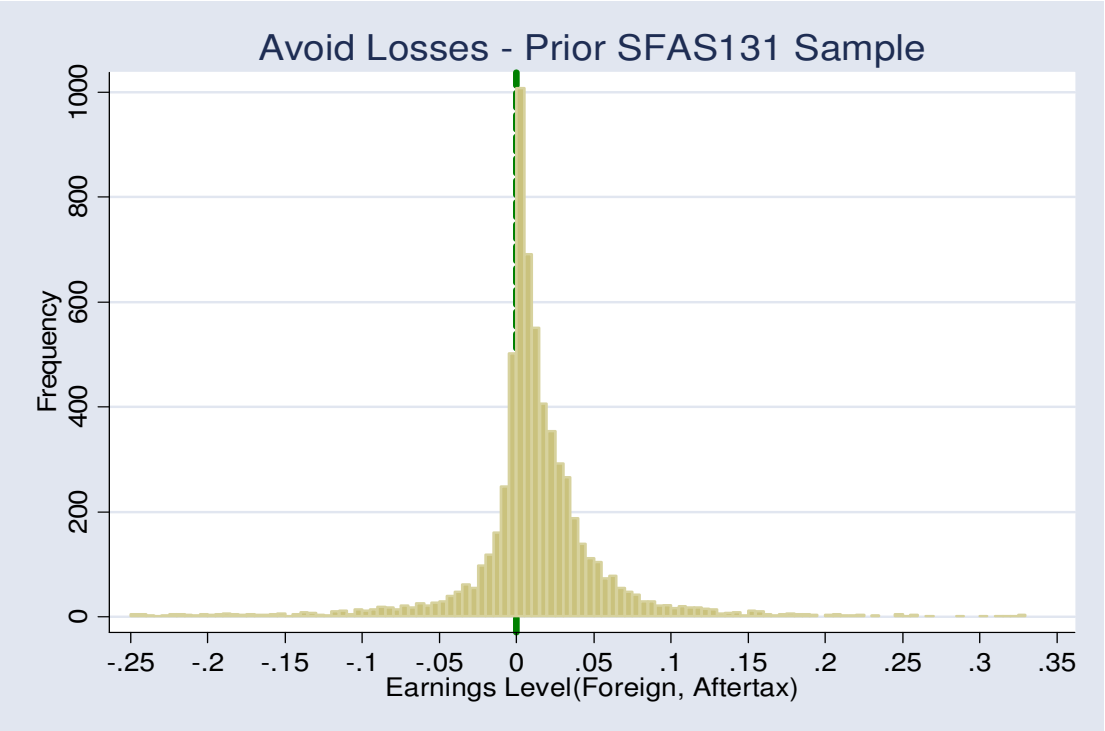


Figure 5.10 Graphing Results of the Second Pair of Hypotheses (3)

Panel A



Panel B

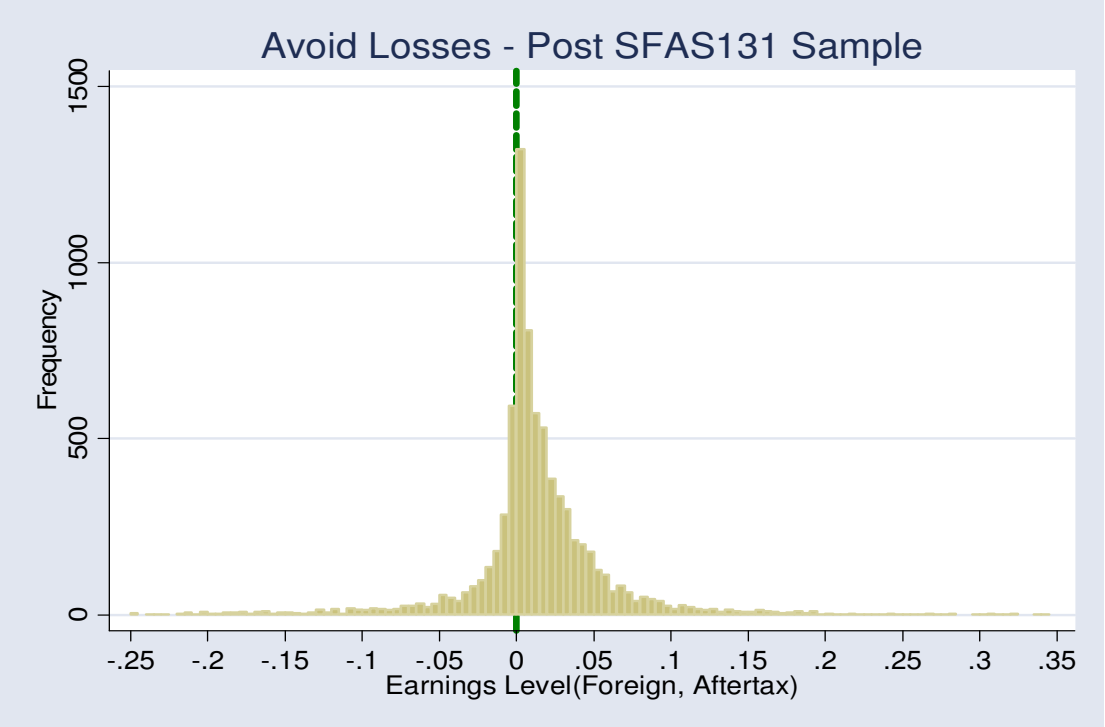


Figure 5.11 Graphing Results of the Second Pair of Hypotheses (4)

Table 5.4 Test Results for the Second Pair of Hypotheses

Panel A The discontinuity is less obvious for the post-SFAS131 sample in avoidance of earnings decreases (test using pretax foreign income).

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.0025 to 0	0.37	0.84	-0.46	-0.33	Not
0 to.0025	8.35	3.03	5.32	3.76	Opposite***

Panel B The discontinuity is less obvious for the post-SFAS131 sample in avoidance of earnings decreases (test using after-tax foreign income).

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.0025 to 0	0.85	1.06	-0.21	-0.15	Not
0 to.0025	8.35	4.62	3.73	2.64	Opposite***

Panel C The discontinuity is less obvious for the post-SFAS131 sample in avoidance of losses (test using pretax foreign income).

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.005 to 0	-7.16	-6.36	-0.8	-0.57	Not
0 to.005	15.59	12.85	2.74	1.94	Opposite**

Panel D The discontinuity is less obvious for the post-SFAS 131 sample in avoidance of losses (test using after-tax foreign income).

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.005 to 0	-5.91	-3.93	-1.98	-1.4	Opposite*
0 to.005	14.92	11.03	3.89	2.75	Opposite***

Note:
1. “Post” stands for “Post-SFAS131 samples” and “Prior” stands for “Pre-SFAS131 samples”.
2. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. “Opposite” stands for significance in the direction different from expectation.

for intervals immediately to the left of the zero thresholds. The non-significant result is consistent with the finding of Hypothesis 1a, that foreign earnings are not managed to avoid earnings decreases.

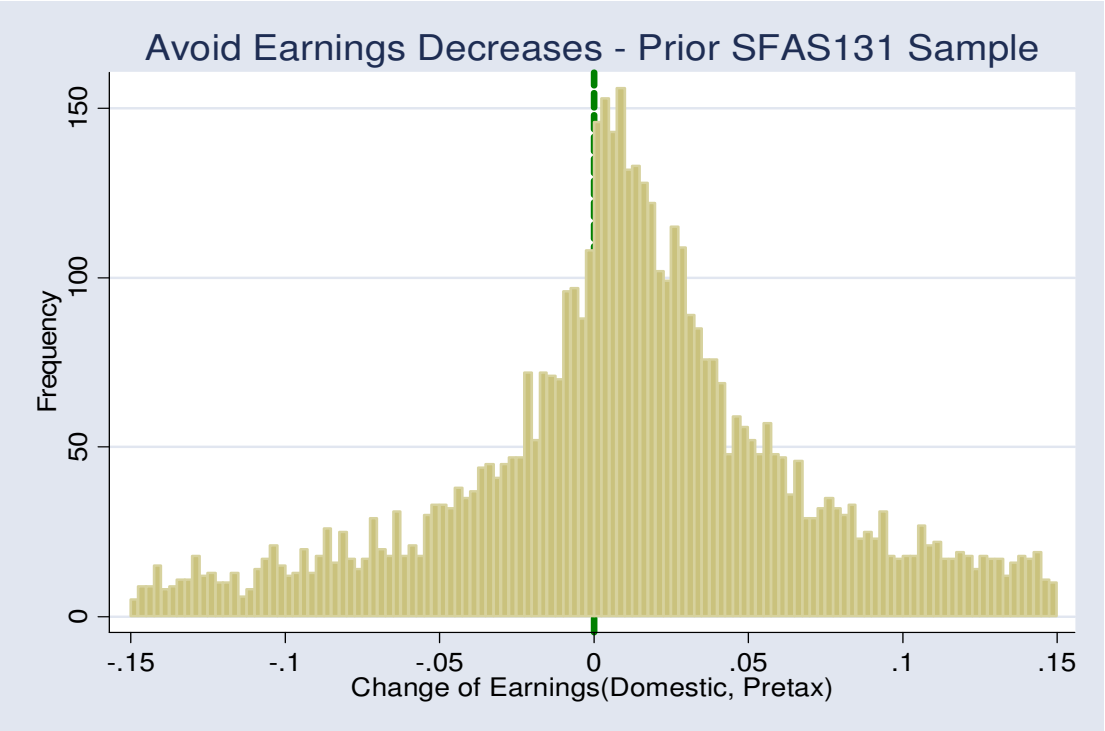
Panel C and D of Table 5.4 show the test results of Hypothesis 2b. Panel C uses pretax foreign income and Panel D uses after-tax foreign income. The t-statistic is not significant for the interval immediately to the left of the zero threshold in Panel C. The t-statistic is oppositely significant at 10% for the interval immediately to the left of the zero threshold in Panel D. There is no evidence to suggest that earnings management is reduced in the post-SFAS131 sample period. The results show that managers are likely to manage foreign earnings to avoid losses in both periods.

5.3.2 Domestic Earnings

Domestic earnings are not managed to avoid earnings decreases, nor are domestic earnings managed to avoid losses. If I find no significant results for the second pair of hypotheses using domestic earnings, it will be consistent with the finding in Section 5.2.2 that managers do not manage domestic earnings. However, if I find significant results, then the finding that managers do not manage domestic earnings is not convincing. For that reason, I test the second pair of hypotheses using domestic earnings.

Figure 5.12, Figure 5.13, Figure 5.14 and Figure 5.15 show the graphing results for the second pair of hypotheses using domestic earnings. I separate the full sample into pre- and post-SFAS131 samples in testing whether the discontinuity is less obvious for the post-SFAS131 sample for domestic earnings. Figure 5.12 and Figure 5.13 are the graphing results for testing Hypothesis 2a. Figure 5.12 uses pretax domestic income and Figure 5.13 uses after-tax domestic income. Similarly, Figure 5.14 and Figure 5.15 are

Panel A



Panel B

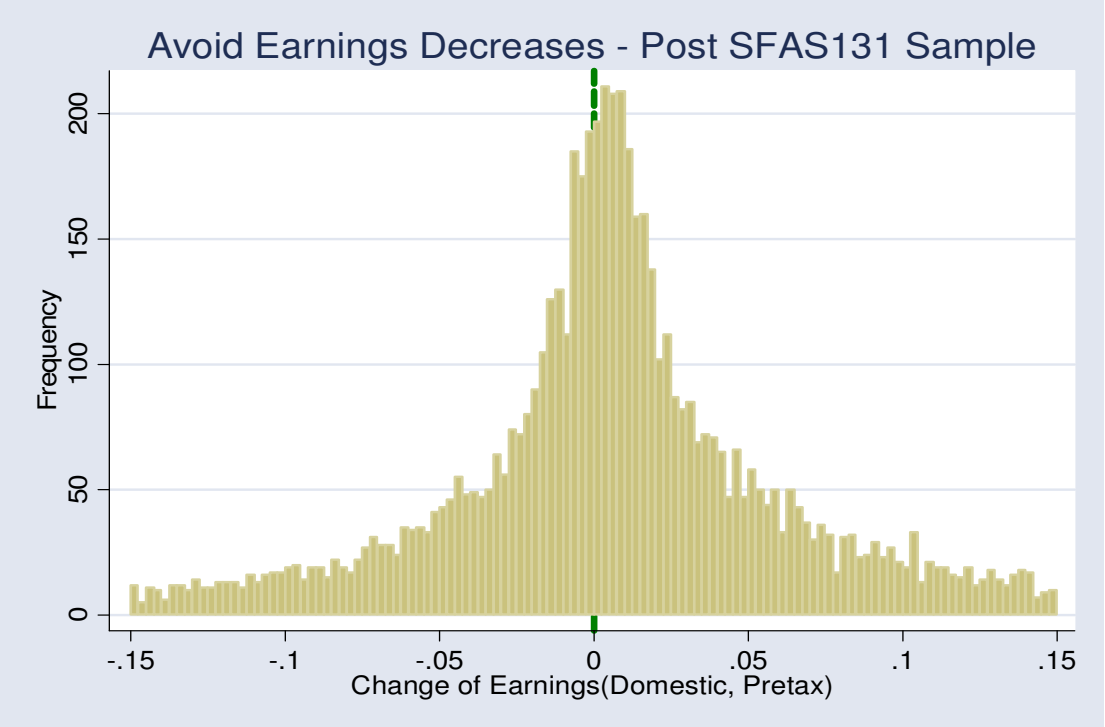
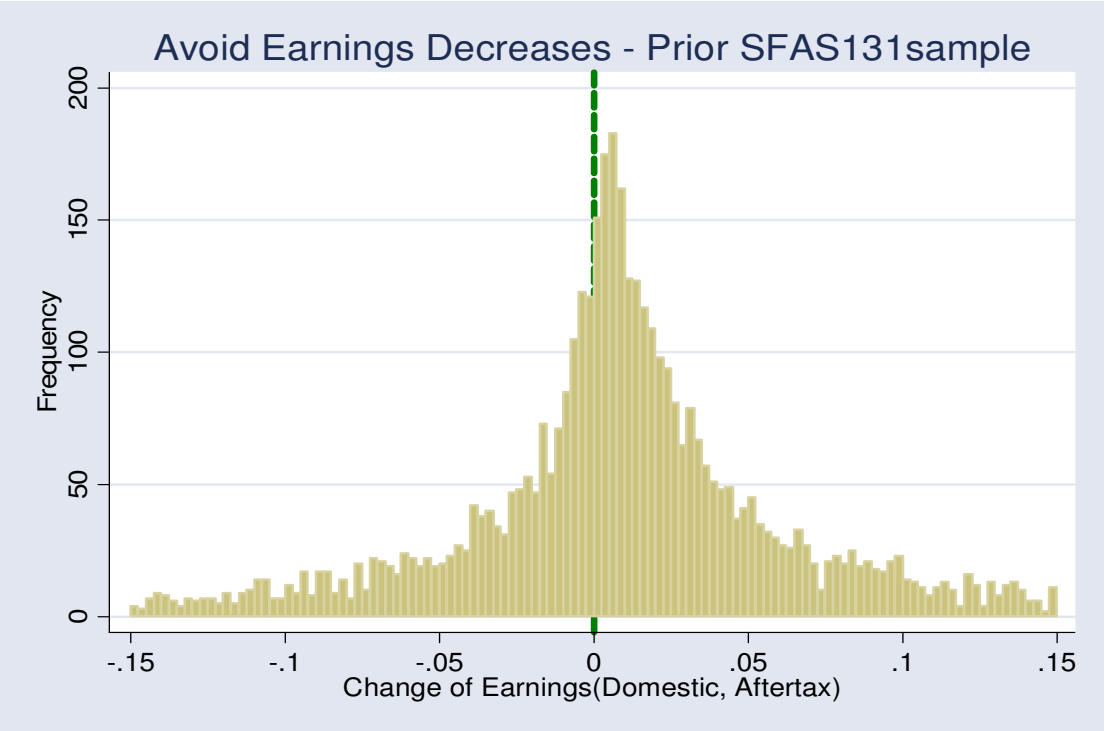


Figure 5.12 Graphing Results of the Second Pair of Hypotheses (Domestic) (1)

Panel A



Panel B

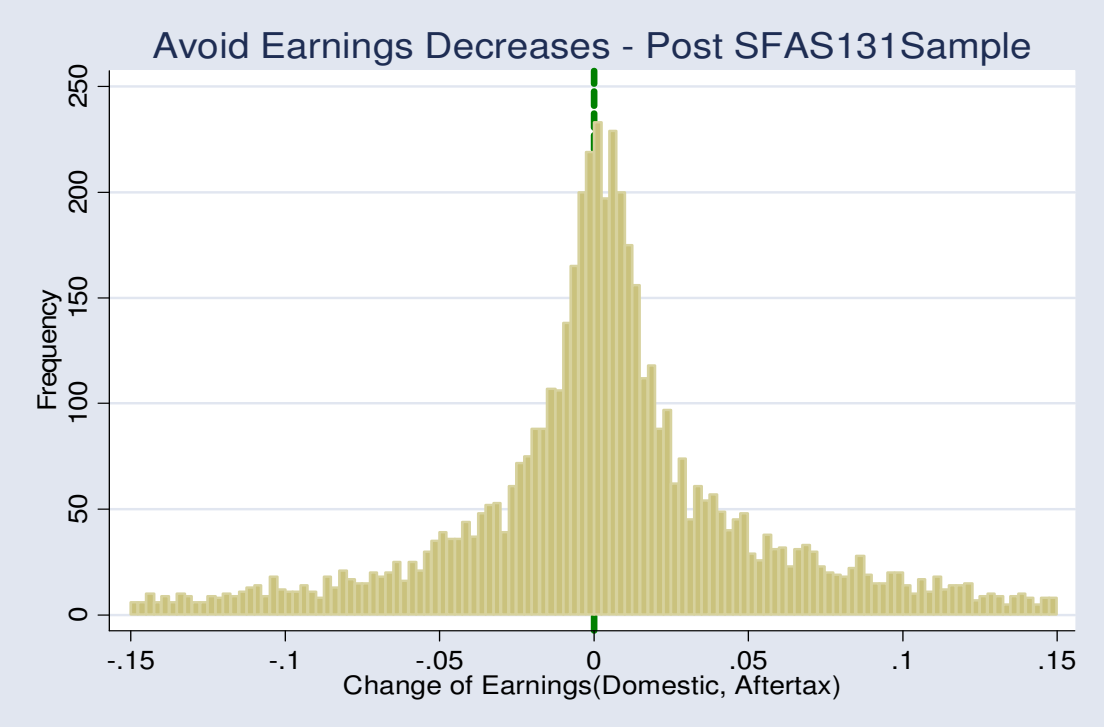
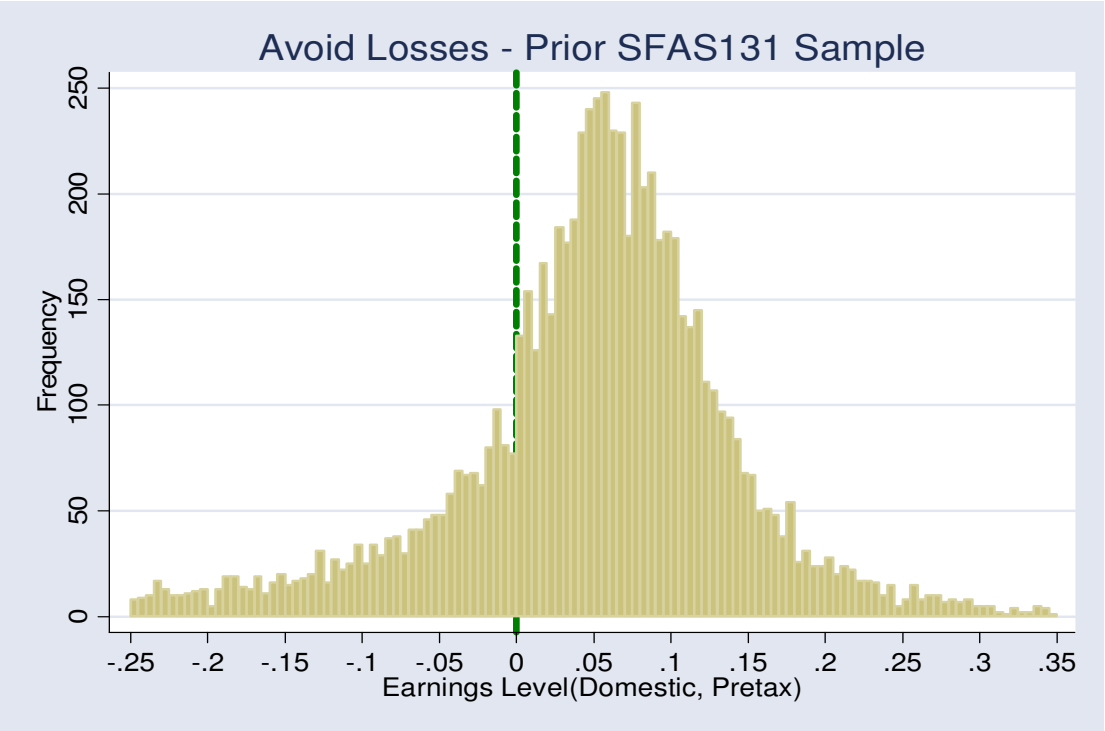


Figure 5.13 Graphing Results of the Second Pair of Hypotheses (Domestic) (2)

Panel A



Panel B

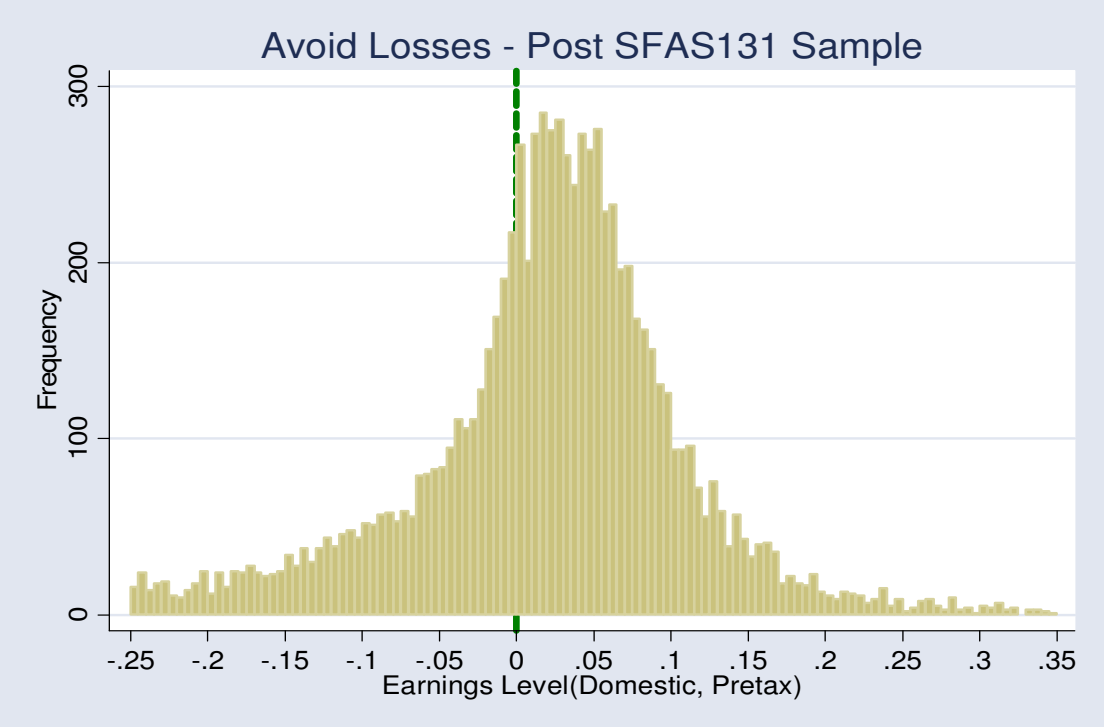
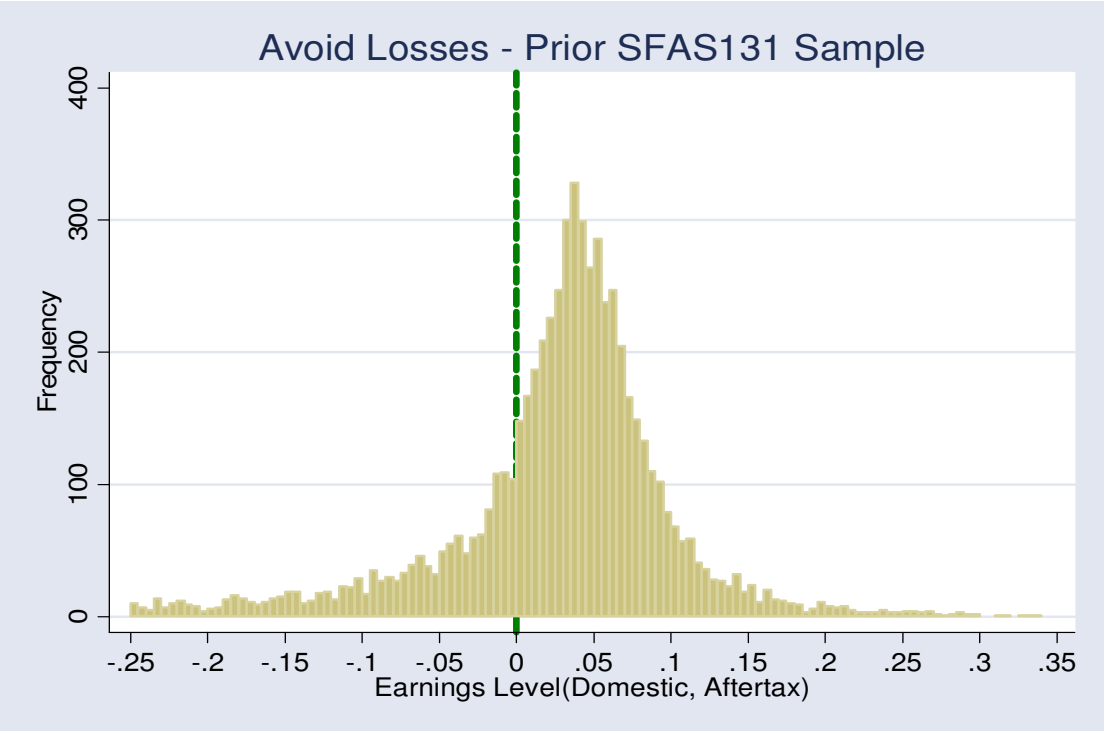


Figure 5.14 Graphing Results of the Second Pair of Hypotheses (Domestic) (3)

Panel A



Panel B

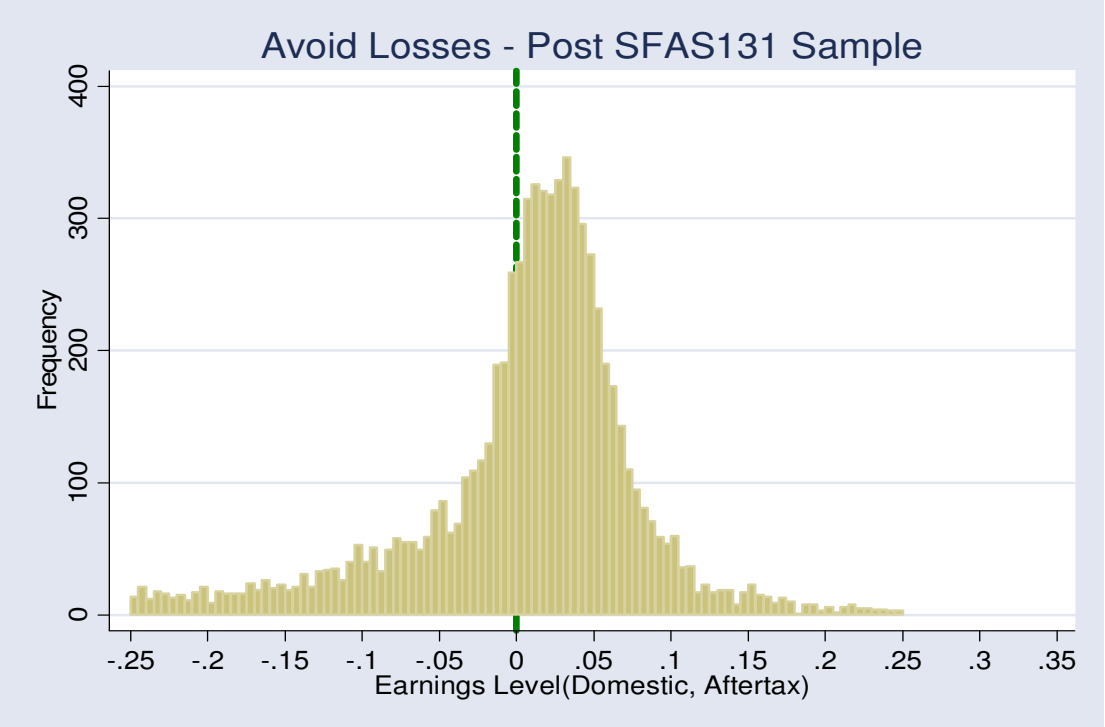


Figure 5.15 Graphing Results of the Second Pair of Hypotheses (Domestic) (4)

the graphing results for testing Hypothesis 2b. Figure 5.14 uses pretax domestic income and Figure 5.15 uses after-tax domestic income.

Table 5.5 Test Results for the Second Pair of Hypotheses (Domestic)

Panel A The discontinuity is less obvious for the post-SFAS 131 sample in avoidance of earnings decreases (test using pretax domestic income).

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.0025 to 0	0.36	-0.61	0.97	0.69	Not
0 to.0025	-0.25	0.94	-1.2	-0.85	Not

Panel B The discontinuity is less obvious for the post-SFAS 131 sample in avoidance of earnings decreases (test using after-tax domestic income).

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.0025 to 0	0.12	-1	1.13	0.8	Not
0 to.0025	1.21	0.18	1.04	0.73	Not

Panel C The discontinuity is less obvious for the post-SFAS 131 sample in avoidance of losses (test using pretax domestic income).

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.005 to 0	-0.58	-2.23	1.65	1.17	Not
0 to.005	2.69	1.12	1.57	1.11	Not

Panel D The discontinuity is less obvious for the post-SFAS 131 sample in avoidance of losses (test using after-tax domestic income).

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.005 to 0	-0.58	-2.23	1.65	1.17	Not
0 to.005	2.7	1.12	1.58	1.12	Not

Note:
1. “Post” stands for “Post-SFAS131 samples” and “Prior” stands for “Pre-SFAS131 samples”.
2. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. “Opposite” stands for significance in the direction different from expectation.

The results in all panels in Table 5.5 are not significant. These results, together with the results using foreign earnings, show that SFAS131 does not significantly

change firms' earnings management patterns. In addition, the non-significant results in Table 5.5 are consistent with the previous findings that domestic earnings are not managed to avoid earnings decreases, and neither are domestic earnings managed to avoid losses.

5.4 Results for the Third Pair of Hypotheses

5.4.1 Foreign Earnings

Figure 5.16, Figure 5.17, Figure 5.18 and Figure 5.19 show the graphing results for the third pair of hypotheses. I separate the post-SFAS131 sample into a subset sample with companies reporting an increased number of segments and a subset sample with companies reporting a decreased or no change in the number of segments post SFAS 131. Figure 5.16 and Figure 5.17 are the graphing results for testing Hypothesis 3a -- The discontinuity is less obvious for the subset of sample that has increased the number of reported segment in the post-SFAS131 period in avoidance of earnings decreases. Figure 5.16 uses pretax foreign income and Figure 5.17 uses after-tax foreign income. Similarly, Figure 5.18 and Figure 5.19 are the graphing results for testing Hypothesis 3b -- The discontinuity is less obvious for the subset of sample that has increased the number of reported segment in the post-SFAS131 period in avoidance of losses. Figure 5.18 uses pretax foreign income and Figure 5.19 uses after-tax foreign income.

The total number of observations in all upper panels is substantially greater than those in all lower panels. This evidence is consistent with more companies increasing number of reported segments in the post-SFAS131 period (e.g., Hermann &

Tomas(2000), Street et al(2000), Doupnik & Seese(2001) and Berger and Hann(2003)).[60]

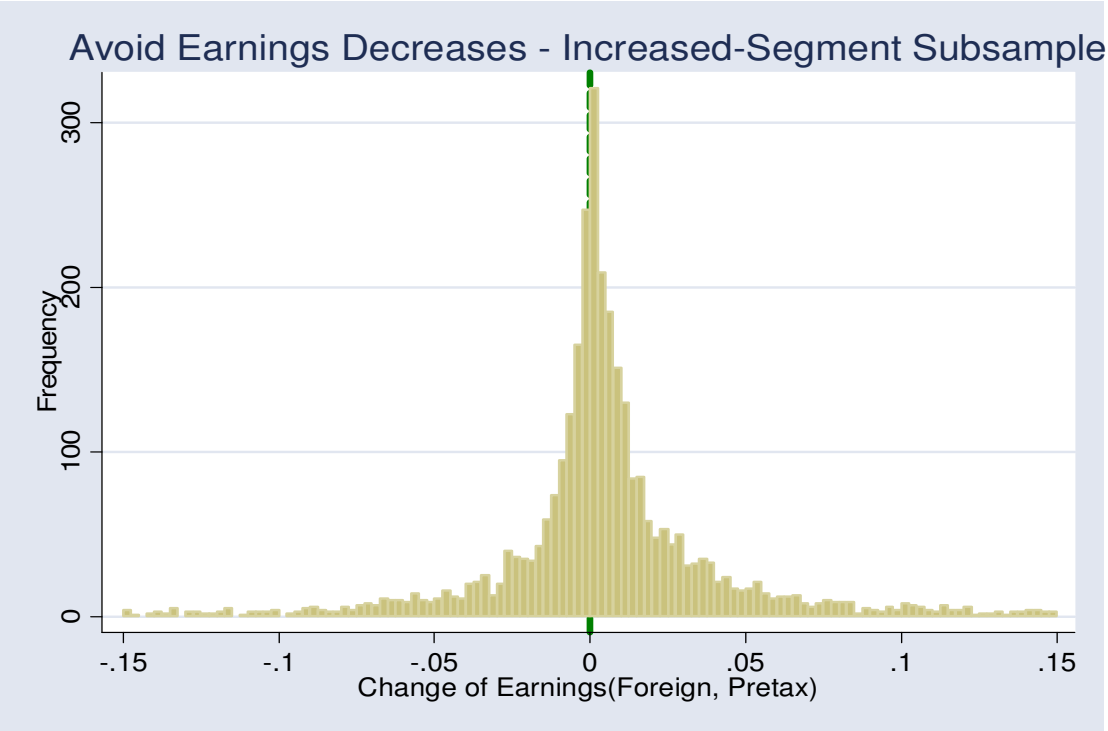
In Table 5.6, t (Increase) reports t-statistics for companies reporting an increased number of segments in the post-SFAS131 period and t (Decrease) reports t-statistics for companies reporting a decreased or no change in the number of segments. Panel A and B show the test results of Hypothesis 3a. Panel A uses pretax foreign income and Panel B uses after-tax foreign income. Both panels show similar results. The non-significant results for the left intervals are consistent with the finding of Hypothesis 1a—foreign earnings are not managed to avoid decreases in foreign earnings.

Panel C and D show the test results of Hypothesis 3b. Panel C uses pretax foreign income and Panel D uses after-tax foreign income. The result for Panel C is significant at a 1% level both for the left and right intervals. The discontinuity in avoidance of losses is less obvious for the subset sample that has increased the number of reported segments in the post-SFAS131 sample period. Managers manage foreign earnings to avoid losses in the post-SFAS131 sample period, but are less likely to engage in earnings management if they provide more voluntary disclosure as evidenced by reporting an increased number of segments.

Panel D shows non-significant results for the left interval. This seems to suggest that foreign taxes might have an effect in foreign earnings' distribution patterns. However, the effect is negligible because the general finding in testing Hypothesis 1b does not result in foreign taxes being a significant factor.

[60] The headings of the lower panels have limited spaces. Note that all lower panels include companies reporting no change in the number of segments.

Panel A



Panel B

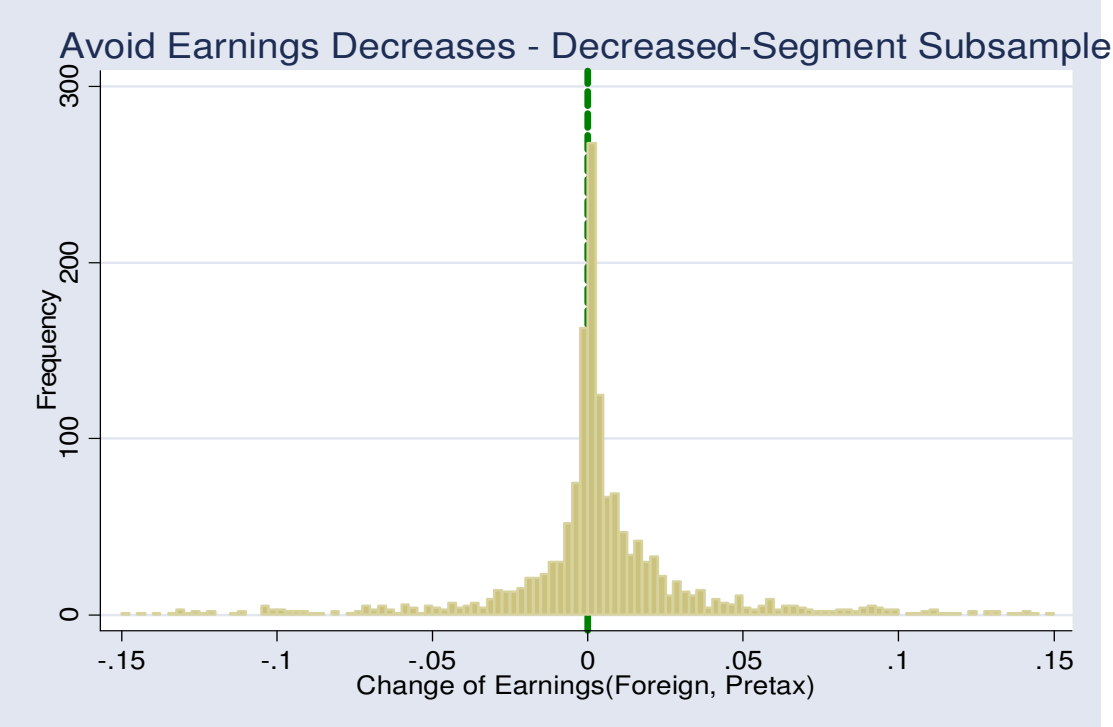
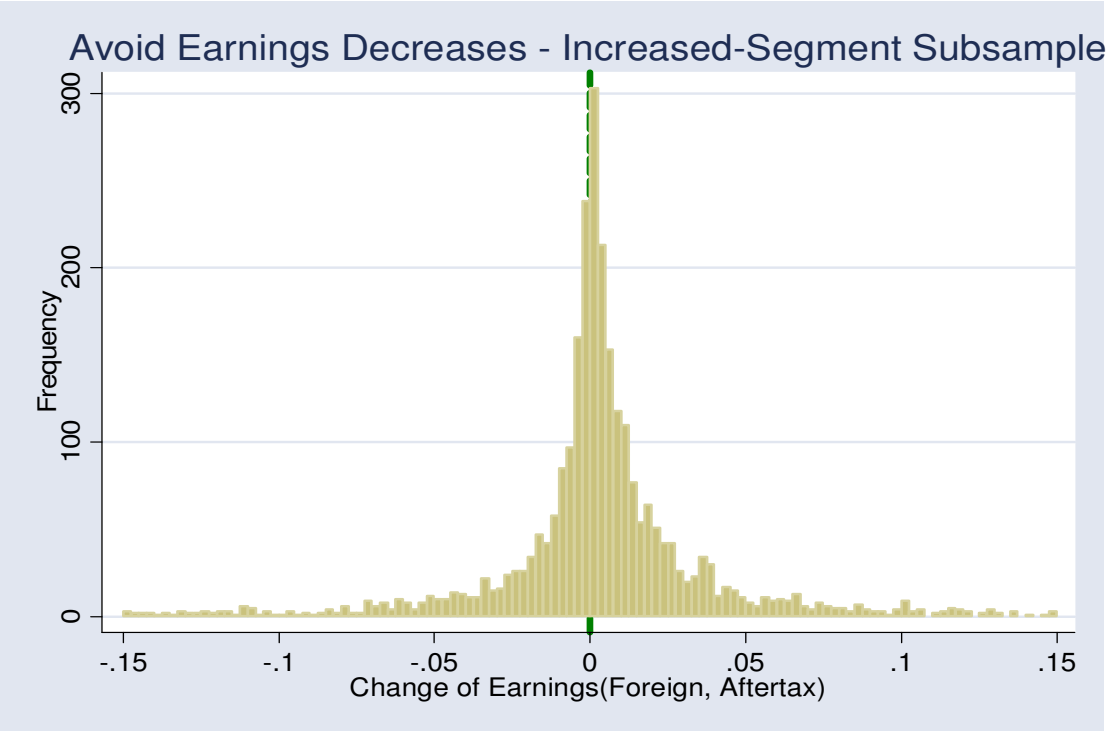


Figure 5.16 Graphing Results of the Third Pair of Hypotheses (1)

Panel A



Panel B

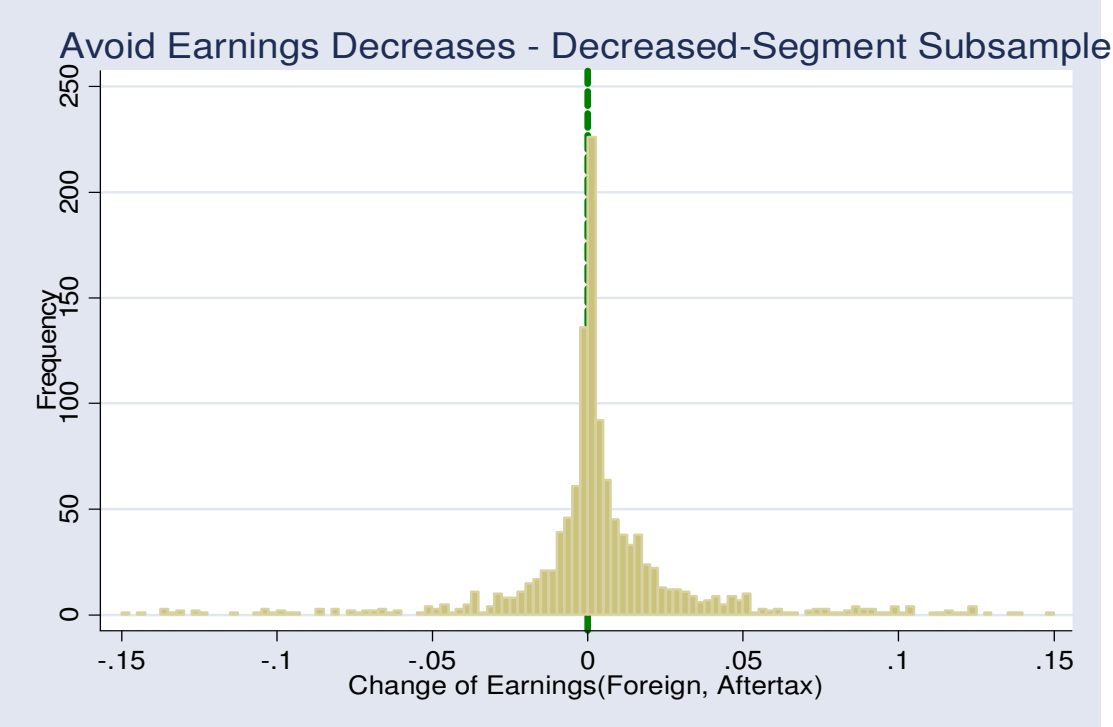
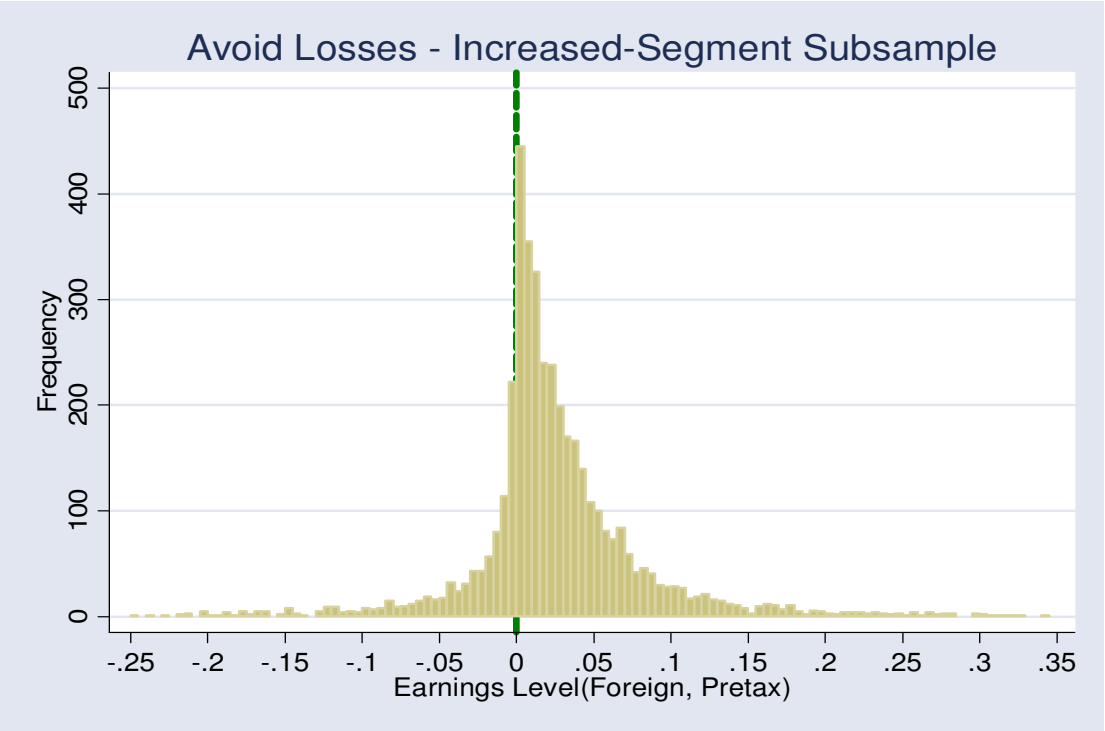


Figure 5.17 Graphing Results of the Third Pair of Hypotheses (2)

Panel A



Panel B

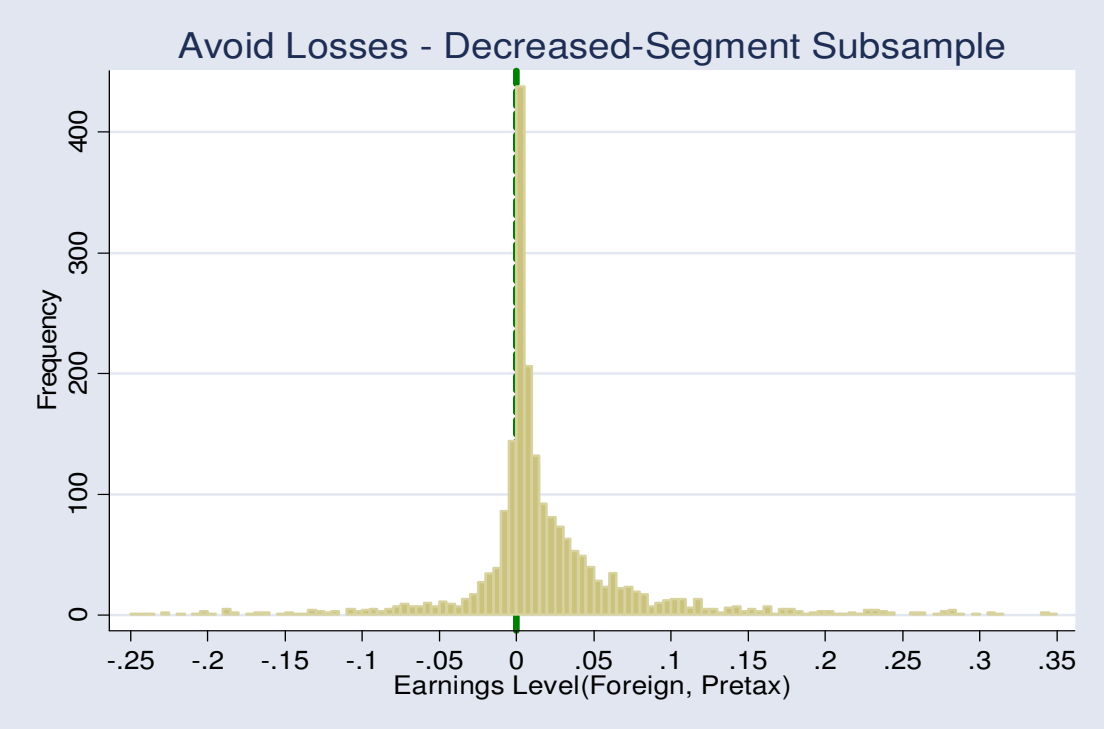
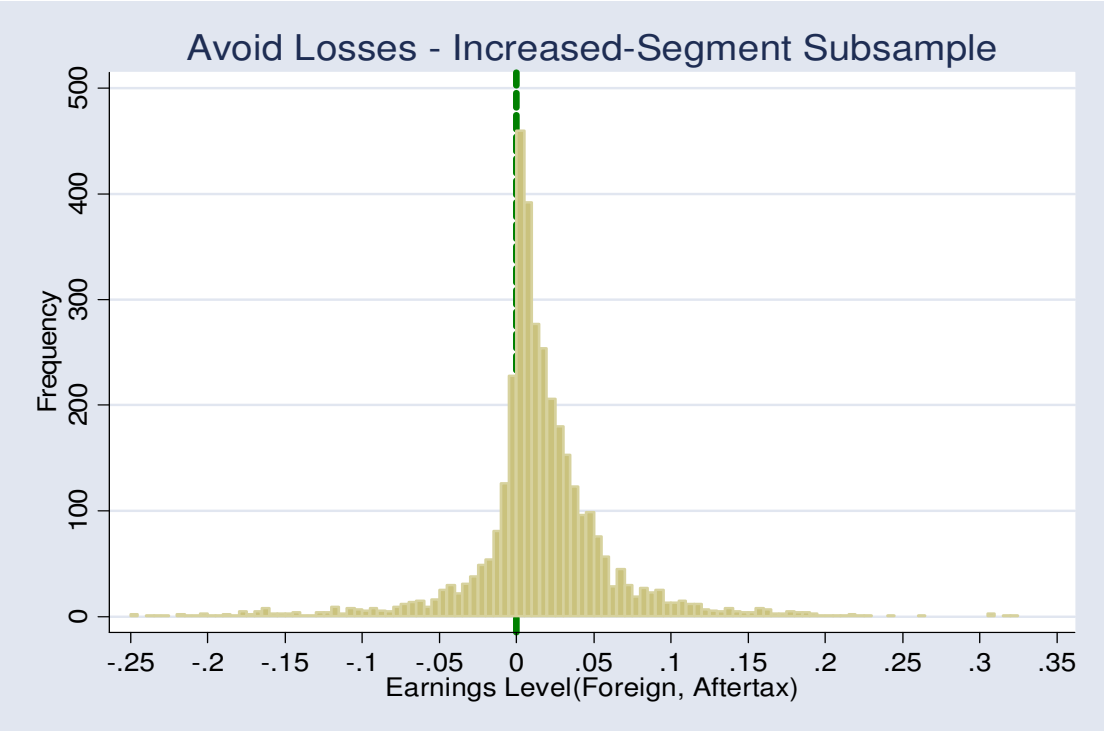


Figure 5.18 Graphing Results of the Third Pair of Hypotheses (3)

Panel A



Panel B

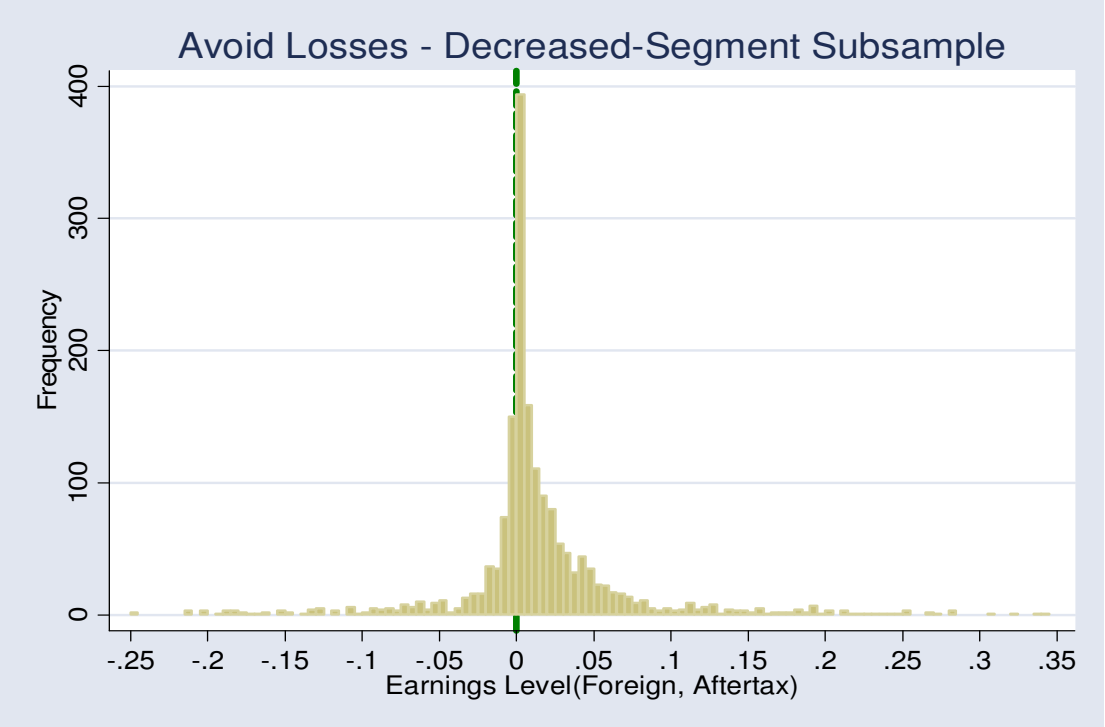


Figure 5.19 Graphing Results of the Third Pair of Hypotheses (4)

Table 5.6 Test Results for the Third Pair of Hypotheses

Panel A The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of earnings decreases (test using pretax foreign income).

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.0025 to 0	0.19	-0.49	0.68	0.48	Not
0 to.0025	4.15	6.58	-2.43	-1.72	**

Panel B The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of earnings decreases (test using after-tax foreign income).

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.0025 to 0	0.31	-0.47	0.79	0.56	Not
0 to.0025	3.55	6.57	-3.02	-2.14	**

Panel C The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of losses (test using pretax foreign income).

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.005 to 0	-2.65	-6.18	3.53	2.5	***
0 to.005	6.06	11.65	-5.59	-3.95	***

Panel D The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of losses (test using after-tax foreign income).

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.005 to 0	-2.96	-4.55	1.59	1.13	Not
0 to.005	5.73	11.32	-5.59	-3.95	***

Note:
1. “Increase” stands for “companies reporting increased number of segments” and “Decrease” stands for “companies reporting decreased or no change in number of segments”.
2. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. “Opposite” stands for significance in the direction different from expectation.

5.4.2 Domestic Earnings

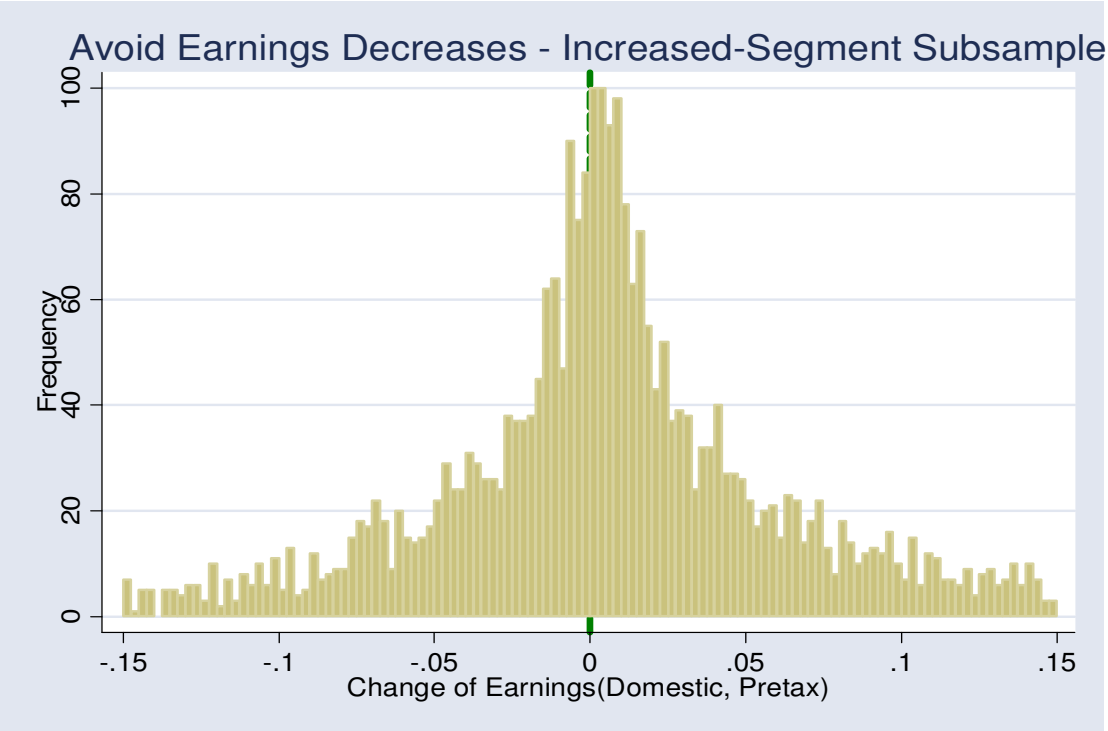
As discussed in Section 5.2.2, domestic earnings are not managed to avoid earnings decreases, nor are they managed to avoid losses. If using domestic earnings does not allow me to find significant results for the second pair of hypotheses, I suspect I will not find significant results for the third pair of hypotheses. For that reason, I test the third pair of hypotheses using domestic earnings.

Figure 5.20, Figure 5.21, Figure 5.22 and Figure 5.23 show the graphing results using domestic earnings. I separate the post-SFAS131 sample into a subset sample with companies reporting an increased number of segments and a subset sample with companies reporting a decreased or no change in the number of segments after SFAS 131. Figure 5.20 and Figure 5.21 are the results of testing Hypothesis 3a. Figure 5.20 uses pretax domestic income and Figure 5.21 uses after-tax domestic income. Similarly, Figure 5.22 and Figure 5.23 are the results of testing Hypothesis 3b. Figure 5.22 uses pretax domestic income and Figure 5.23 uses after-tax domestic income.

The frequency scales are larger for all four upper panels when compared with all four lower panels. Although graphs in the upper panels look similar to those in the lower panels, the numbers of observations are greater for all four upper panels, consistent with more companies increasing their number of segments in the post-SFAS131 sample period.

Except for the left interval in Panel D, the results in Table 5.7 are not significant. The non-significant results in Table 5.7 are consistent with my findings in Section 5.2.2 that domestic earnings are not managed to avoid earnings decreases, and

Panel A



Panel B

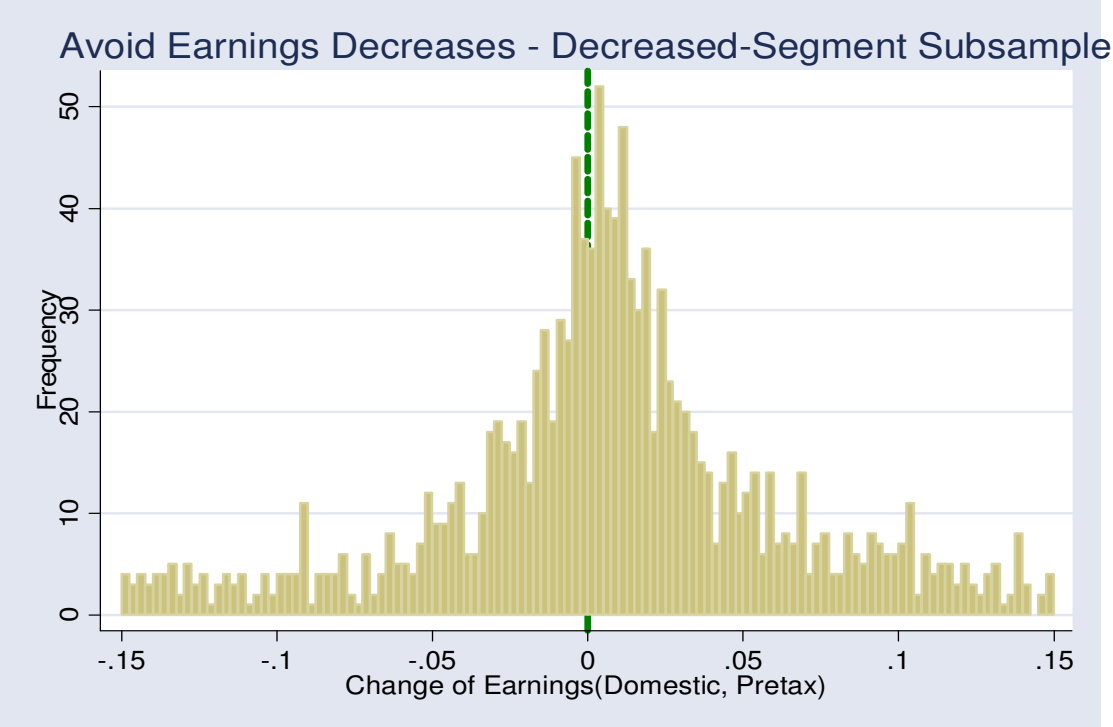
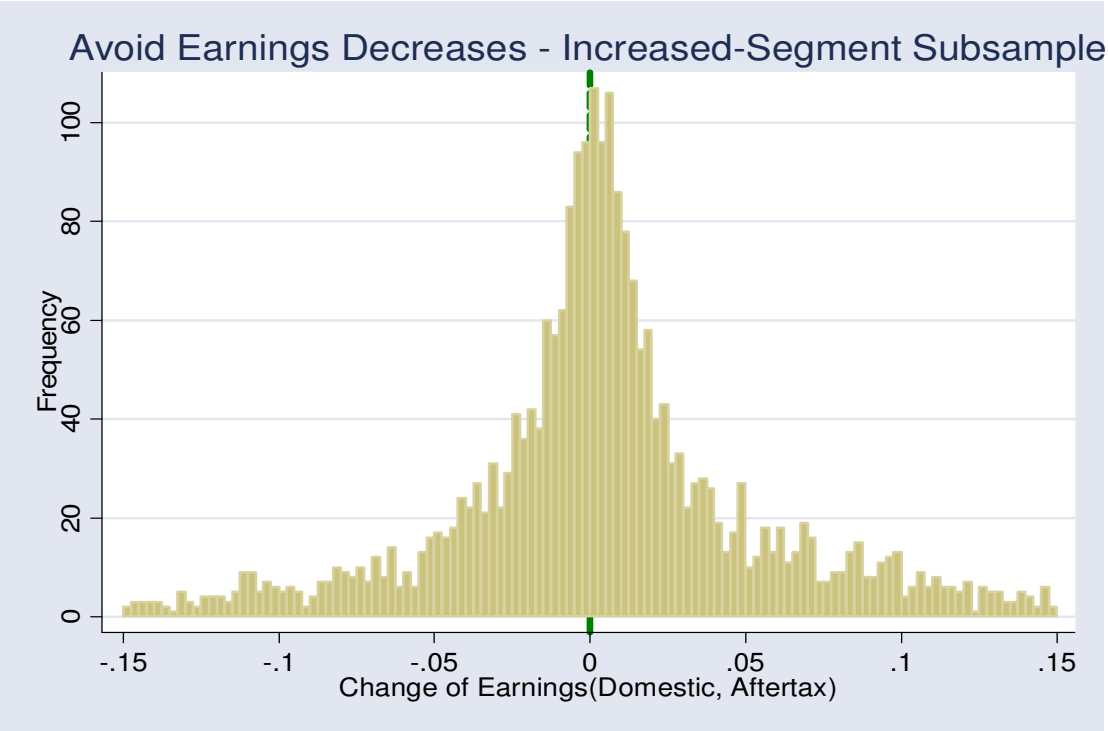


Figure 5.20 Graphing Results of the Third Pair of Hypotheses (Domestic) (1)

Panel A



Panel B

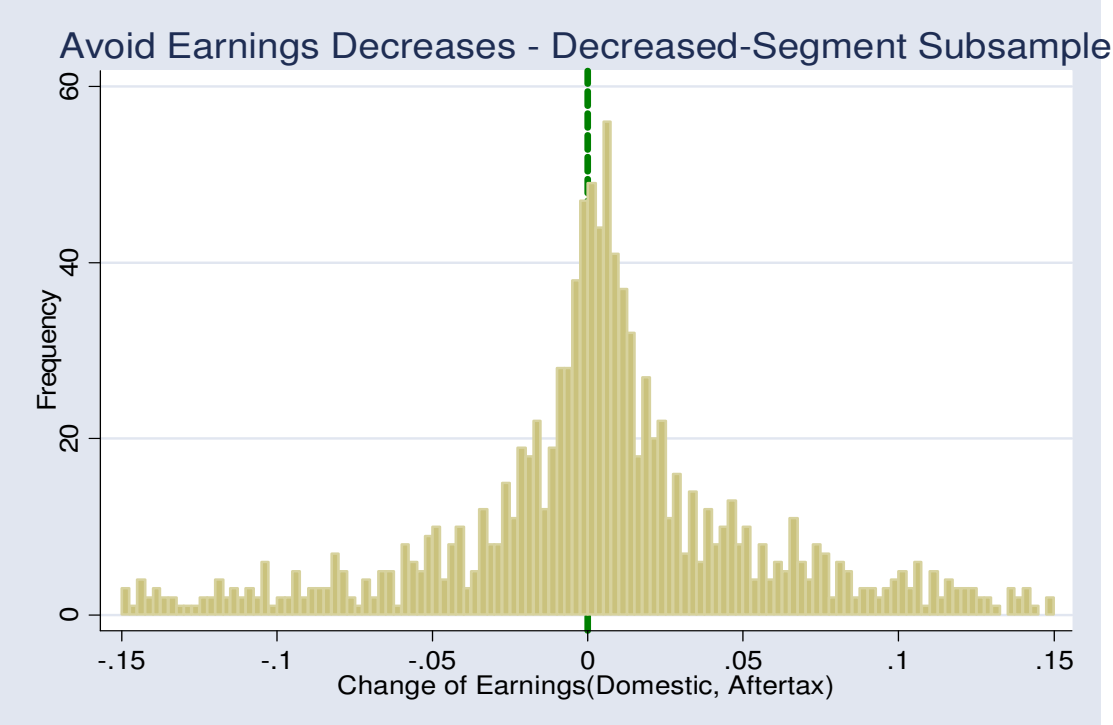
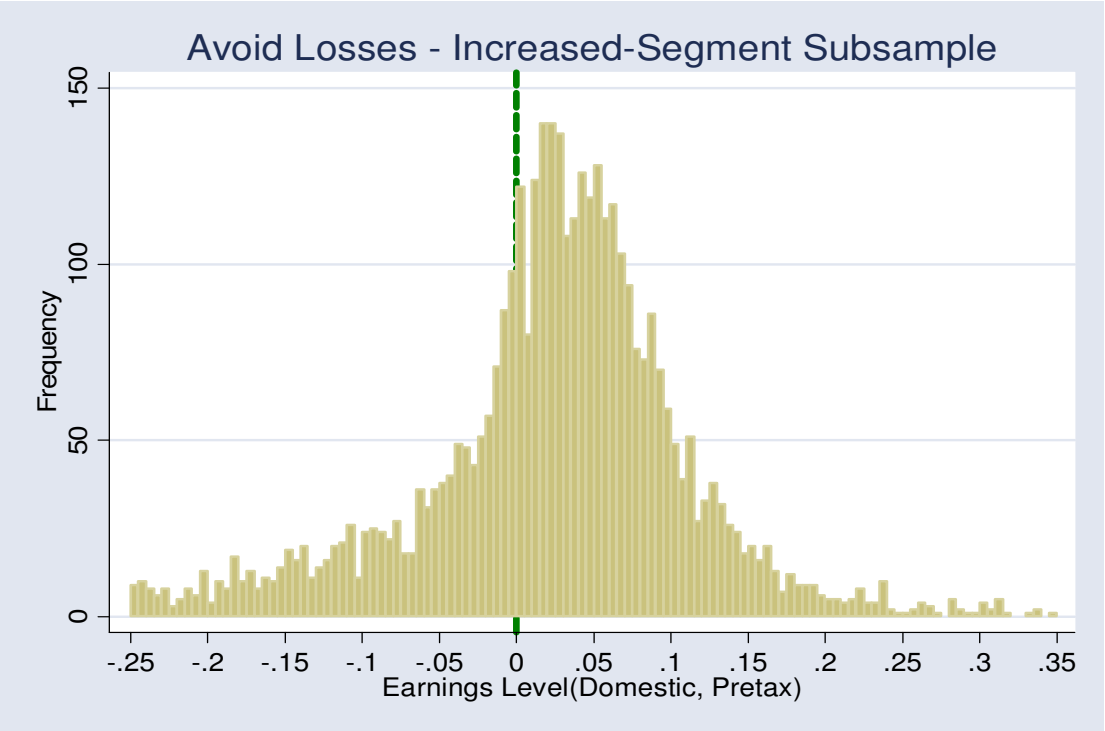


Figure 5.21 Graphing Results of the Third Pair of Hypotheses (Domestic) (2)

Panel A



Panel B

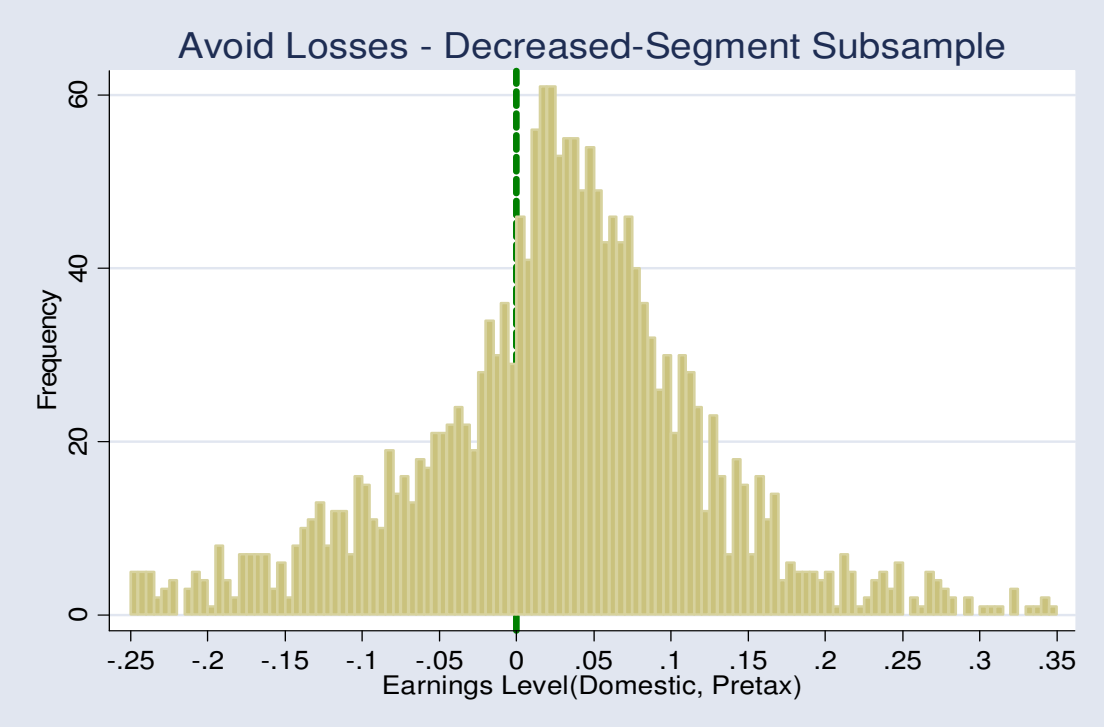
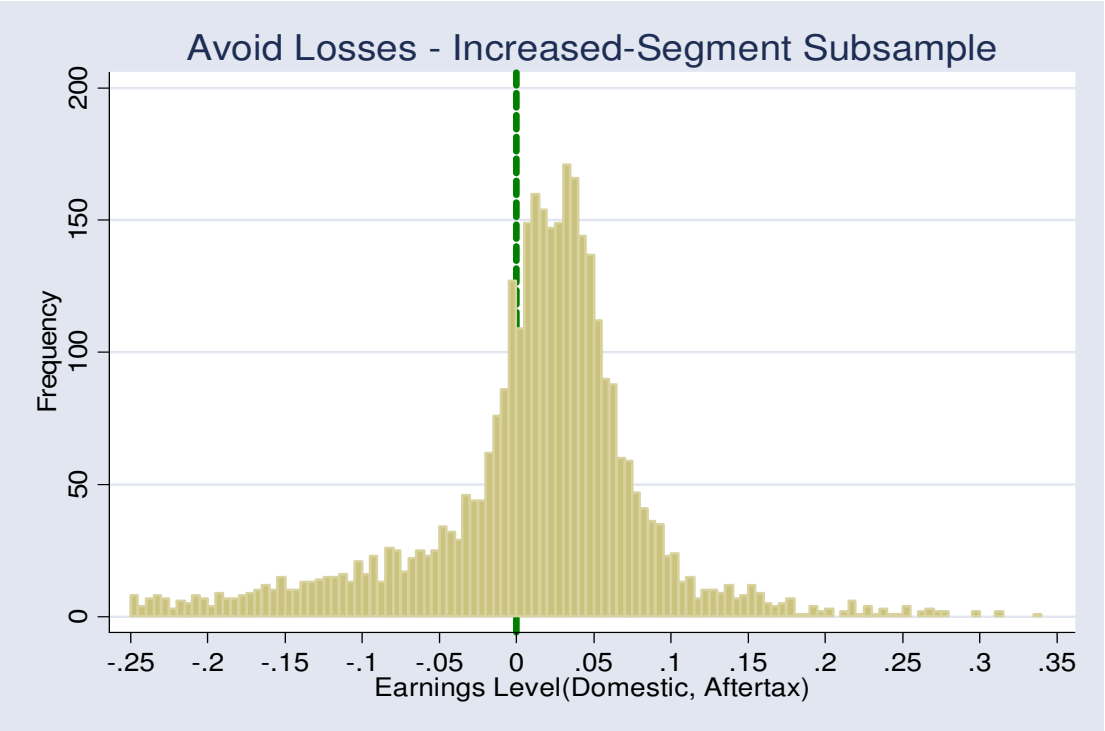


Figure 5.22 Graphing Results of the Third Pair of Hypotheses (Domestic) (3)

Panel A



Panel B

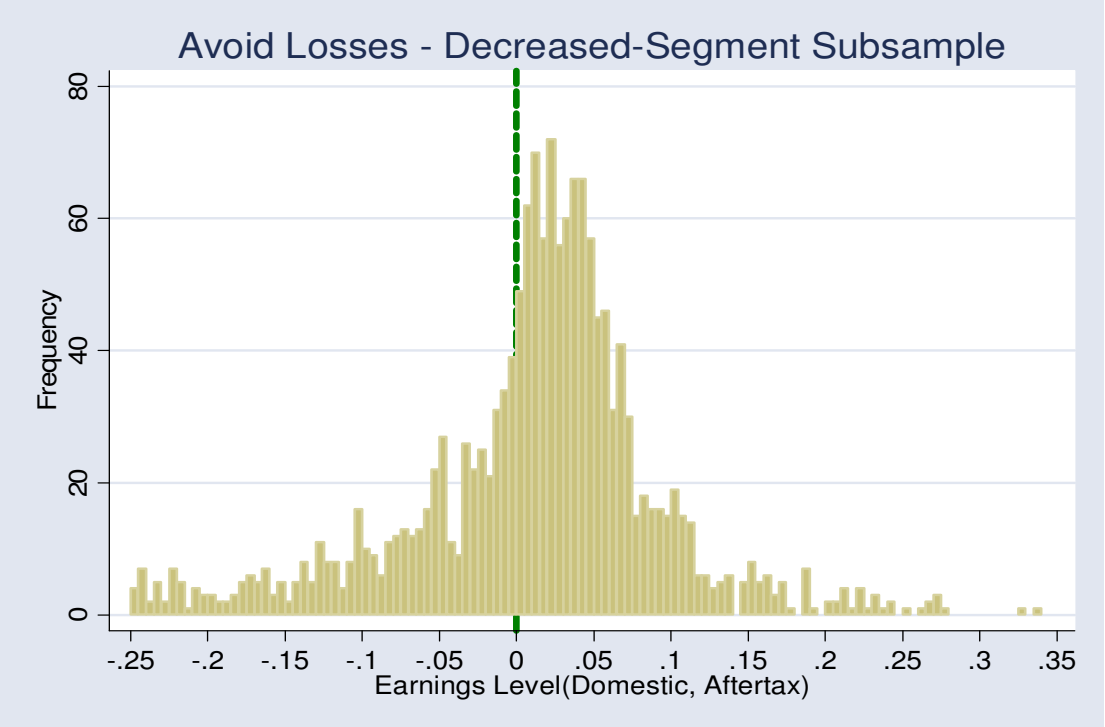


Figure 5.23 Graphing Results of the Third Pair of Hypotheses (Domestic) (4)

Table 5.7 Test Results for the Third Pair of Hypotheses (Domestic)

Panel A The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of earnings decreases (test using pretax domestic income).

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.0025 to 0	-0.27	-0.4	0.13	0.09	Not
0 to.0025	0.59	-0.96	1.55	1.09	Not

Panel B The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of earnings decreases (test using after-tax domestic income).

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.0025 to 0	-0.33	0.37	-0.7	-0.5	Not
0 to.0025	0.79	0.37	0.42	0.3	Not

Panel C The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of losses (test using pretax domestic income).

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.005 to 0	-0.46	-1.45	0.98	0.7	Not
0 to.005	2.3	1.23	1.07	0.75	Not

Panel D The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of losses (test using after-tax domestic income).

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.005 to 0	2	-0.28	2.28	1.61	*
0 to.005	-1.88	-0.15	-1.73	-1.22	Not

Note:
1. “Increase” stands for “companies reporting increased number of segments” and “Decrease” stands for “companies reporting decreased or no change in number of segments”.
2. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. “Opposite” stands for significance in the direction different from expectation.

domestic earnings are not managed to avoid losses. Although the result is significant at a 10% level for the left interval in Panel D, it can not be interpreted as a sign of reduced

earnings management for companies that report an increased number of segments. Normally, t-values for the left intervals are negative, the positive t (Increase) value (t=2) in Panel D should be interpreted as an anomaly.

The results in sections 5.3 and 5.4 suggest that companies did not reduce earnings management activities simply because SFAS 131 came into effect. Rather, it depends on whether they took action to implement SFAS 131 and increased voluntary disclosure. For those companies that implemented SFAS 131 and reported an increased numbers of segments, empirical results show that managers are less likely to engage in earnings management.

CHAPTER 6

SENSITIVITY TESTING RESULTS

B&D (1997) use interval width of 0.0025 for avoidance of earnings decreases and 0.005 for avoidance of losses. I have obtained the results in CHAPTER 5 using these interval widths. According to B&D (1997), standardized differences depend on the number of observations, which varies across the earnings intervals. A different interval width might cause changes in results.

Different papers use different interval widths. Durtschi and Easton (2005) use the interval width of 0.005 for earnings per share. Jacob & Jorgensen (2007) and Beaver et al. (2007) use an interval width of 0.01 for earnings per share. The different interval widths have caused problem in comparing results and concern that results are driven by the interval widths.

For sensitivity testing[61], I use twice the interval widths used by B&D (1997) -- 0.005 for avoidance of earnings decreases and 0.01 for avoidance of losses. I refer this as "Wide Interval". I also use half of the interval widths, namely, 0.00125 for avoidance of earnings decreases and 0.0025 for avoidance of losses. I refer this as "Narrow Interval".

[61] According to B&D (1997), other sensitivity testing methods, such as scaling variables by total sales or total assets, provide qualitatively similar results as scaling by market value of equity

6.1 Sensitivity Testing Results for the Replication of Burgstahler and Dichev (1997)

Table 6.1 presents the sensitivity testing results for the replication of B&D (1997). Panel A uses the full sample period. The sensitivity testing results are significant at a 5% level for both left intervals in the Narrow Interval and the Wide Interval in testing avoidance of earnings decreases. This is inconsistent with the result using the interval width used by B&D (1997) in Panel A of Table 5.1. However, the sensitivity testing results are consistently significant at 1% level for both the Narrow Interval and the Wide Interval in testing avoidance of losses, evidence consistent with the result in Panel A of Table 5.1.

Panel B uses the pre-SFAS131 sample period. The sensitivity testing results are consistent with those in Panel B of Table 5.1 for both avoidance of earnings decreases and losses. Panel C shows the results from the post-SFAS131 sample period. The sensitivity testing results differ only in the Narrow Interval for avoidance of earnings decreases, at a 10% level of significance. Other sensitivity testing results are consistent with those in Panel C of Table 5.1.

Table 6.1 Sensitivity Testing Results for Replication of Burgstahler and Dichev (1997)

Panel A Full sample period from 1991 to 2006

a. Testing results for avoidance of earnings decreases

Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.00125 to 0	253	306	-2.23	**
0 to.00125	321	294	1.12	Not

Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	1,039	1,137	-2.13	**
0 to.005	1,390	1,302	1.74	**

b. Testing results for avoidance of losses

Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	156	228	-3.66	***
0 to.0025	276	222	2.43	***

Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.01 to 0	704	900	-4.95	***
0 to.01	1158	1007	3.32	***

Panel B Pre-SFAS131 sample period from 1991 to 1997

a. Testing results for avoidance of earnings decreases

Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.00125 to 0	59	90	-2.51	***
0 to.00125	100	86	1.03	Not

Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	303	375	-2.79	***
0 to.005	469	448	0.71	Not

b. Testing results for avoidance of losses

Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	39	76	-3.42	***
0 to.0025	101	80	1.57	*

Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.01 to 0	209	330	-5.25	***
0 to.01	440	331	4.01	***

Panel C Post-SFAS131 sample period from 2000 to 2006

a. Testing results for avoidance of earnings decreases

Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.00125 to 0	125	151	-1.55	*
0 to.00125	139	138	0.09	Not

Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	500	494	0.19	Not
0 to.005	593	556	1.12	Not

b. Testing results for avoidance of losses

Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	93	119	-1.79	**
0 to.0025	135	116	1.24	Not

Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.01 to 0	392	450	-2.03	**
0 to.01	560	525	1.08	Not

Note:

1. "Narrow Interval" stands for "0.00125 for avoidance of earnings decreases and 0.0025 for avoidance of losses". "Wide Interval" stands for "0.005 for avoidance of earnings decreases and 0.01 for avoidance of losses";
2. "Obs." stands for "number of observations";
3. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. "Opposite" stands for significance in the direction different from expectation.

6.2 Sensitivity Testing Results for the First Pair of Hypotheses

Table 6.2 shows the sensitivity testing results for the first pair of hypotheses. Panel A and B show the sensitivity testing results of Hypothesis 1a. Panel A uses pretax foreign income and Panel B uses after-tax foreign income. When compared with Table 5.2 Panel A and B respectively, the sensitivity testing results differ only at the left interval for the Narrow Interval in Panel A, where it is significant at a 10% level. The other sensitivity testing results are consistent with Table 5.2 and show no evidence of foreign earnings management to avoid earnings decreases.

Table 6.2 Panel C and D present the sensitivity testing results of Hypothesis 1b. Panel C uses pretax foreign income and Panel D uses after-tax foreign income. All sensitivity testing results are consistent with Table 5.2 Panel C and D respectively. All sensitivity testing results and original testing results are universally significant at a 1% level of significance, suggesting that foreign earnings are managed to avoid losses, regardless of pretax or after-tax foreign earnings.

Table 6.3 shows the sensitivity testing results for avoidance of earnings decrease and losses using domestic earnings. Panel A and B show the sensitivity testing results for avoidance of earnings decreases. Panel A uses pretax domestic income and Panel B uses after-tax domestic income. Except for the left interval of the Narrow Interval in Panel B, where I find significance at a 10% level, other sensitivity testing results are consistent with Table 5.3 Panel A and B respectively. The overall evidence suggest that domestic earnings are not managed to avoid earnings decreases, but domestic taxes may be used to achieve some degree of earnings management.

Panel C and D show the sensitivity testing results for avoidance of losses. Panel C uses pretax domestic income and Panel D uses after-tax domestic income. The sensitivity test result is insignificant for the Narrow Interval in Panel C. This differs from the result in Panel C of Table 5.3, however, the result for the Wide Interval is consistent with the result in Panel C of Table 5.3. In addition, the sensitivity testing result for the Narrow Interval in Panel D is consistent with the result in Panel D of Table 5.3. However, the result for the Wide Interval is significant at a 10% level.

Table 6.2 Sensitivity Testing Results for the First Pair of Hypotheses

Panel A Testing results for avoidance of earnings decreases (test using pretax foreign income).

1) Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.00125 to 0	774	831	-1.46	*
0 to.00125	1090	730	8.69	***

2) Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	2192	2016	2.92	Opposite***
0 to.005	2998	1888	17.31	***

Panel B Testing results for avoidance of earnings decreases (test using after-tax foreign income).

1) Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.00125 to 0	732	767	-0.92	Not
0 to.00125	992	715	6.93	***

2) Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	2022	1841	3.16	Opposite***
0 to.005	2733	1675	17.54	***

Panel C Testing results for avoidance of losses (test using pretax foreign income).

1) Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	690	1043	-8.67	***
0 to.0025	1642	897	15.35	***

2) Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.01 to 0	1751	2597	-13.65	***
0 to.01	4480	2170	31.53	***

Panel D Testing results for avoidance of losses (test using after-tax foreign income).

1) Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	775	1049	-6.6	***
0 to.0025	1623	918	14.61	***

2) Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.01 to 0	1860	2563	-13.65	***
0 to.01	4429	2141	31.53	***

Note:

1. “Narrow Interval” stands for “0.00125 for avoidance of earnings decreases and 0.0025 for avoidance of losses”. “Wide Interval” stands for “0.005 for avoidance of earnings decreases and 0.01 for avoidance of losses”;
2. “Obs.” stands for “number of observations”;
3. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. “Opposite” stands for significance in the direction different from expectation.

Table 6.3 Sensitivity Testing Results for the First Pair of Hypotheses (Domestic)

Panel A Testing results for avoidance of earnings decreases (test using pretax domestic income).

1) Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.00125 to 0	194	205	-0.55	Not
0 to.00125	222	202	1	Not

2) Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	703	743	-1.08	Not
0 to.005	884	782	2.57	***

Panel B Testing results for avoidance of earnings decreases (test using after-tax domestic income).

1) Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.00125 to 0	207	235	-1.34	*
0 to.00125	248	221	1.28	Not

2) Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.005 to 0	830	797	0.84	Not
0 to.005	956	889	1.62	*

Panel C Testing results for avoidance of losses (test using pretax domestic income).

1) Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	184	193	-0.44	Not
0 to.0025	232	209	1.13	Not

2) Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.01 to 0	658	723	-1.77	**
0 to.01	890	819	1.77	**

Panel D Testing results for avoidance of losses (test using after-tax domestic income).

1) Narrow Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.0025 to 0	222	227	-0.21	Not
0 to.0025	262	231	1.43	*

2) Wide Interval

Interval	Actual Obs.	Expected Obs.	Test Statistics	Significance
-.01 to 0	758	815	-1.47	*
0 to.01	1056	996	1.37	*

Note:

1. “Narrow Interval” stands for “0.00125 for avoidance of earnings decreases and 0.0025 for avoidance of losses”. “Wide Interval” stands for “0.005 for avoidance of earnings decreases and 0.01 for avoidance of losses”;
2. “Obs.” stands for “number of observations”;
3. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. “Opposite” stands for significance in the direction different from expectation.

This inconsistency seems to suggest that the choices of interval width have an effect on the significance of results.

6.3 Sensitivity Testing Results for the Second Pair of Hypotheses

Table 6.4 shows the sensitivity testing results for the second pair of hypotheses. Panel A and B show the sensitivity testing results of Hypothesis 2a. Panel A uses pretax foreign income and Panel B uses after-tax foreign income. Panel C and D show the sensitivity testing results of Hypothesis 2b. Panel C uses pretax foreign income and Panel D uses after-tax foreign income. All sensitivity testing results[62] in all panels are consistent with the results in Table 5.4, where I find no evidence showing that the discontinuity is less obvious for the post-SFAS131 sample.

Table 6.5 shows the sensitivity testing results for the second pair of hypotheses using domestic earnings. Panel A and B show the sensitivity testing results of Hypothesis 2a. Panel A uses pretax domestic income and Panel B uses after-tax domestic income. Although the sensitivity testing results for the left intervals for the Wide Interval in both Panel A and B are significant at a 10% level, none of the t (post) values are negative. The results for the Narrow Interval in both panels show no significance in the hypothesized direction, consistent with the findings of Table 5.5, Panel A and B.

Panel C and D show the sensitivity testing results of Hypothesis 2b. Panel C uses pretax domestic income and Panel D uses after-tax domestic income. In contrast to the non-significant results in Panel C and D of Table 5.5, all the sensitivity testing

[62] Note that opposite significance is not evidence of earnings management. I use one-tailed test to make sure that earnings management occurs only at the hypothesized direction.

results are significant at a 1% level. However, none of the t (post) values for the left intervals are negative. The choice of these alternative interval widths might have an effect on the direction of the t-values.

Table 6.4 Sensitivity Testing Results for the Second Pair of Hypotheses

Panel A The discontinuity is less obvious for the post-SFAS131 sample in avoidance of earnings decreases (test using pretax foreign income).

1) Narrow Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.00125 to 0	-0.62	-0.96	0.34	0.24	Not
0 to.00125	5.98	4.84	1.13	0.8	Not

2) Wide Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.005 to 0	1.91	2.41	-0.5	-0.35	Not
0 to.005	12.75	8.05	4.7	3.32	Opposite***

Panel B The discontinuity is less obvious for the post-SFAS131 sample in avoidance of earnings decreases (test using after-tax foreign income).

1) Narrow Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.00125 to 0	-0.65	-0.53	-0.12	-0.08	Not
0 to.00125	5.07	3.51	1.56	1.1	Not

2) Wide Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.005 to 0	1.12	3.04	-1.92	-1.36	Opposite*
0 to.005	13.4	8.01	5.39	3.81	Opposite***

Panel C The discontinuity is less obvious for the post-SFAS131 sample in avoidance of losses (test using pretax foreign income).

1) Narrow Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.0025 to 0	-5.51	-5.56	0.05	0.03	Not
0 to.0025	11.37	8.96	2.41	1.7	Opposite**

2) Wide Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.01 to 0	-9.83	-7.78	-2.05	-1.45	Opposite*
0 to.01	23.57	17.89	5.68	4.02	Opposite***

Table 6.4 - *Continued*

Panel D The discontinuity is less obvious for the post-SFAS131 sample in avoidance of losses (test using after-tax foreign income).

1) Narrow Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.0025 to 0	-4.23	-4.96	0.73	0.51	Not
0 to.0025	11.28	8.8	2.48	1.76	Opposite**

2) Wide Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.01 to 0	-8.11	-6.16	-1.95	-1.38	Opposite**
0 to.01	23.14	18.95	4.18	2.96	Opposite***

Note:

1. "Post" stands for "Post SFAS131 samples" and "Prior" stands for "Prior SFAS131 samples".
2. "Narrow Interval" stands for "0.00125 for avoidance of earnings decreases and 0.0025 for avoidance of losses". "Wide Interval" stands for "0.005 for avoidance of earnings decreases and 0.01 for avoidance of losses";
3. "Obs." stands for "number of observations";
4. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. "Opposite" stands for significance in the direction different from expectation.

Table 6.5 Sensitivity Testing Results for the Second Pair of Hypotheses (Domestic)

Panel A The discontinuity is less obvious for the post-SFAS131 sample in avoidance of earnings decreases (test using pretax domestic income).

1) Narrow Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.00125 to 0	-1.73	0.23	-1.95	-1.38	Opposite*
0 to.00125	2	0.47	1.54	1.09	Not

2) Wide Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.005 to 0	0.59	-2.42	3.01	2.13	**
0 to.005	0.56	2.25	-1.69	-1.2	Not

Panel B The discontinuity is less obvious for the post-SFAS131 sample in avoidance of earnings decreases (test using after-tax domestic income).

1) Narrow Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.00125 to 0	-0.89	-0.97	0.08	0.057	Not
0 to.00125	0.4	1.33	-0.93	-0.66	Not

2) Wide Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.005 to 0	1.94	-0.64	2.58	1.82	**
0 to.005	0.21	1.31	-1.09	-0.77	Not

Table 6.5 - *Continued*

Panel C The discontinuity is less obvious for the post-SFAS131 sample in avoidance of losses (test using pretax domestic income).

1) Narrow Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.0025 to 0	1.43	-2.67	4.1	2.9	***
0 to.0025	-0.06	2.43	-2.5	-1.76	**

2) Wide Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.01 to 0	0.51	-3.82	4.33	3.06	***
0 to.01	-0.5	2.76	-3.26	-2.31	***

Panel D The discontinuity is less obvious for the post-SFAS131 sample in avoidance of losses (test using after-tax domestic income).

1) Narrow Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.0025 to 0	1.43	-2.68	4.11	2.9	***
0 to.0025	-0.062	2.44	-2.5	-1.77	**

2) Wide Interval

Interval	t(Post)	t(Prior)	Difference	T Statistics	Significance
-.01 to 0	0.51	-3.83	4.34	3.07	***
0 to.01	-0.5	2.77	-3.27	-2.32	**

Note:

1. "Post" stands for "Post SFAS131 samples" and "Prior" stands for "Prior SFAS131 samples".
2. "Narrow Interval" stands for "0.00125 for avoidance of earnings decreases and 0.0025 for avoidance of losses". "Wide Interval" stands for "0.005 for avoidance of earnings decreases and 0.01 for avoidance of losses";
3. "Obs." stands for "number of observations";
4. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. "Opposite" stands for significance in the direction different from expectation.

6.4 Sensitivity Testing Results for the Third Pair of Hypotheses

Table 6.6 shows the sensitivity testing results for the third pair of hypotheses. Panel A and B show the sensitivity testing results of Hypothesis 3a. Panel A uses pretax foreign income and Panel B uses after-tax foreign income. The result for the left interval for Narrow Interval in Panel A is significant at 5% level. The result for the left interval for Wide Interval in Panel B is significant at 10% level. None of the t (increase) values for both the left intervals are negative. Other non-significant results are

consistent with those in Table 5.6, Panel A and B. The choice of interval width might have an effect on the direction of t-values.

Panel C and D show the sensitivity testing results of Hypothesis 3b. Panel C uses pretax foreign income and Panel D uses after-tax foreign income. Although the result for the left interval for the Wide Interval is not significant, the sensitivity testing results for the Narrow Interval in Panel C are similar to those in Panel C of Table 5.6. Although the result for the left interval for the Narrow Interval is significant at 10%, the results for the Wide Interval in Panel D are not significant, similar to those in Panel D of Table 5.6. The choice of these alternative interval widths might have an effect on the significance of sensitivity testing results.

Table 6.7 shows the sensitivity testing results for the third pair of hypotheses using domestic earnings. Panel A and B show the sensitivity testing results of Hypothesis 3a. Panel A uses pretax domestic income and Panel B uses after-tax domestic income. The sensitivity testing results in Panel A and B are consistent with the results in Table 5.7 Panel A and B respectively.

Panel C and D show the sensitivity testing results of Hypothesis 3b. Panel C uses pretax domestic income and Panel D uses after-tax domestic income. The t(Increase) value for the left interval of the Wide Interval is nonnegative and the result is significant at a 10% level in Panel C. Other sensitivity testing results are consistent with those in Panel C of Table 5.7. The sensitivity testing results in Panel D are not significant, in contrast to the 10% significance found for the left interval in Panel D of

Table 5.7. The choice of interval widths might have an effect on the significance of results.

Although some sensitivity testing results exhibit different directions in t-statistics and magnitudes in significance, overall, the majority of sensitivity testing results in CHAPTER 6 show consistency with the results using interval widths used by B&D (1997).

Table 6.6 Sensitivity Testing Results for the Third Pair of Hypotheses

Panel A The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of earnings decreases (test using pretax foreign income).

1) Narrow Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.00125 to 0	0.46	-2.44	2.9	2.05	**
0 to.00125	1.07	7.06	-5.99	-4.24	***

2) Wide Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.005 to 0	1.44	0.02	1.42	1	Not
0 to.005	5.6	9.58	-3.98	-2.81	***

Panel B The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of earnings decreases (test using after-tax foreign income).

1) Narrow Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.00125 to 0	0.13	-1.3	1.43	1.01	Not
0 to.00125	0.81	5.99	-5.18	-.366	***

2) Wide Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.005 to 0	1.93	-0.25	2.18	1.54	*
0 to.005	6.79	8.52	-1.73	-1.23	Not

Panel C The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of losses (test using pretax foreign income).

1) Narrow Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.0025 to 0	-2.33	-4.27	1.94	1.37	*
0 to.0025	4	8.73	-4.7	-3.34	***

Table 6.6 - *Continued*

2) Wide Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.01 to 0	-4.92	-5.72	0.8	0.57	Not
0 to.01	10.77	16.31	-5.53	-3.91	***

Panel D The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of losses (test using after-tax foreign income).

1) Narrow Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.0025 to 0	-1.62	-3.77	2.15	1.52	*
0 to.0025	3.99	9.1	-5.11	-3.61	***

2) Wide Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.01 to 0	-5.11	-4.16	-0.95	-0.67	Not
0 to.01	12.69	14.28	-1.59	-1.12	Not

Note:

1. "Increase" stands for "companies reporting increased number of segments" and "Decrease" stands for "companies reporting decreased or no change in number of segments".
2. "Narrow Interval" stands for "0.00125 for avoidance of earnings decreases and 0.0025 for avoidance of losses". "Wide Interval" stands for "0.005 for avoidance of earnings decreases and 0.01 for avoidance of losses";
3. "Obs." stands for "number of observations";
4. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. "Opposite" stands for significance in the direction different from expectation.

Table 6.7 Sensitivity Testing Results for the Third Pair of Hypotheses (Domestic)

Panel A The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of earnings decreases (test using pretax domestic income).

1) Narrow Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.00125 to 0	-0.58	-1.08	0.5	0.36	Not
0 to.00125	1.26	1	0.26	0.18	Not

2) Wide Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.005 to 0	-0.54	0.83	-1.36	-0.96	Not
0 to.005	1.33	0.59	0.74	0.52	Not

Panel B The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of earnings decreases (test using after-tax domestic income).

Table 6.7 - *Continued*

1) Narrow Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.00125 to 0	-0.78	-0.07	-0.71	-0.5	Not
0 to.00125	-0.3	0.91	-1.22	-0.86	Not

2) Wide Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.005 to 0	0.87	0.86	0.01	0.01	Not
0 to.005	0.63	0.15	0.47	0.34	Not

Panel C The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of losses (test using pretax domestic income).

1) Narrow Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.0025 to 0	0.64	0.51	0.13	0.09	Not
0 to.0025	-0.33	0.08	-0.41	-0.28	Not

2) Wide Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.01 to 0	1.09	-0.9	1.99	1.41	*
0 to.01	-1.12	-0.31	-0.81	-0.57	Not

Panel D The discontinuity is less obvious for the subset of sample that has increased the number of reported segments in the post-SFAS131 period in avoidance of losses (test using after-tax domestic income).

1) Narrow Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.0025 to 0	0.22	-0.08	0.3	0.21	Not
0 to.0025	0.69	-0.22	0.92	0.65	Not

2) Wide Interval

Interval	t(Increase)	t(Decrease)	Difference	T Statistics	Significance
-.01to 0	0.76	-0.7	1.46	1.03	Not
0 to.01	-0.25	0.78	-1.03	-0.73	Not

Note:

1. “Increase” stands for “companies reporting increased number of segments” and “Decrease” stands for “companies reporting decreased or no change in number of segments”;
2. “Narrow Interval” stands for “0.00125 for avoidance of earnings decreases and 0.0025 for avoidance of losses”. “Wide Interval” stands for “0.005 for avoidance of earnings decreases and 0.01 for avoidance of losses”;
3. “Obs.” stands for “number of observations”;
4. *** stands for 1% significance, ** stands for 5% significance, and * stands for 10% significance. “Opposite” stands for significance in the direction different from expectation.

CHAPTER 7

SUMMARY AND CONCLUDING REMARKS

7.1 Summary

Foreign earnings have become a significant component of U.S.-based MNCs' total earnings, having increased from 33% in 1994 to 47% in 2004 and 2005. SFAS 131, which became effective in January 1, 1998, governs segment reporting, including the voluntary disclosure of business, geographic and operating segments of a company. Because MNCs use geographic segments to report their foreign operations, SFAS 131 has a significant effect on how foreign earnings are reported.

This dissertation empirically examines whether foreign earnings are managed to avoid earnings decreases and losses. I also examine whether foreign earnings management patterns change post-SFAS131. In addition, I examine whether foreign earnings management patterns are different for firms that report an increased number of segments when compared to firms that report no change or a decreased number of segments post-SFAS131.

The methodology used is the empirical distribution approach outlined by B&D (1997). In that paper, the authors use prospect theory and transactions costs theory to hypothesize that earnings are managed to avoid earnings decreases and losses. Using annual earnings data from 1976 to 1994, they found discontinuity for the intervals

immediately adjacent to the zero thresholds, evidence consistent with earnings being managed to avoid earnings decreases and losses.

I also use prospect theory and information asymmetry to hypothesize that foreign earnings are managed to avoid earnings decreases and losses. Information asymmetry and complexity of foreign operation allow overseas managers flexibility in decision-making. Managers have an incentive to manage foreign earnings to avoid earnings decreases and losses as CEO might use such heuristics cutoffs as zero foreign earnings and zero change in foreign earnings to evaluate their performance.

I find significant evidence that foreign earnings are managed to avoid losses. However, the result is not significant for foreign earnings being managed to avoid earnings decreases. A replication of B&D (1997) using data with the same period as my study (1991-2006) shows that earnings are no longer managed to avoid earnings decreases. One possible explanation is that the importance of capital market has driven the changes. Managers are rewarded for meeting analysts' forecasts and penalized for missing analysts' forecasts. This becomes the most important benchmark that they would like to meet and beat, followed by avoidance of losses and earnings decreases.

Nevertheless, my dissertation is the first to find a non-significant result for avoidance of earnings decreases. This may also explain why foreign earnings are no longer managed to avoid earnings decreases. As both foreign and domestic earnings are components of total earnings, my study also extends the hypothesis testing to domestic earnings. The results for testing domestic earnings being managed to avoid earnings

decreases and losses are insignificant. This seems to suggest that managers in MNCs manage foreign earnings only to achieve profits in total earnings.

This dissertation continues to examine whether SFAS 131 has changed foreign earnings management patterns given that the extant literature finds that foreign earnings disclosures are affected by SFAS 131. As my empirical results show, SFAS 131 does not have an impact on the foreign earnings management pattern. What matters, however, is whether managers have increased the number of reported segments. An increased number of segments might indicate the willingness of managers to disclose voluntarily. The results show that companies reporting an increased number of segments post-SFAS131 are less likely to engage in foreign earnings management when compared with companies reporting a decreased or no change in the number of segments. The results are also consistent with the notion that there exists a negative association between voluntary disclosure and earnings management.

I find insignificant results when testing whether the domestic earnings management patterns change for the post-SFAS131 sample when compared with the pre-SFAS131 sample. When firms are partitioned into firms that report increased number of segments and firms that report no change or a decreased number of segments in the post-SFAS131 sample period, I find no evidence that the domestic earnings management patterns differ. This evidence is consistent with domestic earnings not managed to avoid earnings decreases and losses in MNCs.

The above analysis was done for pretax foreign, pretax domestic, after-tax foreign and after-tax domestic earnings. This analysis is done because Beaver et al.

(2007) suggested that the tax effect might have partially caused the discontinuity documented in B&D (1997). My analysis shows that domestic taxes do cause a change in the distribution of domestic earnings in testing avoidance of losses. However, foreign taxes do not have significant impact on the empirical distribution of foreign earnings.

A sensitivity analysis was performed by changing the interval widths to twice and to half of the interval widths used by B&D (1997). The majority of the sensitivity testing results are qualitatively consistent with the main results.

The findings of this study have implications for accounting standard setters. To the extent that foreign earnings are equally likely to be managed to avoid losses in the pre- and post-SFAS131 sample period, is SFAS 131 effective in improving voluntary disclosure of foreign earnings? As far as investors and financial analysts are concerned, improving their understanding of the foreign operating environment and improving their skills in analyzing foreign performance become very important if MNCs manage predominantly foreign earnings.

7.2 Limitation of the Study

The empirical distribution approach requires a large number of observations[63]. As the analysis compares the different earnings distribution patterns in the pre- and post-SFAS131 periods, sample are limited in the year 1991 to 2006. The data in years 1998 and 1999 are further deleted because both years are considered the implementation period for SFAS 131. The data for testing the third pair of hypotheses are reduced to

[63] As discussed in footnote 16 in Beaver et al. (2007), the t-statistics increase approximately linearly with the square root of the sample size.

yearly observations of only hundreds of firms as I delete firms with merger and acquisition activities.

In testing the third pair of hypotheses, I use the increase in the reported number of segments to indicate a transparent disclosure. Although increase in geographic segments might increase the reported number of segments, companies might also report an increased number of segments because of the increase in business and operating segments. To focus on firms with geographic disclosure only will substantially reduce my sample. Equating an increase in the reported number of segments as an increase in transparency represents a limitation in studying foreign earnings; however, it is not a limitation in studying domestic earnings.

7.3 Future Research

My replication results of B&D (1997) show that earnings are no longer managed to avoid earnings decreases. Although B&D (1997) point out that an earnings decrease might simply reflect normal fluctuation for a firm with a stable earnings stream or represent a return to a normal level of profitability after an unusually good year, research so far consider avoidance of earnings decreases an important benchmark that managers would like to meet or beat. What causes it to become unimportant? And at what point in time? These might be interesting topics for future research.

In addition, prior research has chosen different interval widths but none of the research justified one interval width over the others. My dissertation is the first to use alternative interval widths for verification purposes. Future research is necessary to address why differences in interval widths might cause differences in results.

Finally, prior research did not touch the issues of how firm size is related to the reported number of segments and how SFAS 131 will differentially affect the change in reported number of segments across firms. SFAS 131 might not bring about significant changes to large firms in terms of voluntary disclosure as they might have a long history of disclosing information even before SFAS 131 came into effect. On the other hand, managers in small firms might decide to engage more in voluntary disclosure after SFAS 131. Future research is necessary to address the firm size effect on voluntary segment reporting.

REFERENCES

Ashbaugh, H. and M. Pincus, 2001. Domestic accounting standards, international accounting standards, and the predictability of earnings. *Journal of Accounting Research* 39 December):417-434

Barber, W., P. Fairfield, and J. Haggard. 1991. The effect of concern about reported income on discretionary spending decisions: The case of research and development. *The Accounting Review* 66 (4) 818-829

Beaver, W., McNichols, F. , Nelson, K., 2007. An alternative interpretation of the discontinuity in earnings distributions. *Review of Accounting Studies* 12(4) 525-556

Behn, B., N. Nichols and D. Street, 2002. The predictive ability of geographical segment disclosures by U.S. companies: SFAS No. 131 vs. SFAS No. 14. *Journal of International Accounting Research* 1: 31-44.

Berger, P. and R. Hann, 2003. The impact of SFAS No. 131 on information and monitoring. *Journal of Accounting Research* 41(May).

Betty, A., Ke, B. and R. Petroni, 2002. Earnings management to avoid earnings declines across publicly and privately held banks. *The Accounting Review* 77(3): 547-570.

Bodnar, G. and J. Weintrop, 1997. The valuation of the foreign income of US multinational firms: a growth opportunities perspective. *Journal of Accounting and Economics 24*(December): 69-97.

Botosan, C. and M. Stanford, 2005. Managers' motives to withhold segment disclosures and the effect of SFAS No. 131 on analysts' information environment. *The Accounting Review* 80(3).

Brown, L., and M. Caylor, 2005. A temporal analysis of quarterly earnings thresholds: propensities and valuation consequences. *The Accounting Review* 80(2) 423-440

_____, Pinello, A., 2007. To what extent does the financial reporting process curb earnings surprise games? *Journal of Accounting Research* 45(5) 947-981

Burgstahler, D., Dichev, I., 1997. Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* 24(1): 99-126.

Bushee, B. 1998. The influence of institutional investors on myopic R&D investment behavior. *The Accounting Review* 73(3) 305-333

Collins, J., Kemsley, D., Lang, Mark., 1998. Cross-jurisdictional income shifting and earnings valuation. *Journal of Accounting Research* 36(2): 209-229

Coppens, L., E. Peek, 2005. An analysis of earnings management by European private firms. *Journal of International Accounting, Auditing and Taxation* 14(1):1-17.

Dechow, P., Richardson, S., Tuna, I., 2003. Why are earnings kinky? An examination of the earnings management explanation. *Review of Accounting Study* 8:335-384

_____, Sloan, R., 1991. Executive incentives and the horizon problem: An empirical investigation. Journal of Accounting and Economics 14(1) 51-89.

Degeorge, F., Patel, J., Zeckhauser, R., 1999. Earnings management to exceed thresholds. *Journal of Business* 72(1): 1-33.

Doupnik, T. and L. Seese, 2001. Geographic area disclosures under SFAS 131: materiality and fineness. *Journal of International Accounting, Auditing & Taxation* 10:117-138.

Durtschi, C., Easton, P., 2005. Earnings management? The shapes of the frequency distributions of earnings metrics are not evidence Ipso Facto. *Journal of Accounting Research* 43(4): 557-592.

Duru, A. and D. Reeb, 2002. International Diversification and Analysts' Forecast Accuracy and Bias. *The Accounting Review* 77(2): 415-433.

Ettredge, M., W. Kwon, S. Smith and P. Zarowin, 2005. The impact of SFAS No. 131 business segment data on the market's ability to anticipate future earnings. *The Accounting Review*, 80(3).

Fields, T. D., T. Z. Lys, and L. Vincent. 2001. Empirical research on accounting choice. *Journal of Accounting & Economics* 31: 255–307.

Glaum, M., Lichtblau, K., Lindemann, J., 2004. The extent of earnings management in the U.S. and Germany. *Journal of International Accounting Research* 3(2), 45-77

Graham, J., C. Harvey and S. Rajgopal, 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40, 3-73

Hayn, C., 1995. The information content of loss. *Journal of Accounting and Economics* 20, 125-153.

Healy, P., and J. Wahlen. 1999. A review of the earnings management literature and its implications for standard setting. *Accounting Horizons* 13(4): 365-383.

Herrmann, D. and Thomas, W., 1997.Geographic segment disclosures: theories, findings, and implications. *The international Journal of Accounting*, 32(4):487-501.

Herrmann, D. and W. Thomas, 2000. An analysis of segment disclosures under SFAS No. 131 and SFAS No. 14. *Accounting Horizons* 14(September): 287-302.

Hirst, D. and P. Hopkins. 1998. Comprehensive income reporting and analysts' valuation judgments. *Journal of Accounting Research* 36 (Suppl.), 47-75

Hope, O.-K., T.Kang, W. Thomas, and F. Vasvari. 2006. The effects of SFAS 131 geographic segment disclosure on the valuation of foreign earnings. Working paper, University of Toronto, Singapore Management University, and University of Oklahoma.

Hope, O.-K., W. Thomas, and G.Winterbotham. 2006. Geographic Earnings Disclosure and Trading Volume. Working paper, University of Toronto and University of Oklahoma

Hunton, J., R. Libby and C. Mazza, 2006 Financial reporting transparency and earnings management. *The Accounting Review* 81(1):135-157.

Jacob, J., Jorgensen, B., 2007. Earnings management and counting income aggregation, *Journal of Accounting and Economics* 43(1).

Jones, J., 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29, 193-228

Kahneman, D., Tversky, A., 1979. Prospect theory: An analysis of decision under risk. *Econometrica* 47(2): 263-291.

Krull, L., 2004. Permanently reinvested foreign earnings, taxes, and earnings management. *The Accounting Review* 79(3): 745-767

Leuz, C., D. Nanda and P. Wysocki. Earnings management and investor proctection: an international comparison. *Journal of Financial Economics* 69 (2003) 505-527

McNichols, M., 2000. Research design issues in earnings management studies. *Journal of Accounting and Public Policy* 19:313-345

_____, M., Wilson, G. P., 1988. Evidence of earnings management from the provision for bad debts. *Journal of Accounting Research* 26 (Supplement), 1-31

McVay, S., 2006. Earnings management using classification shifting: An examination of core earnings and special items. *The Accounting Review* 81 (2006) 501-531

Phillips, J., M. Pincus, and S. Rego. 2003. Earnings management: New evidence based on deferred tax expense. *The Accounting Review* 78(2) 491-521

Rangan, S. 1998. Earnings management and the performance of seasoned equity offerings. *Journal of Financial Economics* 50(1) 101-122

Roychowdhurry, S., 2007. Earnings management through real activities manipulation. *Journal of Accounting and Economics* 42(3) 335-370

Schipper, K. 1989. Commentary: Earnings management. *Accounting Horizons* (December): 91-102.

Shen, C., Chih, H., 2005. Investor protection, prospect theory, and earnings management: An international comparison of the banking industry. *Journal of Banking & Finance* 29: 2675-2697

Street, D., N. Nichols and S. Gray, 2000. Segment disclosures under SFAS No. 131: Has business segment reporting improved? *Accounting Horizons* 14(September): 259-285

Sunder, H. 1973. Relationship between accounting changes and stock prices: problems of measurement and some empirical evidence. *Journal of Accounting Research* 11(3): 1-45

Teoh, S., Wong, T and G. Rao, 1998 Are accruals during initial public offerings opportunistic? *Review of Accounting Studies*, 3, 175-208

Thomas, W. 2000. The value-relevance of geographic segment earnings disclosures under SFAS 14. *Journal of International Financial Management and Accounting* 11(3): 133-155.

Waegenaere, A., R. Sansing and J.Wielhouwer, 2006. Who benefits from inconsistent multinational tax transfer-pricing rules? *Contemporary Accounting Research* 23(Spring): 103-31

Yu, Q., Du, B. and Sun, Q., 2006. Earnings management at rights issues thresholds—Evidence from China. *Journal of Banking & Finance* 1

BIOGRAPHICAL INFORMATION

The author graduated from Shenzhen University, P.R. China in 1992 with a Bachelor of Economics. In 2002, she earned a Master of Accountancy from the University of Oklahoma in Norman, OK. She will receive her Doctor of Philosophy in Business Administration from the University of Texas at Arlington in 2008.