

Predictive Ability and Stock Price Informativeness of Earnings and Cash Flow Information of SET-listed Companies Choosing to Apply Segment Disclosure Guidelines under Thai Accounting Standards No. 50

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บทคัดย่อ

การศึกษานี้มีวัตถุประสงค์เพื่อศึกษาความสามารถในการพยากรณ์และความสามารถของราคาหลักทรัพย์ในการสะท้อนข้อมูลเกี่ยวกับกำไรและกระแสเงินสดในอนาคตของบริษัทจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย กลุ่มตัวอย่างได้แก่กิจการที่เปิดเผยข้อมูลจำแนกตามส่วนงานดำเนินงานอย่างน้อย 2 ส่วนงานระหว่างปี 2541-2549

ผลการศึกษาชี้ให้เห็นว่าภายหลังจากกิจการเปิดเผยข้อมูลส่วนงานดำเนินงานเพิ่มเติมภายใต้มาตรฐานการบัญชีฉบับที่ 50 ความสามารถในการพยากรณ์และความสามารถของราคาหลักทรัพย์ในการสะท้อนข้อมูลเกี่ยวกับกำไรและกระแสเงินสดในอนาคตเพิ่มสูงขึ้น หลักฐานเชิงประจักษ์โดยรวมสอดคล้องกับความคาดหวังว่าความสามารถของราคาหลักทรัพย์ในการสะท้อนผลการดำเนินงานในอนาคตเป็นผลจากข้อมูลจำแนกตามส่วนงานดำเนินงานที่ช่วยให้ข้อมูลที่เป็นประโยชน์แก่นักลงทุนในการสร้างความคาดหวังเกี่ยวกับผลการดำเนินงานในอนาคต

การวิเคราะห์เพิ่มเติมพบว่ากำไรในปัจจุบันมีความสามารถในการพยากรณ์กระแสเงินสดได้ดีขึ้นสำหรับกิจการที่ให้ข้อมูลส่วนงานดำเนินงานตามมาตรฐานการบัญชีฉบับที่ 50 เมื่อเปรียบเทียบกับกิจการที่ให้ข้อมูลตามมาตรฐานการบัญชีฉบับที่ 24 แต่ไม่พบความแตกต่างในความสามารถของราคาหลักทรัพย์ในการสะท้อนผลการดำเนินงานในอนาคตที่แตกต่างกันระหว่างกิจการที่ให้ข้อมูลส่วนงานดำเนินงานตามแนวปฏิบัติในมาตรฐานการบัญชีฉบับที่ 50 และฉบับที่ 24

Keywords : Segment Reporting, Predictive Ability, Stock Price Informativeness.

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Abstract

The objective of this study is to examine the predictive ability and the stock price informativeness of earnings and cash flow information of SET-listed companies choosing to provide segment information under the requirements set forth in the Thai Accounting Standards (TAS) No.50. The sample is restricted to firms disclosing information for at least two segments during 1998-2006.

The results reveal that there is a significant improvement in terms of predictive ability of earnings and cash flows for their future counterparts and that the stock returns impound a greater amount of information about future earnings after the firms have adopted the

expanded disclosure requirements. Taken together, the findings are consistent with the conjecture that the stock price informativeness manifests itself from the additional segment reports providing information useful for investors to form expectation about future earnings and cash flows.

Additional analyses document the predictive ability of current earnings and cash flows for future cash flows for firms that provide additional segment disclosures after the release of TAS 50, but fail to document any cross-sectional differences in terms of stock price informativeness in such a setting.



1. Introduction

This paper investigates the usefulness of segment disclosures by examining the predictive ability and the stock price informativeness of earnings and cash flow information of SET-listed companies having opted to apply the segment disclosure guidelines set forth under the Thai Accounting Standards (TAS) No. 50. The International Accounting Standards Board (IASB) revised the International Accounting Standards (IAS) No. 14 on segment reporting and subsequently replaced it with the International Financial Reporting Standards (IFRS) No. 8 in 2007. The Standards mandate additional disclosures of information concerning operating segments. Concerns over the costs and benefits of segment reporting have been a subject of heated debates over the years and have caused the Federation of Accounting Professions in Thailand to be reluctant to impose the additional disclosure requirements on companies listed in the Stock Exchange of Thailand.

A major concern rests on the potential leakage of the proprietary information, especially for listed companies having very few foreign customers. Research has shown that firms facing potentially adverse competitive effects tend to disclose less information about geographical income (Doupnik et al., 2006). On the other hand, there is a substantial body of research examining the informational benefits of segment disclosures [see for example, Ettredge et al. (2005)]. Nevertheless, there has been little evidence as to the usefulness of the segment information in the context of emerging

markets such as Thailand. The greater benefits from additional disclosures in this environment should be a manifestation of the concerns over the corporate governance and enforcement mechanisms that result in greater information asymmetry (Kanagaretnam et al., 2007).

We attempt to shed some light on the benefits of segment reporting information to the capital market participants, a major group of constituents that companies have to serve. The research design exploits a unique setting in the Thai capital market, in which listed companies are required to provide segment disclosures under TAS 24, similar to the original version of IAS 14. However, the Institute to Certified Accountants and Auditors of Thailand (ICAAT), the predecessor of the Federation of Accounting Professions, incorporated the changes to the IAS 14 (revised in 1997) in the TAS 50 in 2002. The newly released Standards never came into effect as they sparked heated debates on the costs and benefits of the requirements set forth. Nevertheless, a handful of companies listed in the Stock Exchange of Thailand have opted to provide the segment disclosures that are consistent with the requirements set forth in TAS 50, without explicit statements concerning the application of such Standards.

This unique setting allows us to examine the information environment in the pre- and post-application of TAS 50 for firms that opted to comply with the new requirements, and that of firms using TAS 24 versus TAS 50 during the periods after the new accounting standards have been

introduced. Juxtaposing the two analyses, we are able to examine the benefits that the sample firms get from switching to the enhanced disclosure requirements and the cross-sectional variation in the informational characteristics among firms after the promulgation of TAS 50.

Accounting literatures provide empirical evidence on the properties of earnings and the use of earnings figures in various decision contexts [See for example, Lipe (1986), and Swaminathan and Weintrop (1991)]. However, the aggregation of information may economically impair the information, as is the case for consolidated earnings. Therefore, constituents call for additional disclosures about operating segments (Barth, 1994). The additional disclosure requirements aim at providing incremental information set that will assist users of financial statements in assessing risk and return characteristics that may differ across segments of an entity. Consequently, the segment disclosures provide information that should be incrementally useful for investors and financial analysts to assess the overall performance of an enterprise, relative to the consolidated earnings (Homolle, 2003).

This paper commences by examining the incremental explanatory power of current earnings (and cash flows) for future earnings (and cash flows) during the pre- and post-adoption of TAS 50 for firms that opt to disclose additional information in conformity with TAS 50 guidelines. We also examine the incremental explanatory power of current earnings and cash flows for future counterparts for firms applying TAS 50 guidelines,

relative to those continuing to follow requirements in TAS 24, after the promulgation of TAS 50.

Ettredge et al. (2005) finds that the disclosures under SFAS 131 allow investors to better form expectations about future earnings and cash flows, resulting in current stock prices having incorporated the information on firm performance to a greater extent. Therefore, our paper proceeds to investigate the relation between future earnings and returns during the pre and post-adoption of TAS 50. The investigation should help us understand the stock price informativeness of earnings during the two periods, providing evidence as to whether TAS 50 requirements help investors better impound the information about future earnings and cash flows into the current returns. We also examine the same issue for a sample of firms during the post-adoption of TAS 50 period. The investigation should provide empirical evidence on whether the information contained in the disclosures in conformity with TAS 50 has the explanatory power for stock returns over and above those in conformity with TAS 24 for a sample of all firms after TAS 50 has been promulgated in 2002.

The results from the regression analysis examining the relation between current earnings and cash flows and their future counterparts reveal that firms disclosing segment information in compliance with TAS No. 50 requirements experience a significant improvement in terms of the predictive ability for future cash flows over those disclosing segment information in compliance with TAS No.24. Firms that opted to disclose

segment information under the requirements of TAS 50 experienced a significant improvement in terms of the predictive ability of future earnings and cash flows, relative to the period before the adoption. The findings are consistent with Hollie (2003) in that the enhanced segment disclosures improve predictive power of earnings and cash flows.

The regression results are also consistent with the hypothesis that firms having opted to disclose the segment information under the TAS 50 experience significant incremental stock price informativeness. The incremental explanatory power of future earnings for current stock returns translate into the investors' ability to impound a greater amount of information about future earnings into the current stock returns after the firm has provided enhanced disclosures under TAS 50. The results are also qualitatively the same after correcting for self-selection bias and are consistent with the conjecture following that of Ettredge et al. (2005). Contrary to our expectation, however, firms that have chosen to disclose additional information per TAS 50 do not exhibit greater stock price informativeness than those that chose to continue adopting TAS 24 during the post-TAS 50. The results remain intact after correcting for endogeneity problems arising from the firms' choice of adopting TAS 50.

This paper contributes to the extant literature in three ways. First, our results provide empirical evidence on the usefulness of additional disclosures under TAS 50, which is consistent with IAS 14

(Revised) and replaced by IFRS 8, using data from an emerging market. The sample from the Thai Stock Exchange should provide a powerful setting to examine the benefits of the disclosure because of the corporate governance, enforcement and information asymmetry concerns. In addition, the provision of TAS 50 that allows firms to continue to adopt the disclosure requirements under TAS 24 affords us with the opportunity to examine the usefulness of enhanced disclosures from two angles: (1) the investigation of the informational characteristics for the sample firms pre and post adoption of TAS 50, and (2) the investigation of cross-sectional differences between firms that have chosen to adopt the additional disclosure requirements and those that have not. The choice introduces the endogeneity and sample-selection problems. We correct for the potential biases using the two-stage least squares (Heckman, 1979) and the instrumental variable techniques. Finally, the results from this study will shed some light on the benefits of the additional disclosures subject to heated debates among the regulators and other stakeholders involved in Thailand. The findings may have implications for firms in terms of communicating their information about the corporate results of operations.

2. Background Information on Segment Reporting Requirements

The Institute of Certified Accountants and Auditors of Thailand (ICAAT), the predecessor of the Federation of Accounting Professions (FAP),

issued TAS No.24 in 1994, prescribing the segment reporting requirements that are consistent with the original version of IAS 14. The standards mandate the disclosures for each of the segments if the revenues, earnings, or total assets of the segment account for more than 10% of the corresponding items of the enterprise. An enterprise can choose to disclose the information by business or geographic segments. The information required for disclosure includes revenue, income, assets, and transfer prices.

The 1997 economic crisis has caused concerns over the quantity and quality of information being presented in the financial statements. ICAAT has taken a significant step toward improvements by

taking the initiatives to converge the Thai Accounting Standards (TAS) to the International Financial Reporting Standards (IFRS). As part of the convergence project, TAS No.50 was issued in 2000. Under TAS 50, consistent with IAS 14 (revised in 1997), companies are required to disclose segment information from two dimensions: business and geographic segments. Companies must designate either business or geographic segments as the primary segments for presentation purpose. The companies will also be subject to additional disclosures both for the primary and secondary segments. Table 1 summarizes the disclosure requirements under TAS 24 and TAS 50.

TABLE 1 : Summary of Major Differences of Segment Disclosure

Disclosure Requirements	TAS No.24	TAS No.50	
		Primary Segment	Secondary Segment
Revenues	X	X	X
Operating profits	X	X	
Assets	X	X	X
Liabilities		X	
Capital Expenditure		X	X
Depreciation and amortization		X	
Non-cash expenses		X	
Net profit or loss from investment in equity method			
Associates or joint ventures		X	
Reconciliation of revenue, result, assets, and liabilities		X	
Transfer pricing policy	X	X	

Source: Adapted from Chankitisakul (2006)

The new standards pose significant threats to smaller companies, having few major customers in different geographic areas. Several constituents, including the Thai Securities and Exchange Commission and the Association of Listed Companies, have expressed concerns over the potential adverse effects of the new disclosure requirements on the competitive positioning. As a result, FAP has not mandated the disclosure requirements set forth under TAS 50, and continued to enforce the segment reports under TAS 24.

We observe that there have been companies, listed in the Stock Exchange of Thailand, that have opted to apply the provisions set forth under TAS 50. As the companies disclosed additional information in their segment reports, the companies met the minimum requirements set by TAS 24. The companies did not, therefore, make an explicit statement concerning the application of TAS 50 requirements because they were obligated to conform to TAS 24 requirements, which remain in effect.

Mounting pressures from the global stakeholders continue for FAP to reconsider its stance on the segment reporting requirements and on the overall convergence roadmap. While we do not attempt to address the issue concerning competitive harms of the new disclosure requirements, our research aims to address the potential benefits of the additional disclosures in this unique setting, in which listed companies made the decision to provide additional information under TAS 50, while meeting the requirements set in TAS 24. In particular, we address the issues

surrounding predictive power of current earnings (and cash flows) for future earnings (and cash flows) and the informativeness of earnings (and cash flows) as evidenced by the extent to which future earnings (and cash flows) are reflected in the current stock returns.

3. Hypothesis Development and Research Design

This section will highlight the hypothesis development and research design in examining the usefulness of segment disclosures. First, we examine the predictive ability of earnings (and cash flows), given segment information under TAS 50 over and above that of TAS 24. Second, we investigate the stock price informativeness of earnings (and cash flows), given segment information under TAS 50 over and above that of TAS 24. The stock price informativeness is determined by the extent to which the information about future earnings is incorporated into the current stock returns.

3.1 Predictive Ability of Earnings, Conditional on Segment Reporting Disclosures

IASB has set the objective of financial statements as to provide information useful to a wide range of users in making economic decisions. The economic decisions taken by users of financial statements normally require assessments of the amount, timing, and uncertainty involving future cash flows (see Framework for the Preparation and Presentation of Financial Statements). Researchers have spent considerable amount of efforts in

assessing the predictive ability of current earnings and cash flows [See for example, Greenberg et al. (1986), Kim and Kross (2005), Finger (1994), and Burgstahler et al., 1998)].

Extant literatures document improvements in predictive ability of earnings and cash flow information as a result of segment disclosures. Venkataraman (2001) finds empirical support for the superior financial analyst forecast precision for firms that made a switch in the presentation of the segment information from SFAS 14 to SFAS 131. Berger and Hann (2003) find that segment information disclosures under SFAS No.131 regime provide additional information about segment's operating performance, resulting in the accuracy of earnings forecasts. Hollie (2003) finds empirical evidence that firms switching to the segment disclosures under SFAS 131 have experienced an improvement in terms of predictive ability of current cash flows for future cash flows.

The additional segment disclosure requirements aim at providing useful information of users

of financial statements in order to assess the risk and return characteristics that may differ across segments, allowing financial statement users to better form expectations about future profitability and cash flow generating capability. We conjecture that firms adopting TAS 50 requirements should experience an improvement in terms of predictive power of current earnings (and cash flows) for future earnings (and cash flows). The hypothesis written in the alternative form is as follows:

H1: For firms that chose to adopt TAS No.50, current earnings (cash flows) exhibit greater predictive power for future earnings (cash flows) in the post-TAS 50 adoption period relative to the pre-adoption period.

Following Hollie (2003), we employ the multiple regression specification, examining the relationship between current earnings (cash flows) and future earnings (cash flows) prior during the pre-and post-TAS50 adoption periods. The empirical specification is set as follows:

$$\text{PERF}_{t+1} = \beta_0 + \beta_1 \text{PERF}_t + \beta_2 \text{ACCRU}_t + \beta_3 \text{POST} + \beta_4 \text{POST} * \text{PERF}_t + \beta_5 \text{POST} * \text{ACCRU}_t + \beta_6 \text{LOSS} + \beta_7 \text{SIZE} + \beta_8 \text{MKT_BOOK} + \varepsilon \quad (1)$$

Where

- PERF_{t+1} = either cash flows from operations or income available to common shareholders before extraordinary items for the year t+1; deflated by market value of equity two months after the year t fiscal year end.
- PERF_t = either cash flows from operations or income available to common shareholders before extraordinary items in the year t; deflated by market value of equity two months after the year t-1 fiscal year end.
- ACCRU_t = adjustment from accrual basis to cash basis in year t; deflated by market value of equity two months after the year t-1 fiscal year end.
- POST = 1 in each of the years since TAS No.50 was adopted; 0 otherwise.
- LOSS = 1 if $E_{t+1} < 0$; 0 otherwise.
- SIZE = natural logarithm of market value of equity.
- MKT_BOOK = the ratio of market value of common equity to book value of common equity.

Prior literatures have identified a number of variables that are associated with the timeliness and predictive ability of earning or cash flows. These variables include earnings growth, earnings persistence, and the information environment. We use the market-to-book ratio to control for earnings growth, and the natural logarithm of the market value of equity to control for size (consistent with El-Gazzar, 1998). To control for earnings persistence, we follow Lundholm and Myers (2002) and use a dummy variable, LOSS, which is assigned a value of 1 if next year's earnings would be negative, and 0, otherwise.

As we discussed in the background information section, while TAS 24 was still in effect, a number of companies voluntarily applied the TAS 50 guidelines without making explicit statements about the application. We perform the next analysis, using the sample of companies listed in the Stock Exchange of Thailand during the post-TAS 50

period, to examine whether the segment information under TAS 50 exhibits greater predictive ability for future earnings and cash flows than that under TAS 24. The hypothesis stated in the alternative form is as follows:

H2: Current earnings (cash flows) exhibit greater predictive ability for future earnings (cash flows) for firms having chosen to adopt the new segment reporting requirements under TAS 50 than those continuing to pursue the disclosure requirements under TAS 24.

In order to test hypothesis 2, we employ the following year and industry fixed-effect regression, examining the relation between current earnings (cash flows) and future earnings (cash flows) of firms choosing to adopt the new segment reporting requirements under TAS 50 beyond those under TAS 24.

$$PERF_{t+1} = \beta_0 + \beta_1 PERF_t + \beta_2 ACCRU_t + \beta_3 TYPE + \beta_4 TYPE * PERF_t + \beta_5 TYPE * ACCRU_t + \beta_6 LOSS + \beta_7 SIZE + \beta_8 MKT_BOOK + \Sigma \beta_Y YEAR + \Sigma \beta_D INDUSTRY + \varepsilon \quad (2)$$

Where
 TYPE = 1 if firms adopted the new segment disclosure requirements under TAS 50.
 0 if firms continued to use the TAS 24 segment disclosure requirements.

3.2 Stock Price Informativeness of Segment Reporting Disclosures

This section outlines the empirical specifications for examining the stock price

informativeness of segment reporting disclosures. We follow Collin et al. (1994) and Ettredge et al. (2005), and define stock price informativeness as the extent to which the stock returns reflect the

information about future earning or cash flows. The definition assumes that revisions in expected dividends are correlated with revisions in expected earnings. This implies that the current stock returns are a function of the current unexpected earnings and the discounted expected future earnings.

The objective of additional segment disclosures is to provide information that is useful for financial statement users in making economic decisions. The information that is useful should assist them in forming expectation about the amount, timing and uncertainty involving future realization of earnings and cash flows. We operationalize this concept by examining whether investors impound a greater amount of information about future realization of earnings and cash flows in their investment decision reflected by current stock returns. In particular, this section investigates

whether the stock price informativeness increases in the sample firms' decision to switch to the new segment reporting disclosures under TAS 50. This leads to our third hypothesis stated in the alternative form.

H3 : For firms switching to the new segment disclosure requirements under TAS 50, the relation between current stock returns and future earnings is greater for the post-TAS 50 adoption than that for the pre-adoption period.

In order to test the above hypothesis, we perform the multiple regression analysis on the cross sectional data. The following empirical specification is employed to examine the relation between future earnings or cash flows and current stock returns before and after the adoption of TAS 50.

$$R_t = \beta_0 + \beta_1 \text{PERF}_t + \beta_2 \text{PERF}_{t+1} + \beta_3 R_{t+1} + \beta_4 \text{POST} + \beta_5 \text{POST} * \text{PERF}_t + \beta_6 \text{POST} * \text{PERF}_{t+1} + \beta_7 \text{POST} * R_{t+1} + \beta_8 \text{LOSS} + \beta_9 \text{SIZE} + \beta_{10} \text{MKT_BOOK} + \varepsilon \quad (3)$$

Where

R_t = the annual stock return for year t, measured over the 12 months' period ending two month after the firm's fiscal year end.

R_{t+1} = the annual stock return for one year period following year t, measured over the 12 months' period ending two month after the firm's fiscal year end.

The coefficient of β_2 for the empirical specifications set in (3) is called the "Forward Earning Response Coefficient-FERC," (see

Ettredge et al., 2005). The coefficient is expected to be positive. The examination of the stock price informativeness of the switch to TAS 50

hinges on the statistical and economic significance of the coefficient, β_6 . We conjecture that the new segment disclosure requirements should allow investors to impound a greater amount of information about future realization of earnings and cash flows into the current stock returns and therefore expect a statistically significant and positive coefficient on the incremental FERC, depicted by the interaction term, $POST^* PERF_{t+1}$.

Included in the empirical specification are the one-year ahead stock returns. Collin et al. (1994) argue that using actual future earnings or cash flows introduces measurement errors in the estimates of the future earning response coefficients. To mitigate these errors, we include next year's stock return as a control variable in the regression and expect that it will be negative because R_{t+1} is correlated with the unexpected component of E_{t+1} and CFO_{t+1} (Ettredge et al., 2005).

Once TAS 50 has been promulgated, a number of listed companies in Thailand voluntarily adopted the expanded segment disclosure requirements, while others continued to disclose the segment information that was originally required by TAS 24. In this unique setting, we will examine whether the stock price informativeness of firms adopting the additional segment disclosures would be greater than that of firms choosing to continue to comply with TAS 24 requirements. Our fourth hypothesis, stated in the alternative form, is as follows:

H4 : Stock price informativeness is greater for firms adopting the new TAS 50 requirements than for firms continuing to adopt the requirements originally set forth under TAS 24.

In order to test hypothesis 4, we employ the following multiple regression for the cross sectional data, controlling for fixed-effects of year and industry.

$$R_t = \beta_0 + \beta_1 PERF_t + \beta_2 PERF_{t+1} + \beta_3 R_{t+1} + \beta_4 TYPE + \beta_5 TYPE * PERF_t + \beta_6 TYPE * PERF_{t+1} + \beta_7 TYPE * R_{t+1} + \beta_8 LOSS + \beta_9 SIZE + \beta_{10} MKT_BOOK + \sum \beta_Y YEAR + \sum \beta_D INDUSTRY + \varepsilon \quad (4)$$

4. Sample and Data

We use the data set obtained from the SETSMART.COM and I-SIM CD-ROM, which is a collection of financial statements and other information pertaining to companies listed in the

Stock Exchange of Thailand. The sample in this study is restricted to those disclosing at least two segments during 1998-2006. Table 2 depicts our sample.

TABLE 2 : Sample

ITEMS	Number of firms
Number of companies listed in The Stock Exchange of Thailand	
1998	418
1999	392
2000	381
2001	382
2002	389
2003	408
2004	440
2005	468
Number of all sample firms	3,278
<u>Less</u> Single segment firms	(733)
Firms with missing data*	(1,706)
Firms with negative stockholder equity	(10)
Outliers	(10)
Final samples which disclose in compliance with TAS No. 24	819
<u>Less</u> Firms which not disclose additional information under TAS No. 50	(500)
Final samples which disclose additional information under TAS No. 50	319

* including firms with incomplete disclosures under TAS No.24 and those suspended from trading

This research begins with a sample of 3,278 firm-year observations available. From this list, we eliminate 733 sample observations of firms having one segment only, and 1,706 observations not meeting the requirements set forth in TAS No.24 and being suspended from trading. Ten observations were deleted because the firms have negative shareholders' equity. We also deleted another 10 outliers, based on the stem and leaf plots. Thus, final sample for firms disclosing information in compliance with TAS No.24 includes 819 sample observations. Finally, we obtain a final sample of

319 sample observations with disclosures that were in compliance with TAS 50 guidelines.

In Table 3, Panels A and B provide the descriptive statistics and the correlation matrix for the variables used in the empirical examinations, respectively. Panel C presents the results of the univariate tests of variables for the differences between the pre and post-adoption of TAS 50 periods, and between firms choosing to adopt the new segment disclosure requirements and those continuing to use the older requirements under TAS 24.

TABLE 3 : Descriptive Statistics**Panel A : Descriptive Statistic of Variables**

Variables	N	Mean	Median	Std. Errors	Max	Min	95 th percentile	5 th percentile
R _t	819	1.1025	0.9841	0.6129	3.5143	0.1300	2.2683	0.2936
E _t	819	0.0523	0.0975	0.6131	1.8486	-2.4650	0.5277	-0.6965
CFO _t	819	0.1893	0.1443	0.8233	2.2512	-2.4266	0.9786	-0.4019
ACCRU	819	-0.1060	-0.0502	0.8863	2.6849	-2.0135	1.2218	-0.6083
SIZE	819	9.4842	9.4104	0.8211	11.445	7.8765	10.9576	8.2041
MKT_BOOK	819	1.8412	1.1000	5.6816	9.5887	-0.4684	4.2895	0.2856

Panel B : Correlation Matrix of Variables

	R _t	E _t	CFO _t	ACCRU	SIZE	MK BOOK
R _t		0.039	0.125**	0.078	-0.014	-0.015
E _t	0.269**		0.280**	-0.290**	0.075*	-0.063
CFO _t	0.192**	0.292**		0.771**	-0.100**	-0.068
ACCRU	0.071*	-0.225**	-0.732**		-0.129**	0.015
SIZE	0.003	0.052	-0.130**	-0.145**		0.133**
MKT_BOOK	0.113**	-0.034	-0.184**	-0.160**	0.557**	

Spearman correlations are reported in the top half of the table, while Pearson correlations are reported in the bottom half of the table.

Panel C : Univariate test of Variables

	TAS No.24		TAS No.50		t-stat	PRE		POST		t-stat
	Mean	Std. Error	Mean	Std. Error		Mean	Std. Error	Mean	Std. Error	
R _t	0.6788	0.7048	0.4237	0.6745	5.943**	0.3551	0.7557	0.7640	0.6251	-5.951**
E _t	0.0379	0.4538	0.0144	0.4136	1.101	0.0429	0.4466	-0.0029	0.4951	1.228
CFO _t	0.1203	0.5640	0.0690	0.6134	1.750*	0.1350	0.7639	0.0457	0.623	1.608
ACCRU	0.0562	0.6611	0.0497	0.5951	0.210	-0.0915	0.7065	-0.0364	0.6482	-1.024
SIZE	5.7264	4.4913	3.7578	4.8557	6.082**	2.5529	4.2303	7.3904	4.5502	-9.881**
MKT_BOOK	0.8752	4.109	0.8044	4.905	0.313	0.3685	1.1265	1.7322	7.7401	-3.082**

** = Significant at 0.01 (two-tailed)

* = Significant at 0.05 (two-tailed)

The statistics are provided for pooled, cross-sectional firm-year observations. The sample firms seem to have enjoyed an average annual return of 10.25% over the sample period. The positive returns are supported by average annual earnings of 5.23% of the market value of equity and average operating cash flows of 0.18% of the market value of equity. The correlation matrix in Panel B suggests significantly positive relations among returns, earnings and operating cash flows. It is therefore important that we control for future returns when we examine the predictive ability and the stock price informativeness of future earnings in order to parse out the effects of other information that may affect future earnings. The market-to-book ratio is highly correlated with returns and the results of operations.

The univariate tests of variables in Panel C suggest that the market-to-book ratios of the sample firms differ between the periods before and after the promulgation of TAS 50. The sample firms also exhibit a size difference during the periods before and after TAS 50 came into effect, and for firms adopting the new requirements and those choosing to apply TAS 24 requirements. Therefore, it is important that we control for the differential characteristics of these sample firms.

5. Empirical Findings

5.1 Test for Predictive Ability of Segment Reporting Disclosures during Pre- and Post-Adoption Periods

The first set of tests involves the investigation of the predictive ability of earnings and cash flows for their future counterparts, for firms providing additional segment disclosures under TAS 50 over those under the old TAS 24. Panel A of Table 4 shows the empirical results of the investigation. The analysis conditional on the set of sample firms choosing to adopt the new TAS 50 requirements shows that in the post-adoption period, the current earnings exhibit greater predictive power for future earnings over the pre-adoption period. The coefficient on $POST^* E_t$ is significant at 0.01 significance level. Contrary to our expectation is the negative, though insignificant, relation between current earnings and future earnings. The findings are consistent with the explanation that, for our conditional sample, the current earnings may not have explanatory power for future earnings until the additional segment information is provided after the sample firms provided additional information under TAS 50. Finally, current cash flows may not have predictive power for future earnings as the coefficient on post-adoption earnings and accruals combined ($\beta_4 + \beta_5$) is not significantly different from zero.

The right hand column of Table 4 reveals the results from regressing one-year-ahead cash flows from operations on current operating cash flows during the pre- and post-adoption periods. The results for the analysis of cash flows are qualitatively the same as those for the earnings. Cash flows from operating activities do not exhibit explanatory power for their future counterparts. During the post-

TABLE 4: Conditional OLS Results of the Predictive Ability of Earnings and Cash Flows for the Pre and Post TAS No.50 Periods

$$\text{PERF}_{t+1} = \beta_0 + \beta_1 \text{PERF}_t + \beta_2 \text{ACCRU}_t + \beta_3 \text{POST} + \beta_4 \text{POST} * \text{PERF}_t + \beta_5 \text{POST} * \text{ACCRU}_t + \beta_6 \text{LOSS} + \beta_7 \text{SIZE} + \beta_8 \text{MKT_BOOK} + \varepsilon \quad (1)$$

Variables	Expected Sign	PERF = E _t			PERF = CFO _t		
		Coefficient	t-stat	p-value	Coefficient	t-stat	p-value
Intercept	none	0.279	0.948	0.344	0.444	0.729	0.467
PERF _t	+	-0.080	-1.303	0.194	-0.114	-0.726	0.468
ACCRU	?	-0.059	-1.475	0.141	-0.088	-0.530	0.596
POST	+	-0.071	-1.195	0.233	-0.207	-1.653	0.099
POST * PERF _t	+	0.611	7.674	0.000	0.667	3.439	0.001
POST * ACCRU	?	0.083	1.433	0.153	0.386	1.952	0.052
LOSS	-	-0.647	-9.013	0.000	-0.337	-2.266	0.024
SIZE	+	-0.006	-0.211	0.833	-0.004	-0.068	0.946
MKT BOOK	+	0.003	0.990	0.323	-0.010	-1.875	0.062
R ²			0.457			0.121	
Adjusted R ²			0.443			0.098	
N			319			319	

adoption period, however, current cash flows exhibit predictive ability for future cash flows after controlling for other factors. Conditional on the set of sample firms having chosen to adopt the additional segment disclosure requirements, the results are consistent with the hypothesis 1 that the adoption of additional segment information requirements under TAS 50 enhances the predictive ability of current earnings and cash flows for their future counterparts. Overall, the results suggest that current earnings and cash flow information possesses greater predictive power for their future counterparts after the sample companies provide the additional segment information under TAS 50.

5.2 Unconditional Results for the Predictive Ability Tests for the Pre- and Post-Adoption Periods

The results highlighted in section 5.1 rests on the sample conditional on firms having chosen to adopt the new requirements under TAS 50. Therefore, the results may not be generalized to the entire sample of companies listed in the Stock Exchange of Thailand. Recognizing the potential sample selection bias, we attempt to correct this problem by using the Heckman two-stage least squares procedure. In the process, we develop the following choice model.

$$\text{Segment Type} = \beta_0 + \beta_1 \text{SIZE} + \beta_2 \text{INDUSTRY} + \beta_3 \text{BIG5} + \beta_4 \text{SCORE} + \beta_5 \text{IND_BOARD} + \beta_6 \text{M_SHARE} + \varepsilon \quad (5)$$

Where

Segment Type	= 1 if firms adopted TAS No.50 for disclose segment information. 0 if firms adopted TAS No.24 for disclose segment information.
SIZE	= Natural logarithm of total assets at ending of fiscal year.
INDUSTRY	= 1 if firms are classified in technology industry. 0 otherwise
BIG5	= 1 if firms are audited by Big5 (now Big4) audit. 0 otherwise
SCORE	= Transparency score of disclosure (S&P, 2002)
IND_BOARD	= the ratio of independent board of committee.
M_SHARE	= Market share of firms to industry.

We recognize that the choice model we develop is ad hoc, but it is performed principally to correct for the econometric problems we encounter. We expect that larger companies should have larger customer base and will not be subject to the proprietary cost as suggested by the panel of experts during the deliberation process of the Federation of Accounting Professions. Larger firms are afforded with the opportunity to include a number of operations within each segment, obscuring certain information. In addition, larger volume of transactions results in lower per-unit cost of producing the information. The same should apply for firms with large market shares. Therefore, we hypothesize that firm size is associated with the

decision to adopt the TAS 50 segment reporting requirements.

We also include high-tech industry and Big 5 auditors in the empirical specification because these factors may be related to the firm size and the preference for the disclosure choice. We expect that firms with transparent disclosures should opt for the additional disclosures under TAS. We also include the ratio of independent board of committee as we believe that the corporate governance is related to the transparency score (see Bushman et al., 2004). The results of the investigation of disclosure choice are reported in Table 5.

TABLE 5 : Logistic Regression Results from Choice of Disclosure Model

$$\text{Type} = \beta_0 + \beta_1 \text{SIZE} + \beta_2 \text{INDUSTRY} + \beta_3 \text{BIG5} + \beta_4 \text{SCORE} + \beta_5 \text{IND_BOARD} + \beta_6 \text{M_SHARE} + \varepsilon$$

Variables	Coefficient (B)	Coefficient EXP (B)	Wald Statistics	p- Value
Intercept	-16.771	0.000	-133.959	0.000
SIZE	0.533	1.704	10.568	0.000
INDUSTRY	0.857	2.356	2.343	0.126
BIG5	-0.160	0.852	0.332	0.565
SCORE	0.165	1.179	142.966	0.000
IND_BOARD	-0.214	0.807	0.117	0.732
M_SHARE	1.680	5.365	5.170	0.023
Cox and Snell R ²	0.462	Overall Prediction Correct	88.4%	
Nagelkerke R ²	0.634			
N	819			

The summary statistics for the overall model indicate that Pseudo R² is quite high. The Cox and Snell's is 46.20%, while the Nagelkerke's is 63.40%. The overall prediction is 88.40% correct. The size, transparency and market share are positively related to the choice of adopting the new TAS 50 requirements. The statistically significant coefficients are consistent with firms having chosen to adopt TAS 50 requirements tend to be larger, be more transparent, and have greater market shares. Overall, these results suggest that the logistic model should be appropriate for use to address the econometric issues.

We further proceed to the unconditional examination of the predictive ability of current earnings and cash flows for their future counterparts. In this process of correcting for the sample selection bias, we use the resulting specification in the examination of disclosure choice to compute the Inverse Mill's Ratio and include such a measure in the analyses to correct for the sample selection bias. The results of the analyses are presented in Table 6.

TABLE 6 : Unconditional OLS Results of the Predictive Ability of Earnings and Cash Flows for the Pre and Post TAS No.50 Periods

$$\text{PERF}_{t+1} = \beta_0 + \beta_1 \text{PERF}_t + \beta_2 \text{ACCRU}_t + \beta_3 \text{POST} + \beta_4 \text{POST} * \text{PERF}_t + \beta_5 \text{POST} * \text{ACCRU}_t + \beta_6 \text{LOSS} + \beta_7 \text{SIZE} + \beta_8 \text{MKT_BOOK} + \beta_9 \text{INVMILL} + \varepsilon$$

Variables	Expected Sign	PERF = E _t			PERF = CFO _t		
		Coefficient	t-stat	p-value	Coefficient	t-stat	p-value
Intercept	none	0.010	0.336	0.737	1.633	2.198	0.029
PERF _t	+	0.158	1.519	0.130	0.141	0.777	0.438
ACCRU	?	0.145	1.748	0.081	0.005	0.028	0.977
POST	+	-0.011	-0.171	0.864	-0.349	-2.602	0.010
POST * PERF _t	+	0.382	3.362	0.001	0.439	2.100	0.037
POST * ACCRU	?	-0.136	-1.405	0.161	0.277	1.387	0.167
LOSS	-	-0.634	-8.902	0.000	-0.247	-1.635	0.103
SIZE	+	0.006	0.183	0.855	-0.096	-1.355	0.176
MKT_BOOK	+	0.003	1.001	0.318	-0.010	-1.932	0.054
INVMILLS	none	-0.001	-2.804	0.005	-0.435	-2.739	0.007
R ²			0.470			0.142	
Adjusted R ²			0.455			0.117	
N			319			319	

The results presented in Table 6 remain qualitatively the same as those in Table 4. In the left column, the current earnings exhibit explanatory power for future earnings only in the post-adoption period after controlling for other factors. In the right hand column, the current cash flows bear a statistically significant relationship with future cash flows only in the post-TAS 50 adoption period. The results suggest that the predictive power of current earnings and cash flows for their future counterparts is greater after the adoption of the additional disclosure requirements, consistent with hypothesis 1.

An important element in this exercise is the correction for the potential sample selection bias, caused by the inclusion of only firms adopting the new disclosures requirement in the comparison of the pre and post-adoption results. The coefficients

on PERF_t turn positive, though insignificant, as opposed to negative ones in Table 4. The Inverse Mill's ratio is statistically significant, while the p-value for coefficient on the POST*CFO_t measure changes from 0.001 to 0.037. The observation highlights the importance of controlling for the potential sample selection bias in examination of the disclosures before and after the adoption of the segment reporting requirements.

5.3 The Predictive Ability of Earnings (cash flows) under TAS 50 over TAS 24 during the Post-Adoption Period

In this section, we compare the ability of current earnings to predict future earnings between firms that have chosen to adopt the additional disclosure requirements under TAS 50 over those that continue to apply the disclosure rules set initially

in the TAS 24, after TAS 50 came into effect. We controlling for industries and fiscal years. The employ the fixed-effect regression analyses, results of the analyses are presented in Table 7.

TABLE 7 : Results of the Fixed Effect Regression : Predictive Ability for Firm That Adopted the Requirements under TAS No.50 Versus TAS No.24*

$$\text{PERF}_{t+1} = \beta_0 + \beta_1 \text{PERF}_t + \beta_2 \text{ACCRU}_t + \beta_3 \text{TYPE}_t + \beta_4 \text{TYPE}_t * \text{PERF}_t + \beta_5 \text{TYPE}_t * \text{ACCRU}_t + \beta_6 \text{LOSS}_t + \beta_7 \text{SIZE}_t + \beta_8 \text{MKT_BOOK}_t + \Sigma \beta_Y \text{YEAR} + \Sigma \beta_D \text{INDUSTRY} + \varepsilon \quad (2)$$

PANEL A: PERF = Earnings

Variables	Expected Sign	Actual Type			Instrumental Variable		
		Coefficient	t-stat	p-value	Coefficient	t-stat	p-value
Intercept	None	-0.163	-0.721	0.471	-0.210	-0.842	0.400
E_t	+	0.540	7.797	0.000	0.361	7.200	0.000
ACCRU	?	0.060	1.799	0.072	0.005	0.121	0.904
TYPE	+	-0.073	-2.083	0.038	-0.059	-0.953	0.341
TYPE * E_t	+	-0.037	-0.666	0.506	-0.066	-0.794	0.427
TYPE * ACCRU	?	0.081	2.037	0.042	0.213	3.301	0.001
LOSS	-	-0.500	-13.082	0.000	-0.493	-12.909	0.000
SIZE	+	0.023	1.014	0.311	0.026	0.952	0.342
MKT BOOK	+	0.004	1.759	0.079	0.004	1.760	0.079
R^2			0.405			0.407	
Adjusted R^2			0.389			0.391	
N			819			819	

PANEL B: PERF = Cash Flows

Variables	Expected Sign	Actual Type			Instrumental Variable		
		Coefficient	t-stat	p-value	Coefficient	t-stat	p-value
Intercept	None	-0.526	-1.035	0.301	0.434	0.762	0.446
CFO_t	+	0.851	9.635	0.000	0.404	3.903	0.000
ACCRU	?	-0.493	-6.590	0.000	0.210	2.309	0.021
TYPE	+	0.112	1.379	0.168	-0.292	-2.067	0.039
TYPE * CFO_t	+	-0.021	-0.148	0.883	0.935	4.480	0.000
TYPE * ACCRU	?	0.952	7.833	0.000	-0.720	-3.935	0.000
LOSS	-	-0.202	-2.299	0.022	-0.114	-1.290	0.198
SIZE	+	0.078	1.571	0.116	0.003	0.054	0.957
MKT BOOK	+	-0.007	-1.345	0.179	-0.010	-1.902	0.058
R^2			0.462			0.457	
Adjusted R^2			0.447			0.442	
N			819			819	

Table 7, Panel A, shows the results of the predictive ability of the current earnings for future earnings for firms disclosing the segment information under TAS No.50 over those conforming to TAS 24 requirements. In the column titled “Actual Type”, we present the regression results using a dichotomous variable to capture the firms’ choice of providing segment information in conformity with the new TAS 50 or the old TAS 24. During the post-adoption period, current earnings exhibit predictive power for earnings at the statistical significance level of one percent. The type of disclosure itself seems to provide explanatory power for future earnings. However, the disclosures under the new requirements do not seem to add to the predictive ability of current earnings for future earnings beyond those under TAS 24.

While current earnings given the new segment disclosures are not incrementally informative about future earnings, the accruals given the new segment disclosures are. The results may suggest that the accruals become more informative for future earnings when they are supplemented with the additional segment disclosures. The results seem to contrast with those in Richardson et al. (2005), who document that accruals reduce earnings persistence.

We are aware of the potential endogeneity problem, arising from the choice of segment reporting disclosures that could have been driven by other economic forces. We tackle this issue through the instrumental variable approach, defining the probability of using the new TAS 50

requirements as the resulting expected value from the choice model we developed earlier. The results in the right hand column of Panel A reveal that current earnings are informative about future earnings during the post-TAS 50 adoption period. The empirical evidence suggests that additional disclosures do not improve the predictive ability of current earnings for future earnings, but they do add more predictive value for current accruals for future earnings. The disclosure type loses its significance when the instrumental variable approach is used.

We repeat the same analysis for current cash flows and present the results in Panel B of Table 7. In the left column, in which we use the actual type to capture the incremental effect of the new TAS 50 requirements, current cash flows and accruals do exhibit explanatory power for future cash flows, with statistical significance at one-percent level. The joint findings are consistent with the notion that earnings exhibit predictive value for determining future cash flows. Similar to the results for the earnings regression, the additional disclosures do not add to the predictive power for current cash flows for future cash flows, but they do so only for the current accruals.

We obtain stronger results from the analysis using the instrumental variable approach. The predictive value of current cash flows is enhanced by the expanded segment disclosures only when we use the instrumental variable. Such is evidenced by a positively significant coefficient on $TYPE * CFO_t$. In addition, the new segment

disclosures provide information that results in the incremental predictive power of current cash flows and earnings for future cash flows. The disclosure type itself also exhibits explanatory power for future cash flows only when the endogeneity issue has been resolved through the instrumental variable method.

Overall, there is little empirical evidence as to the enhanced ability of current earnings and cash flows to predict their future counterparts, for firms that decided to provide the additional segment disclosures relative to those that continue to comply with the old rules. After the promulgation of TAS 50, however, we do not observe the cross-sectional difference of the predictive ability of current earnings for future earnings. Instead, the results suggest that the expanded segment disclosures enhance the predictive power of current cash flows for future cash flows. In addition, we find that the additional information adds predictive value of current accruals for future earnings and cash flows. The findings manifest themselves to the notion that current earnings are useful in predicting future cash flows, especially given the additional segment information.

5.4 The Stock Price Informativeness of Segment Information of Firms Switching to TAS 50

In the earlier sections, we have established that the enhanced segment information increases

the predictive value of current earnings for future cash flows and therefore conjecture that the information should be value-relevant. To address the issue of enhanced value relevance of earnings as a result of the expanded segment information, we examine the stock price informativeness of segment information. Following Collins et al. (1994) and Ettredge et al. (2005), we define stock price informativeness as the extent to which investors impound the information about future earnings into current stock prices. We operationalize this concept by examining whether the enhanced segment information allows investors to impound greater amount of information about future earnings and cash flows into the current stock returns. In particular, we examine whether the additional segment information provides additional forward earnings response coefficient [see Ettredge et al. (2005) for further details].

First, we examine the forward earnings response coefficient for the pre- and post-adoption of TAS 50, for a sample of listed companies having chosen to adopt the additional disclosure requirements under TAS 50. The results are presented in Table 8. Panel A of Table 8 presents the forward earnings response coefficient, depicting the extent to which future earnings are impounded in the current stock return, before and after the adoption of TAS 50, for a sample of companies having chosen to adopt the new segment disclosure requirements.

TABLE 8 : OLS Results of the Stock Price Informativeness for the Pre-adoption and Post-adoption of the new TAS No.50 requirements

$$R_t = \beta_0 + \beta_1 \text{PERF}_t + \beta_2 \text{PERF}_{t+1} + \beta_3 R_{t+1} + \beta_4 \text{POST} + \beta_5 \text{POST} * \text{PERF}_t + \beta_6 \text{POST} * \text{PERF}_{t+1} + \beta_7 \text{POST} * R_{t+1} + \beta_8 \text{LOSS} + \beta_9 \text{SIZE} + \beta_{10} \text{MKT_BOOK} + \varepsilon \quad (3)$$

PANEL A: PERF = Earnings

Variables	Expected Sign	Conditional Results			Unconditional Results		
		Coefficient	t-stat	p-value	Coefficient	t-stat	p-value
Intercept	none	2.298	5.622	0.000	2.571	6.167	0.000
E _t	+	0.222	2.773	0.006	0.307	3.601	0.000
E _{t+1}	+	-0.301	-2.087	0.038	-0.384	-2.631	0.009
R _{t+1}	-	-0.339	-4.139	0.000	-0.327	-4.032	0.000
POST	+	-0.388	-2.484	0.014	-0.422	-2.722	0.007
POST * E _t	+	-0.407	-3.579	0.000	-0.489	-4.193	0.000
POST * E _{t+1}	+	0.413	2.656	0.008	0.502	3.188	0.002
POST * R _{t+1}	-	0.134	1.115	0.266	0.119	0.997	0.319
LOSS	-	-0.260	-2.411	0.016	-0.254	-2.381	0.018
SIZE	+	-0.062	-1.566	0.118	-0.083	-2.067	0.040
MKT_BOOK	+	0.003	0.816	0.415	0.003	0.817	0.414
INVMILLS	none	-	-	-	-0.054	-2.714	0.007
R ²			0.151			0.171	
Adjusted R ²			0.123			0.141	
N			319			319	

PANEL B: PERF = Cash Flows

Variables	Expected Sign	Conditional Results			Unconditional Results		
		Coefficient	t-stat	p-value	Coefficient	t-stat	p-value
Intercept	none	2.251	4.983	0.000	2.182	4.847	0.000
CFO _t	+	0.198	4.164	0.000	0.482	3.467	0.001
CFO _{t+1}	+	-0.203	-1.561	0.120	-0.450	-2.615	0.009
R _{t+1}	-	-0.379	-4.371	0.000	-0.375	-4.353	0.000
POST	+	-0.494	-2.976	0.003	-0.467	-2.820	0.005
POST * CFO _t	+	-0.224	-3.026	0.003	-0.509	-3.386	0.001
POST * CFO _{t+1}	+	0.135	0.998	0.319	0.381	2.168	0.031
POST * R _{t+1}	-	0.210	1.645	0.101	0.201	1.589	0.113
LOSS	-	-0.281	-2.806	0.005	-0.298	-2.984	0.003
SIZE	+	-0.049	-1.126	0.261	-0.044	-1.012	0.312
MKT_BOOK	+	0.004	0.868	0.386	0.004	0.900	0.369
INVMILLS	none	-	-	-	0.001	-2.173	0.031
R ²			0.172			0.185	
Adjusted R ²			0.146			0.156	
N			319			319	

The results reveal a significant and positive coefficient on current earnings, but not the current earnings interacted with the post-adoption indicator. The findings suggest that investors have impounded the information about current earnings into their investment decisions, and that enhanced disclosures

do not play a significant role for investors to digest the information. On the other hand, the forward earnings response coefficient is negative, although not significant, while the coefficient on its interaction term with post-adoption indicator variable is statistically significant and positive. This suggests

that investors may not be efficient in incorporating the information about future earnings, and that the additional segment information under TAS 50 improves the stock price informativeness about future earnings. The results hold after controlling for other information captured by future stock returns, and are even stronger after correcting for the potential sample selection bias.

The conditional results in Panel B suggest that investors are not efficient in incorporating the information about future realization of cash flows in their investment decision. The coefficient on $POST * CFO_{t+1}$ is positive, but not significant. The findings suggest that there is little that the enhanced segment disclosures do to improve the ability of investors to impound such information into stock returns. Considering the unconditional results, we find a statistically significant and negative coefficient on CFO_{t+1} and a statistically significant and positive coefficient on $POST * CFO_{t+1}$. The findings suggest that investors are not efficient in incorporating the future realization of cash flows

into stock returns, but the enhanced segment disclosures help mitigate the problem. The stronger results from the unconditional investigation highlight the prevalence of sample selection bias. In addition, the coefficient on the inverse Mill's ratio is statistically significant, suggesting that the factor does capture the essential firm characteristics that cause such a bias. Overall, we find that the enhanced segment disclosures allow investors to impound the information about the future realization of earnings and cash flows after the firms switch to the new segment disclosure requirements.

5.5 The Incremental Stock Price of TAS 50 segment Information Relative to That of TAS 24

In this section, we proceed to examine the stock price informativeness after the promulgation of TAS 50. We investigate if the additional segment information enhances the stock price informativeness over and above the disclosures under the disclosures provided in conformity with the old disclosure rules. The results are presented in Table 9.

TABLE 9 : Results of the Fixed Effect Regression: Stock Price Informativeness for Firms that Chose to Adopt the New Disclosure Rules under TAS No.50 versus Those continuing to apply the rules set in the original TAS No.24*

$$R_t = \beta_0 + \beta_1 \text{PERF}_t + \beta_2 \text{PERF}_{t+1} + \beta_3 R_{t+1} + \beta_4 \text{TYPE} + \beta_5 \text{TYPE} * \text{PERF}_t + \beta_6 \text{TYPE} * \text{PERF}_{t+1} + \beta_7 \text{TYPE} * R_{t+1} + \beta_8 \text{LOSS} + \beta_9 \text{SIZE} + \beta_{10} \text{MKT_BOOK} + \sum \beta_Y \text{YEAR} + \sum \beta_D \text{INDUSTRY} + \varepsilon$$

PANEL A: PERF = Earnings

Variables	Expected Sign	Actual Type			Instrumental Variable		
		Coefficient	t-stat	p-value	Coefficient	t-stat	p-value
PANEL A							
Intercept	none	1.741	4.994	0.000	1.550	3.966	0.000
E _t	+	0.204	3.131	0.002	0.160	2.007	0.045
E _{t+1}	+	-0.115	-1.378	0.169	-0.100	-1.055	0.292
R _{t+1}	-	-0.113	-2.378	0.018	-0.122	-2.180	0.030
TYPE	+	0.150	1.563	0.118	0.012	0.083	0.934
TYPE * E _t	+	0.058	0.660	0.510	0.158	1.091	0.276
TYPE * E _{t+1}	+	0.150	1.414	0.158	0.141	0.913	0.362
TYPE * R _{t+1}	-	-0.100	-1.310	0.191	-0.063	-0.595	0.552
LOSS	-	-0.189	-2.968	0.003	-0.185	-2.906	0.004
SIZE	+	-0.064	-1.989	0.047	-0.038	-0.965	0.335
MKT BOOK	+	-0.010	2.935	0.003	0.010	2.888	0.004
R ²			0.093			0.090	
Adjusted R ²			0.065			0.062	
N			819			819	

PANEL B: PERF = Cash Flows

Variables	Expected Sign	Actual Type			Instrumental Variable		
		Coefficient	t-stat	p-value	Coefficient	t-stat	p-value
PANEL B							
Intercept	none	1.986	5.509	0.000	1.899	4.721	0.000
CFO _t	+	1.066	2.845	0.005	0.190	2.887	0.004
CFO _{t+1}	+	-0.030	-0.434	0.664	-0.065	-0.839	0.402
R _{t+1}	-	-0.118	-2.357	0.019	-0.118	-2.079	0.038
TYPE	+	0.225	2.222	0.027	0.163	1.079	0.281
TYPE * CFO _t	+	-0.032	-0.466	0.642	-0.083	-0.823	0.411
TYPE * CFO _{t+1}	+	-0.095	-1.042	0.298	-0.040	-0.329	0.742
TYPE * R _{t+1}	-	-0.130	-1.598	0.110	-0.119	-1.059	0.290
LOSS	-	-0.218	-3.759	0.000	-0.217	-3.717	0.000
SIZE	+	-0.090	-2.633	0.009	-0.077	-1.872	0.062
MKT BOOK	+	0.001	0.029	0.977	0.001	0.021	0.984
R ²			0.118			0.114	
Adjusted R ²			0.092			0.087	
N			819			819	

* Fixed effect coefficients are suppressed for brevity.

Upon the promulgation of TAS 50, there is little empirical evidence indicating the incremental stock price informativeness of the additional disclosures under TAS 50 over and above those under TAS 24. Panel A reports the empirical results from regressing current stock returns on future earnings and their interaction with the indicator variable depicting the adoption of the new disclosure requirements. The forward earnings response coefficient is negative, although not significant. The finding is inconsistent with our conjecture. In addition, the coefficient on the interaction term is 0.150 when we examine the actual disclosure types, and 0.141 when we use the instrumental variable, although both are not statistically significant at the five percent level. The results suggest that the stock price informativeness of future earnings is lacking and there is little empirical evidence suggesting that the additional segment disclosures pick up that slack.

Panel B reports the empirical results of the forward cash flows response coefficient. The coefficients on the future cash flows and their interaction with the indicator variable on additional segment disclosures are negative, although not significant. The finding is inconsistent with our conjecture. Overall, there exists no empirical support that the current stock returns having impounded the information about future earnings and cash flows realization after the additional disclosures under TAS 50 came into effect. The results remain unchanged after correcting for the endogeneity problem, using the instrumental variable.

Overall, the companies that opted for enhanced segment disclosures experienced greater stock price informativeness after they have adopted the enhanced disclosure rules, consistent with hypothesis 3. However, there is little empirical evidence as to the cross-sectional differences in terms of stock price informativeness of segment information after TAS 50 came into force. The lack of significant results could be a manifestation of the disclosures not being useful, or of the investors not being efficient in the use of information. The issue warrants future research investigations.

6. Conclusion

This paper investigates the usefulness of segment reporting disclosures in compliance with TAS No.50 beyond TAS No. 24 from two dimensions. First, we compare the predictive value of earnings and cash flows between the period before and after the promulgation of TAS 50, using a sample of listed firms which have chosen to comply with the additional disclosure rules. We also compare the predictive value of the information between companies having chosen to comply with the new rules and those continuing to use the old disclosure rules after the pronouncement came into force. Second, we examine whether the stock returns impound a greater amount of information about future earnings and cash flows with the additional segment information.

The analyses are performed (1) to compare the stock price informativeness before and after the adoption of TAS 50 provisions by firms that

have opted for such requirements and (2) to compare the stock price informativeness of firms that opt for TAS 50 relative to those that continue to comply with TAS 24 requirements. Juxtaposing the analyses, we are able to address the change in the informational environment of firms that switch to the new disclosure regime and the differential information environment between firms that have made a switch and those that have not.

The empirical findings in this study indicate that firms disclosing segment information in compliance with TAS No. 50 experienced a significant improvement in terms of predictive value of current earnings and cash flows, consistent with Hollie (2003). Comparisons during the post-adoption period reveal that current cash flows exhibit greater predictive value for future cash flows for firms choosing to adopt the enhanced disclosure rule, relative to those of firms continuing to apply TAS 24 requirements.

Next, we examine the stock price informativeness, defined as the extent to which the information about future earnings and cash flows has been impounded into current stock returns. The results are consistent with stock returns being more informative about future earnings and cash flows after the firms decided to disclose more information in conformity with the new rules. The findings are consistent with Ettredge et al. (2005).

The comparisons between firms adopting the new rules and those continuing to disclose the information under the old rules do not yield significant results. The lack of significant results could be attributable to the notion that the information may not be useful or the notion that the information could have been useful, but the investors are not efficient in impounding the information in their investment decision. This anomaly warrants future research examination.

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