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Pricing and Mispricing Effects of SFAS 131

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Abstract: We investigate the effects of the introduction of Statement of Financial Accounting Standards No. 131 (SFAS 131) on the market's valuation of foreign earnings. Thomas (1999) documents that investors discount the value of foreign earnings for US multinational companies. He conjectures but does not test the possibility that this finding is due to poor disclosure related to foreign operations. We find strong evidence that the introduction of the standard is positively associated with the pricing of foreign earnings. In addition, we use both the Mishkin (1983) test and a zero-investment hedge portfolio test and find that investors' mispricing of foreign earnings lessens (and in fact disappears) after SFAS 131. This study is one of the first attempts to show that improved disclosure reduces mispricing.

Keywords: SFAS 131, segment discloure, foreign earnings, valuation, mispricing

1. INTRODUCTION

Prior research has documented that there is greater uncertainty related to earnings from foreign operations than earnings from domestic operations and that investors discount the value of foreign earnings. In this paper, we investigate whether investors' pricing of foreign earnings changes after the implementation of Statement of Financial Accounting Standards No. 131 (SFAS 131) *Disclosures About Segments of an Enterprise and Related Information*. This standard materially changes (and according to most observers improves) the quantity and quality of segment disclosures. Specifically, we examine (1) if the foreign earnings response coefficient (ERC) increases following implementation of SFAS 131 and (2) whether the previously documented mispricing of foreign earnings is mitigated by the introduction of the new standard.

Examining the pricing of earnings components is of interest to both practitioners and academics because of the potential for investors to more precisely forecast earnings and estimate firm value (Khurana et al., 2003; Lipe 1986; and others). As the proportion

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of foreign operations of US companies continues to expand, foreign operations are increasingly important to US companies and can experience profitability, growth, and risk patterns that differ significantly from those of domestic operations (e.g., Bodnar and Weintrop, 1997; and Thomas, 2000). Consequently, both the Financial Accounting Standards Board (FASB) and the Securities and Exchange Commission (SEC) mandate the disclosure of information relevant for assessing firms' foreign operations.

Research has examined how investors value the foreign versus domestic components of earnings and whether segment disclosures are useful to investors. In a widely cited study, Bodnar and Weintrop (1997) partition earnings into their domestic and foreign components using SEC mandated disclosures (SEC Regulation §210.4-08(h)) and test whether these components differentially explain abnormal returns. They document that both foreign and domestic earnings changes are significantly positively associated with annual stock returns and that the coefficient on foreign earnings is significantly larger than the coefficient on domestic earnings. Bodnar and Weintrop (1997) attribute their findings to greater growth opportunities in foreign markets. Garrod and Rees (1998) and Bodnar et al. (2003) find similar results for firms domiciled in the United Kingdom and in Australia, Canada and the United Kingdom, respectively.

In general, there are varied arguments to support differential pricing of foreign and domestic earnings. These arguments are related (but not limited) to differences in risks and growth opportunities across domestic and foreign markets, economies of scale and synergy, institutional factors, investor preferences, market mispricing, agency costs of monitoring managers, and sub-optimal cross-subsidization (see, for example, Denis et al., 2002; and Christophe, 2002). It is important to note that we are *not* testing whether foreign earnings are more 'value relevant' than are domestic earnings. Rather, we examine whether the pricing (and possible mispricing) of foreign earnings is affected by the introduction of SFAS 131. Thus, are tests focused exclusively on foreign earnings, and we include domestic earnings as an important within-firm control.

Consistent with the findings of Bodnar and Weintrop (1997), Thomas (1999) documents that foreign earnings are more persistent than are domestic earnings. He also shows, however, that stocks are (temporarily) mispriced relative to the firm's current change in foreign earnings. He conjectures, but does not test, the possibility that this finding may be explained by poor disclosure of foreign operations. In other words, investors cautiously discount the value of the foreign earnings streams, which seems plausible given the relatively poor disclosure of foreign operations provided by many firms (e.g., White et al., 2003, p. 577). Khurana et al. (2003) find that financial analysts do distinguish between foreign and domestic earnings. However, analysts fail to *fully* incorporate the higher persistence of foreign earnings. They argue that their findings help explain the market mispricing documented by Thomas (1999). Thomas (1999) finds *no* evidence of mispricing related to domestic earnings, consistent with the lower uncertainty attached to this earnings stream compared with foreign earnings. Other extant literature also suggests that information asymmetry is especially severe for foreign operations (e.g., Duru and Reeb, 2002; Khurana et al., 2003; Callen et al., 2005; Hope et al., 2008; and Hope and Thomas, 2008).

Our research shows strong evidence that (1) foreign ERCs increase significantly following the adoption of SFAS 131 and (2) the mispricing of foreign earnings observed in the pre-SFAS 131 period no longer exists following implementation of SFAS 131. Our research design is a classical 'natural experiment' of examining an effect before

and after a shock to the system. The advantage of this approach is avoiding the problems of endogeneity and self-selection, often considered the most serious issues in disclosure studies (e.g., Healy and Palepu, 2001). However, all such tests have as their main challenge to control for possible confounding effects between the pre and post periods. We implement several research design features to mitigate such concerns. First, we have tests both for pricing effects using ERCs as well as mispricing effects using the Mishkin (1983) test and a hedge portfolio test. Second, we report results for the ERC tests with three different samples: 'full sample' results covering the time period 1985–2004; 'balanced sample' results with the same number of years pre and post SFAS 131; and a 'fixed sample' in which we require that all firms are present in all years. Third, our tests include a 'within-firm' control in that we also test for effects of SFAS 131 on domestic ERCs. Fourth, we control for firm-level characteristics that could affect valuation and which could vary between the two periods: number of segments disclosed, firm performance, percentage of foreign revenues, growth, and firm size. Fifth, we include sensitivity analyses related to firms that undergo business combinations or divestitures. Finally, we consider effects of early adoption of SFAS 131, foreign currency adjustments, taxes, inter-temporal variations in foreign earnings persistence, non-linearities, inclusion of earnings levels, and international cross-listings. Our results continue to hold in all these robustness tests. Consequently, while it is impossible to completely rule out effects of unknown factors on our tests, we believe our tests provide reasonable assurance that results are not affected by omitted variables.

We contribute to the literature on the pricing of foreign earnings by showing that it is associated with the introduction of SFAS 131. Our results are consistent with SFAS 131 enhancing the relevance of foreign earnings numbers. As US companies are becoming increasingly multinational, an understanding of their foreign operations is essential to investors. Our findings relate to the more general findings in the literature that the quality of disclosure positively affects valuation. In addition, our Mishkin test provides support for the claim that additional disclosures can reduce market mispricing. The Mishkin result is corroborated by results of a zero-investment hedge portfolio test which shows that investors in the pre-SFAS 131 period could earn abnormal profits by following a trading strategy of going long (short) in firms with the most positive (negative) change in foreign earnings (controlling for the change in total earnings). Following the implementation of SFAS 131, no abnormal profits are obtained from this strategy. This study is one of the first attempts to show that improved disclosure reduces mispricing. Such retesting of market mispricing based on changes in disclosure has a wide variety of applications in the accounting literature.

In what follows, Section 2 reviews the literature on segment disclosures and the mispricing of foreign earnings and presents our research hypotheses. Section 3 discusses the data and sample selection. Section 4 presents the major empirical results and the sensitivity analyses. Section 5 concludes.

2. BACKGROUND AND HYPOTHESES

(i) Brief Background on SFAS 131

SFAS 131 became effective for fiscal years beginning after December 15, 1997 (FASB, 1997). It superseded SFAS 14 *Financial Reporting for Segments of a Business Enterprise*

(FASB, 1976), which had come under severe criticism from user groups. Both the AIMR and AICPA complained that firms' disclosure practices under SFAS 14 were inadequate (AIMR, 1993; and AICPA, 1994). Boatsman et al. (1993) investigate whether equity valuations of US multinational companies are affected by SFAS 14 mandated geographical segment income disclosures. The authors conclude that there is little evidence that SFAS 14 geographical segment income disclosures affect equity values.

SFAS 131 requires companies to report disaggregated information about reportable operating segments based on management's organization of the enterprise (the 'management approach'). For each operating segment, firms must provide information about segment profit or loss, certain revenue and expense items, and assets. In addition, SFAS 131 requires supplemental 'enterprise-wide disclosures' about products and services, geographic areas, and major customers if they are not already included as part of the operating segment disclosures. For companies that do not define operating segments on the basis of geographic location, SFAS 131 requires the disclosure of revenues from external customers and long-lived assets for each material country. The requirement to disclose information for material countries represents a major difference from SFAS 14, under which firms were allowed to disclose geographic information by geographic region (e.g., Asia/Pacific). Many users complained that such broad, regional disclosures were of limited use. Herrmann and Thomas (2000) document that for enterprise-wide disclosures; the proportion of country-level geographic segments has increased, while the proportion of broader geographic area segment disclosures has decreased (see also Hope et al., 2008). With more country-level disclosures, investors should better assess the impact of various business factors (e.g., inflation, exchange rates, competition, market share, political forces, etc.) on firm performance (e.g., Emmanuel and Pick, 1980). Street et al. (2000) report that the consistency of segment information and the number of total segments reported increased significantly with the introduction of SFAS 131. Based on these findings, the authors conclude that business reporting improved with SFAS 131 (see also Herrmann and Thomas, 2000; and Berger and Hann, 2003). Similarly, a 1998 report by Bear Stearns emphasizes the improvement in the consistency of descriptions of the business throughout the president's letter, management discussion and analysis, and notes.

(ii) Hypotheses

We examine whether the valuation of foreign earnings increases with the introduction of SFAS 131 and whether the previously documented mispricing of foreign earnings is mitigated by the introduction of SFAS 131. Our focus on pricing effects associated with disclosure quality follows a long line of research in accounting (e.g., Kinney, 1971; Tse, 1989; Collins and Salatka, 1993; Lundholm and Myers, 2002; Gelb and Zarowin, 2002; Callen et al., 2005; and Ettredge et al., 2005). There are several reasons to expect a positive link between disclosure quality and the pricing of earnings. First, improved disclosure may reduce the noise related to forecasting future earnings, thereby increasing the response to unexpected earnings (Holthausen and Verrecchia, 1988; and Collins and Salatka, 1993). Second, enhanced disclosure lowers the cost for investors of gathering and processing private information which decreases their required rate of return (e.g., Diamond, 1985). Third, prior research has examined the role of enhanced disclosure in reducing estimation risk (where estimation risk

is triggered by information asymmetry) and concludes that greater disclosure may reduce estimation risk and that this risk is non-diversifiable (e.g., Barry and Brown, 1985; Handa and Linn, 1993; Coles et al., 1995; and Easley and O'Hara, 2004).

Regarding geographic segment disclosures, prior research suggests that, under certain conditions, such disclosures potentially enhance predictability of consolidated amounts (e.g., Balakrishnan et al., 1990; Nichols et al., 1995; Herrmann, 1996; and Lobo et al., 1998). However, user groups complained that firms' disclosure practices under SFAS 14 were inadequate and research has shown that investors did not use SFAS 14 geographic segment earnings disclosure in valuing securities (Boatsman et al., 1993).

Given firms' low-quality disclosures under SFAS 14, investors may have cautiously discounted the value of foreign earnings (Thomas, 1999; Khurana et al., 2003; and Callen et al., 2005). In particular, Thomas (1999) finds that, under SFAS 14 reporting, investors applied a lower valuation to foreign earnings than the actual persistence of foreign earnings would suggest. He conjectures but does not test for the possibility that this 'discount' is explained by low-quality disclosure related to foreign operations. Herrmann and Thomas (2000), Street et al. (2000), Behn et al. (2002) and Hope et al. (2008) all document an improvement in foreign operations disclosure following the implementation of SFAS 131 (e.g., the reporting of each material country instead of broad regional disclosures). If segment disclosures under SFAS 131 represent an improvement to investors in forecasting future earnings and hence valuing the firm more accurately, then the valuation discount applied to foreign earnings and the noisiness of the foreign earnings signal should decrease after the introduction of the new accounting standard.[1] Consequently, our first hypothesis (stated in the alternative) investigates the impact of adopting SFAS 131 on the valuation of foreign earnings:

H_1: Foreign earnings multiples are higher after adoption of SFAS 131.

While SFAS 131 includes a number of improvements to segment disclosure, many of these improvements are not solely related to foreign operations. For example, enhancements to line of business segment disclosures and greater consistency within the financial report (e.g., between the segment note and the MD&A) could affect both domestic and foreign earnings equally. However, Thomas (1999) does *not* find any discounting of domestic earnings during the SFAS 14 period, consistent with the lower uncertainty investors perceive related to domestic earnings as compared to foreign earnings. His findings are consistent with the long line of research that documents that information asymmetry is greater for foreign than for domestic operations (e.g., Duru and Reeb, 2002; Khurana et al., 2003; and Callen et al., 2005). Thus, even if the introduction of SFAS 131 resulted in improved disclosures for assessing domestic operations, we expect a smaller pricing effect for domestic earnings than for foreign earnings.

Results supporting H_1 may also be consistent with a reduction in the mispricing of foreign earnings. Aboody et al. (2002) show that when mispricing occurs, ERCs are

1 Ettredge et al. (2005) find that firms' adoption of the segment disclosure requirements contained in SFAS 131 is associated with an increase in the stock market's ability to predict the firm's future earnings. Our study differs from Ettredge et al. (2005) in at least four respects. First, we focus on the foreign ERC while controlling for any effect on the domestic ERC. Second, we examine contemporaneous associations. Third, we test for mispricing effects using the Mishkin (1983) and hedge portfolio return tests. Fourth, we focus solely on multinational companies.

biased downwards. As investors' mispricing diminishes, the current returns/current earnings relation increases and ERCs will be higher. Thus, finding a higher valuation multiple following implementation of the new standard is consistent with reduced mispricing of foreign earnings. As discussed, Thomas (1999) finds that stocks are (temporarily) mispriced relative to the firm's current change in foreign earnings during the SFAS 14 period. As a second hypothesis, we directly test for the mispricing of foreign earnings around adoption of SFAS 131 using the Mishkin (1983) test:

H_2: Investors' mispricing of foreign earnings is mitigated by the adoption of SFAS 131.

3. VARIABLES AND SAMPLE DESCRIPTION

(i) Earnings and Returns Measures

The SEC mandates the disclosure of pre-tax earnings and taxes for both domestic and foreign operations. Using the Compustat Annual database (both active and research firms), we compute foreign earnings as pretax foreign income (#273) adjusted for foreign taxes where foreign taxes are measured as the sum of foreign income taxes (#64) and deferred foreign taxes (#270). Domestic earnings are the difference between pretax domestic income (#272) and domestic taxes (total income taxes (#16) less foreign taxes). We then compute earnings changes by differencing the earnings measures and scale by beginning of year stock price.[2]

We extract stock returns inclusive of dividends from the CRSP monthly returns file. We compute abnormal returns using the market model (using CRSP value-weighted market returns), and require availability of returns for 36 months preceding the current fiscal year. We cumulate the monthly returns starting the fourth month after the previous fiscal year end month and ending three months after the current fiscal year. Results are similar with size-adjusted returns and when requiring 60 months of returns for the market model estimation (untabulated).

(ii) Sample Selection and Descriptive Statistics

Our sample selection procedures follow Bodnar and Weintrop (1997), and we detail these procedures in Table 1. For the 'full sample,' we include US firms from 1985 to 2004 with both current and lagged observations for domestic and foreign pre-tax annual income and current and lagged income taxes. This yields a sample of 19,847 firm-year observations (3,007 firms). Requiring stock returns from CRSP reduces the sample to 17,043 observations (2,689 firms). After imposing necessary requirements to compute the market model parameters, we have a sample of 13,322 observations (2,212 firms). To ensure that our results are not driven by extreme observations, we eliminate the top and bottom half percentile of returns and standardized domestic and foreign earnings changes, resulting in a final sample for the earnings response coefficient tests of H_1 to 13,073 observations (2,187 firms). The Balanced Sample further eliminates observations prior to fiscal year 1992 and consists of 10,211 observations (1,980 firms).

2 Scaling by total assets instead of stock price does not change any inferences.

Table 1
Sample Selection

Description of the Data	*Sample Size*	
	Firms	*Obs.*
Sample of Compustat firms incorporated in the US with per share foreign and domestic earnings available (computed following Bodnar and Weintrop, 1997). We require also that the two measures are available for the previous year.	3,007	19,847
Sample with available return data (twelve-month returns compounded to three months after the fiscal year end)	2,689	17,043
Sample with available earnings and price data as well as return data to compute market model parameters (36 months of data before the current year are required). (We require that current year and previous year earnings and previous year end stock price are available)	2,212	13,322
Full sample – sample for full period (1985–2004) after eliminating observations in top and bottom half percentile of the returns and earnings variables (change in domestic and foreign earnings scaled by beginning stock price)	2,187	13,073
Balanced sample – sample resulting after eliminating observations from the Full Sample before fiscal year 1992 in order to obtain a balanced panel around SFAS 131 adoption.	1,980	10,211
Fixed sample – sample resulting after eliminating firms from the Balanced Sample that do not have data available in each of the years 1992 to 2004.	177	2,287

Finally, the Fixed Sample eliminates firms from the Balanced Sample that do not have data available in each of the years 1992 to 2004, resulting in a sample of 2,287 observations (177 firms).

Panel A of Table 2 presents descriptive statistics for the pre- and post-SFAS 131 periods. Specifically, if a firm has December fiscal year end, then the post-SFAS 131 period starts with fiscal year 1998, otherwise the post period starts with fiscal year 1999. As sample firms are multinationals, they are relatively large, with a median (mean) market value of equity of $338 million ($2.5 billion) for the pre-SFAS 131 period and $717 million ($6 billion) for the post-SFAS 131 period. Foreign revenues as a percent of total revenues have median values of 23 percent and 35 percent in the pre and post period, respectively, illustrating the growing importance of foreign operations for the average sample firm.

Panel B of Table 2 presents Pearson correlations among the dependent variable, test variables, and selected control variables. Pre- (post-) SFAS 131 correlations are presented above (below) the diagonal. Domestic and foreign earnings changes are significantly correlated with abnormal returns in both the pre- and post-SFAS 131 periods. Domestic earnings changes have a higher correlation with abnormal returns before SFAS 131, whereas foreign earnings changes have a higher correlation with abnormal returns after SFAS 131. Domestic and foreign earnings changes are moderately positively correlated.[3]

3 Variance inflation factor statistics suggest that no serious multicollinearity is present in our estimation.

Table 2
Descriptive Statistics and Correlations

Panel A: Descriptive Statistics for Full Sample

Pre SFAS 131	*N*	*Median*	*Mean*	*Q1*	*Q3*	*Min*	*Max*
Market value (millions)	7,669	337.5	2,508.5	66.9	1,609.7	36.1	164,758.8
UR	7,669	−0.076	−0.001	−0.296	0.167	−0.904	2.990
Foreign earnings	7,669	0.008	0.014	0.000	0.027	−0.903	1.340
Domestic earnings	7,669	0.033	0.003	−0.003	0.062	−2.302	2.725
ΔForeign earnings	7,669	0.000	0.003	−0.007	0.008	−0.380	0.843
ΔDomestic earnings	7,669	0.002	0.010	−0.025	0.028	−1.155	1.884
Foreign revenue share	7,473	0.233	0.258	0.091	0.395	0.001	1.000
Foreign revenue growth	6,166	0.102	0.335	−0.017	0.253	−1.000	2.552
Domestic revenue growth	7,547	0.069	0.242	−0.016	0.169	−2.474	3.708
Post SFAS 131	*N*	*Median*	*Mean*	*Q1*	*Q3*	*Min*	*Max*
Market value (millions)	5,404	717.4	5,980.3	168.5	2,937.9	51.2	467,092.8
UR	5,404	−0.116	0.059	−0.391	0.256	−0.989	30.778
Foreign earnings	5,404	0.008	0.013	0.001	0.026	−0.662	1.454
Domestic earnings	5,404	0.017	−0.010	−0.017	0.048	−2.170	1.865
ΔForeign earnings	5,404	0.001	0.005	−0.005	0.009	−0.375	0.903
ΔDomestic earnings	5,404	0.001	0.011	−0.023	0.027	−1.105	1.703
Foreign revenue share	4,687	0.351	0.366	0.205	0.501	0.000	1.000
Foreign revenue growth	4,558	0.105	0.441	−0.039	0.271	−1.000	4.555
Domestic revenue growth	5,068	0.042	0.287	−0.065	0.161	−1.000	3.954

Panel B: Sample Correlations (Pre SFAS 131 above diagonal, post SFAS 131 below diagonal)

	UR	*ΔDomestic Earnings*	*ΔForeign Earnings*	*Market Value*	*PM Domestic*	*PM Foreign*
UR	–	0.258***	0.142***	−0.009	−0.006	0.016
ΔDomestic earnings	0.132***	–	0.196***	−0.016	0.017	0.006
ΔForeign earnings	0.141***	0.107***	–	−0.014	−0.026**	0.004
Market value	−0.017	−0.011	−0.011	–	0.008	−0.006
PM domestic	0.028**	0.026*	0.020	0.014	–	0.003
PM foreign	0.010	0.016	0.050***	0.046***	−0.007	–

Notes:
Panel A: UR is annual abnormal return computed using the market model. The parameters of the market model are estimated over the 36 months preceding the current fiscal year using value-weighted market returns. The monthly returns are cumulated starting the fourth month after the previous fiscal year end month and ending three months after the termination of the current fiscal year. ΔForeign (ΔDomestic) earnings is the change in per share after tax foreign earnings (domestic earnings) scaled by the stock price at the end of the previous year. Foreign revenue share is foreign revenues as collected from the Compustat segment data divided by total revenues. Foreign (domestic) revenue growth is year-over-year percentage change in foreign (domestic) revenues.
Panel B: Pearson correlation coefficients are reported. PM is profit margin computed as foreign (domestic) after tax earnings divided by foreign (domestic) revenues. ***, ** and * denote significance at the 1%, 5% and 10% levels (two-sided tests), respectively.

4. RESEARCH DESIGN AND MULTIVARIATE RESULTS

In this section, we first briefly discuss our research design before reporting the results of our hypotheses tests, including a number of sensitivity analyses. Our tests centre on

whether the foreign ERC increases with the introduction of SFAS 131. Since our study is motivated in part by Bodnar and Weintrop (1997), and to allow easy comparisons with their results, we follow their research design and regress unexpected stock returns on changes in domestic and foreign earnings. In addition, we conduct Mishkin (1983) and hedge portfolio tests to examine whether the underpricing of foreign earnings decreases after SFAS 131.

(i) Research Design

According to Healy and Palepu (2001), potential endogeneity is the main limitation of disclosure studies. The primary advantage of our before versus after test is that it does not suffer from this potential endogeneity, as the reporting change we study is mandatory (e.g., Piotroski, 2003). In other words, the setting could be viewed as a 'natural experiment' in which to examine differential pricing in the pre- and post-SFAS 131 periods. However, the challenge with pre/post tests is controlling for potential confounding events or changes in correlated variables over the same time period. We have designed our research to minimize such concerns. First, we present results with three different samples: 'full,' 'balanced,' and 'fixed.' Using the 'Full Sample' of observations pre and post SFAS 131 increases the power of our tests and minimizes the effect that any one year's (possibly unrepresentative) data might have on our results (Ettredge et al., 2005). To address the concern that the full sample has an unequal representation in the two time periods and to increase the internal validity of our tests (as other things may change as well over our sample period), we restrict the test to an equal number of years (i.e., seven years) before and after the new standard ('Balanced Sample'). Finally, we use a fixed sample of firms seven years pre and seven years post SFAS 131 ('Fixed Sample').[4] By using a constant sample, concerns over correlated omitted variables are partially alleviated. The disadvantages of using a constant sample are that we impose survivorship bias and that we potentially lower the power of our tests due to the much smaller sample size.

Second, our tests include a within-firm control in that we also test whether the implementation of SFAS 131 affects the pricing of domestic earnings. Since the extant literature suggests significantly less information uncertainties for domestic than for foreign earnings and does not find evidence of mispricing of domestic earnings (using the Mishkin test), we expect less (if any) effect of SFAS 131 on domestic earnings.

Third, in one of our sensitivity analyses we include controls for five potentially important variables that might differ in the pre versus post periods: number of segments disclosed, profit margins, percentage of foreign revenues, firm size, and differential growth rates between foreign and domestic operations. We further control for firms undergoing structural changes, and we consider the effects of a number of other firm- and economy-level factors which we describe below. Finally, we present results of two mispricing tests to complement the ERC tests. The Mishkin procedure tests for the mispricing of foreign earnings by comparing the market's interpretation of foreign earnings persistence relative to their actual persistence. Our trading rule test examines whether investors in the pre-SFAS 131 period could earn abnormal profits by following

4 Results are similar when we instead use two – six years for our balanced and fixed samples.

Table 3

Benchmark Regressions of Unexpected Stock Returns on Changes in Domestic and Foreign Earnings

$$UR_{i,t} = \beta_{11} + \beta_{12}\Delta DomEarn_{i,t} + \beta_{13}\Delta ForEarn_{i,t} + \varepsilon_{i.t}$$

	Full Sample		*Balanced Sample*		*Fixed Sample*	
	Coeff.	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*
Intercept	0.093***	4.36	0.058***	3.88	0.026	0.93
ΔDomEarn	0.691***	11.15	0.720***	9.26	0.800***	3.01
ΔForEarn	1.390***	8.17	1.508***	7.40	1.744***	4.63
N	13,073		10,211		2,287	
Adj R^2	0.084		0.087		0.129	

Notes:
The dependent variable is annual abnormal return computed using the market model. The parameters of the market model are estimated over the 36 months preceding the current fiscal year using value-weighted market returns. The monthly returns are cumulated starting the fourth month after the previous fiscal year end month and ending three months after the termination of the current fiscal year. ΔDomEarn (ΔForEarn) is the change in per share after tax domestic (foreign) earnings scaled by the stock price at the end of the previous fiscal year. Year fixed effects are included but not reported for brevity. Firm fixed effects are also included. Standard errors are based on Newey and West (1987). Full Sample refers to the entire sample period; Balanced Sample has seven years before and seven years after SFAS131 adoption observations; and Fixed Sample requires Balanced Sample firms to have data for every year. ***, ** and * denote significance at the 1%, 5% and 10% levels (two-sided tests), respectively.

a trading strategy of going long (short) in firms with the most positive (negative) change in foreign earnings, and whether the abnormal profits disappear following the implementation of SFAS 131.

Reported significance levels are two-sided and based on Newey-West standard errors (using four lags) that correct for both heteroskedasticity and autocorrelation (Newey and West, 1987). All models also include fixed firm and year effects (not tabulated for brevity). The inclusion of fixed year effects should control for some macro events across years. However, excluding year indicators does not affect any inferences. The only effect is that the adjusted R^2s are reduced. In Table 4 we also report results where standard errors are based on the Fama and MacBeth (1973) procedure.

(ii) Benchmark Results

Table 3 shows the results of regressing unexpected stock returns on domestic and foreign earnings changes for the three samples. Consistent with Bodnar and Weintrop (1997), in all three samples both the domestic and foreign ERCs are positive and significant at less than the one percent level, suggesting that investors view both earnings streams as value relevant. Untabulated *F*-tests show that, consistent with Bodnar and Weintrop (1997), the estimated coefficient on the change in foreign earnings is significantly larger than the coefficient on the change in domestic earnings (at the one percent level), suggesting that the value of the firm is more sensitive to changes in foreign income than it is to changes in domestic income.

(iii) Tests of H_1

To test whether the foreign ERC is higher after SFAS 131 (H_1) we use the following models without and with the domestic earnings interaction, respectively:

$$\begin{aligned} \mathrm{UR}_{i,t} = {} & \beta_{11} + \beta_{12}\mathrm{SFAS131} + \beta_{13}\Delta\mathrm{DomEarn}_{i,t} + \beta_{14}\Delta\mathrm{ForEarn}_{i,t} \\ & + \beta_{15}\mathrm{SFAS131}{*}\Delta\mathrm{ForEarn}_{i.t} + \varepsilon_{i.t} \end{aligned} \tag{1a}$$

$$\begin{aligned} \mathrm{UR}_{i,t} = {} & \beta_{11} + \beta_{12}\mathrm{SFAS131} + \beta_{13}\Delta\mathrm{DomEarn}_{i,t} + \beta_{14}\Delta\mathrm{ForEarn}_{i,t} \\ & + \beta_{15}\mathrm{SFAS131}{*}\Delta\mathrm{ForEarn}_{i.t} + \beta_{16}\mathrm{SFAS131}{*}\Delta\mathrm{DomEarn}_{i.t} + \varepsilon_{i.t} \end{aligned} \tag{1b}$$

where SFAS131 is an indicator variable that takes the value of one for periods after SFAS 131 is effective and the value of zero otherwise.[5] Panel A of Table 4 reports results using pooled estimation (with Newey-West standard errors and year fixed effects). As in the benchmark regressions, both ΔDomEarn and ΔForEarn are positive and significant at the five percent level or less. The focus, however, is on the interaction term between ΔForEarn and the indicator variable for SFAS 131. For all samples, the estimated coefficient on this interaction is positive and significant. Specifically, for the full and balanced samples, the foreign ERC is significantly higher at the one percent level (two-sided tests) following implementation of SFAS 131. Using the much smaller constant sample ($N = 2{,}287$), the result remains significant at the five percent level, mitigating concerns that our results are driven by correlated omitted variables. Panel B further shows that the results are robust when standard errors are based on the Fama and MacBeth (1973) procedure. Our results thus far support the notion that foreign earnings are valued more following the new standard. The findings are consistent with SFAS 131 improving the overall disclosure related to foreign operations, resulting in a reduction in the foreign earnings valuation discount. The results of the regression specifications which include an interaction between ΔDomEarn and SFAS131 are similar. The interaction with foreign earnings remains positive and significant. The interaction with domestic earnings is, however, small in magnitude and statistically insignificant for all three samples. This finding is consistent with Thomas (1999) who did not find any mispricing for domestic earnings and with the large literature documenting significantly less uncertainty related to domestic than to foreign operations. Thus, even if SFAS 131 represents an improvement for the valuation of domestic earnings, we would expect a smaller effect than for foreign earnings.

SFAS 131 is unique in that it is the first standard to specifically address financial analysts' complaints (Botosan and Stanford, 2005). Street et al. (2000) emphasize the importance of improved consistency in segment reporting following SFAS 131. As a result, investors face less uncertainty and consequently apply a lower 'uncertainty discount' to foreign earnings post SFAS 131. Our findings are consistent with the conclusions of Herrmann and Thomas (2000), Street et al. (2000), and Behn et al. (2002) that foreign business reporting has improved under SFAS 131.

5 As a sensitivity test we have re-run our tests using total and foreign earnings changes instead of domestic and foreign earnings changes and find similar results (compare the discussion in Bodnar and Weintrop 1997, pp. 81–83).

In addition, our results provide support to Thomas' (1999) conjectures that the explanation for the discounting of foreign earnings under SFAS 14 was related to poor disclosure.

More generally, our findings are consistent with prior research that links disclosure quality with the ability of analysts and investors to predict firm performance, both with respect to overall disclosure quality (e.g., Lang and Lundholm, 1996; Lundholm and Myers, 2002; and Gelb and Zarowin, 2002) and with respect to geographic segment disclosures (e.g., Kinney, 1971; Tse, 1989; Balakrishnan et al., 1990; Nichols et al., 1995; Herrmann, 1996; and Hope et al., 2007 and 2008). Our documented increase in the size of the coefficient on foreign earnings is likely attributable to a combination of three factors. First, improved disclosures reduce the perceived noise in the earnings signal, consistent with the theoretical models of Holthausen and Verrecchia (1988) and the empirical findings of Collins and Salatka (1993). Specifically, Collins and Salatka (1993, Table 6) document an increase in earnings response coefficients of 0.917 from the pre to the post SFAS 52 period, which is quite similar to the coefficient estimate we observe (1.182). Second, improved geographic segment disclosures decrease the information asymmetry component of the cost of capital (e.g., Easley and O'Hara, 2004), allowing earnings to be capitalized at a higher rate. Finally, greater segment disclosures reduce investors' information acquisition costs and thus their discount rate (e.g., Diamond, 1985; and Kim, 1993).

(iv) Sensitivity Analyses

(a) Controlling for Number of Segments Disclosed, Profit Margin, Percentage of Foreign Revenues, Firm Size, and Differential Growth

In our first robustness test, we include controls for five factors that could vary between the pre- and post-SFAS 131 periods and thus potentially affect our regression results: number of segments disclosed, profit margin, percentage of foreign revenues, firm size, and differential growth rates. First, the number of segments disclosed may aid investors in evaluating earnings by providing more disaggregated information. Second, earnings coefficients may differ over time because of differences in profitability (e.g., Burgstahler and Dichev, 1997). If foreign operations are more profitable for firms after adoption of SFAS 131, then higher ERCs are expected and previously reported conclusions are confounded. Third, it is possible that investors pay more attention to foreign earnings when these operations are more important for a given firm (as measured by percent foreign revenues), which in turn could affect the pricing of foreign earnings. In Panel A of Table 2, we show that foreign revenues comprise a larger percentage of total revenues in the post-SFAS 131 period compared with the pre-SFAS 131 period, suggesting that it is potentially important to control for the relative magnitude of foreign operations in our tests. Fourth, ERCs may vary with firm size, as firm size relates to overall disclosure level (e.g., Lang and Lundholm, 1996). Finally, differential revenue growth between domestic and foreign operations may also explain differences in ERCs. Specifically, Bodnar and Weintrop (1997) show that the incremental impact of foreign earnings is positive when foreign sales growth exceeds domestic sales growth, suggesting that the larger coefficient on foreign earnings is evidence of greater growth opportunities

Table 4

Impact of the Adoption of SFAS 131 on the Foreign ERC

$$UR_{i,t} = \beta_{11} + \beta_{12}\,SFAS131 + \beta_{13}\Delta\,DomEarn_{i,t} + \beta_{14}\Delta ForEarn_{i,t} + \beta_{15}\,SFAS131 * \Delta ForEarn_{i.t} + \varepsilon_{i.t}$$

Panel A: Pooled Estimation

	Full Sample				*Balanced Sample*				*Fixed Sample*			
	Coeff.	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*
Intercept	0.088***	4.05	0.088***	4.05	0.002	0.10	0.002	0.09	−0.051	−0.92	−0.051	−0.92
SFAS131	−0.049**	−2.15	−0.049**	−2.15	−0.057**	−2.26	−0.056**	−2.25	−0.179	−1.54	−0.179	−1.54
ΔDomEarn	0.698***	11.29	0.698***	9.23	0.732***	9.39	0.773***	6.68	0.804***	3.03	0.804***	2.67
ΔForEarn	0.931***	5.27	0.931***	5.24	0.910***	4.11	0.886***	3.85	0.876**	2.37	0.876**	2.35
ΔDomEarn * SFAS131			0.001	0.00			−0.073	−0.46			0.000	0.00
ΔForEarn * SFAS131	1.182***	3.05	1.181***	3.04	1.209***	2.95	1.243***	2.98	1.620**	2.34	1.620**	2.34
N	13,073		13,073		10,211		10,211		2,287		2,287	
Adj R^2	0.086		0.086		0.090		0.090		0.133		0.133	

Panel B: Fama-MacBeth Estimation

	Full Sample			*Balanced Sample*			*Fixed Sample*		
	Pre 131	*Post 131*	*Difference*	*Pre 131*	*Post 131*	*Difference*	*Pre 131*	*Post 131*	*Difference*
ΔDomEarn	0.745	0.781	0.036	0.767	0.781	0.014	1.009	1.121	0.112
ΔForEarn	0.913	2.065	1.152***	0.818	2.065	1.247***	1.174	2.235	1.061*

Notes:
The dependent variable is annual abnormal return computed using the market model. The parameters of the market model are estimated over the 36 months preceding the current fiscal year using value-weighted market returns. The monthly returns are cumulated starting the fourth month after the previous fiscal year end month and ending three months after the termination of the current fiscal year. ΔDomEarn (ΔForEarn) is the change in per share after tax domestic (foreign) earnings scaled by the stock price at the end of the previous fiscal year. SFAS131 is an indicator variable that takes the value one if the observation is post SFAS 131 and zero otherwise. Year fixed effects are included but not reported for brevity. Firm fixed effects are also included. Standard errors are based on Newey and West (1987). Full Sample refers to the entire sample period; Balanced Sample has seven years before and seven years after SFAS131 adoption observations; and Fixed Sample requires Balanced Sample firms to have data for every year. ***, ** and * denote significance at the 1%, 5% and 10% levels (two-sided tests), respectively.

for foreign than for domestic operations.[6] After controlling for these five firm-level characteristics, we find that none of the reported results is materially affected (see Table 5).[7] These findings suggest that our results are not due to lack of control for the number of segments disclosed, profitability, the relative magnitude of foreign operations, firm size, or growth.

(b) Controlling for Structural Changes

Our next robustness check considers whether changes in reported segment disclosures resulting from activities including mergers, acquisitions, internal growth, and divestitures affect reported results. To ensure that our results are not driven by such corporate structural changes, we eliminate firms with a greater than 35 percent increase or decrease in total assets, as these firms are more likely to undergo major structural changes. Table 6 reports that excluding these observations does not materially affect the reported results (i.e., results with the smaller sample sizes are very similar to (and in fact somewhat stronger than) the results reported above). We have repeated this test using alternative cut-offs (20 percent and 50 percent) and find similar results. As an alternative procedure, we follow Ettredge et al. (2005) and delete firms that report a merger, acquisition, or divestiture (Compustat items 129 and 66). Similar results are obtained.

(c) Additional Robustness Tests for H_1

Given the potential for confounding effects in pre/post tests, in this section we report on a number of additional sensitivity tests. In particular, we consider effects of early adoption of SFAS 131, foreign currency adjustments, taxes, inter-temporal variations in foreign earnings persistence, non-linearities, inclusion of earnings levels, and changes in international cross-listings. The results of these tests are not tabulated for reasons of brevity but are available from the authors.

Early adoption of SFAS 131

Herrmann and Thomas (2000) report that 12 percent of their sample firms choose to adopt SFAS 131 in the year before the standard became mandatory. For this reason, we re-run our tests excluding all observations for the transition year of December 1997 through November 1998. Results are similar to those reported.

Variations in foreign exchange rates

Foreign income changes incorporate an exchange rate effect. However, Bodnar and Weintrop (1997) demonstrate that their results are not affected by changes in exchange rates. Similarly, Denis et al. (2002, footnote 16) state that their results and the results in

6 Untabulated tests show that differential growth is significantly positively correlated with future changes in foreign earnings (p-value < 0.01). As an alternative proxy for growth, we have used the foreign revenue growth and obtain consistent results.
7 Requiring data on all five control variables (and especially sales growth) results in a smaller sample size than that used in Table 4.

Table 5

Sensitivity Analyses with Five Control Variables

$$UR_{i,t} = \beta_{11} + \beta_{12}\,SFAS131 + \beta_{13}\Delta DomEarn_{i,t} + \beta_{14}\Delta ForEarn_{i,t} + \beta_{15}\,SFAS131 * \Delta ForEarn_{i.t} + Controls\ and\ Interactions + \varepsilon_{i.t}$$

	Full Sample				*Balanced Sample*				*Fixed Sample*			
	Coeff.	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*
Intercept	0.204***	6.27	0.200***	6.25	0.077**	2.14	0.068*	1.92	−0.062	−0.74	−0.053	−0.68
SFAS131	−0.040	−1.52	−0.026	−1.02	−0.046	−1.60	−0.031	−1.09	−0.269*	−1.87	−0.262*	−1.92
LOB	0.013**	1.97	0.013**	2.01	0.016**	2.14	0.017**	2.20	0.011	1.45	0.011	1.57
PM	0.000	1.10	0.000	0.21	0.000	1.00	0.000	0.27	0.001	0.04	−0.003	−0.22
FShare	−0.009	−0.28	−0.001	−0.03	−0.031	−0.85	−0.039	−0.81	−0.002	−0.04	0.055	0.53
Size	−0.014***	−4.03	−0.013***	−3.85	−0.012***	−2.94	−0.010***	−2.65	−0.003	−0.62	−0.004	−0.81
DiffGrowth	0.000	−0.84	0.000	−0.03	0.000	−0.06	0.001***	3.32	−0.008	−0.67	−0.008	−0.75
ΔDomEarn	0.698***	9.20	1.049***	5.20	0.715***	7.37	1.171***	4.53	0.502**	2.25	0.646	1.17
ΔForEarn	1.201***	3.93	1.384***	3.84	1.082***	3.09	1.381***	3.19	1.363	1.21	1.204	0.99
ΔForEarn * SFAS131	1.286***	2.84	1.340***	2.95	1.278**	2.56	1.371***	2.71	1.958*	1.86	2.311**	2.30
ΔForEarn * LOB	0.039	0.30	0.071	0.53	0.048	0.30	0.085	0.51	−0.278	−0.86	−0.218	−0.72
ΔForEarn * PM	−0.003	−0.19	0.008	0.57	−0.006	−0.37	0.002	0.14	−0.173	−0.38	−1.074*	−1.78
ΔForEarn * FShare	−0.852**	−2.23	−1.171***	−3.01	−0.689	−1.50	−1.080**	−2.33	−0.954	−0.86	−0.366	−0.34
ΔForEarn * Size	−0.008	−0.27	−0.035	−0.84	−0.001	−0.04	−0.050	−1.01	0.093	0.75	0.053	0.40
ΔForEarn * DiffGrowth	0.011*	1.79	0.009	1.57	0.019***	2.69	0.015**	2.29	0.143	0.24	0.650	0.91
ΔDomEarn * SFAS131			−0.004	−0.03			−0.038	−0.20			−0.335	−0.85
ΔDomEarn * LOB			−0.115**	−2.33			−0.102*	−1.70			−0.175	−1.48
ΔDomEarn * PM			−0.007*	−1.88			−0.006	−1.41			2.898**	2.18
ΔDomEarn * FShare			−0.418***	−3.68			−0.469***	−3.98			−0.045	−0.15
ΔDomEarn * Size			0.003	0.10			−0.015	−0.40			0.066	0.66
ΔDomEarn * DiffGrowth			−0.003	−0.88			−0.008	−4.92			1.147	1.60
N	10,503		10,503		8,266		8,266		2,043		2,043	
Adj R^2	0.101		0.105		0.100		0.105		0.139		0.147	

Notes:
The dependent variable is annual abnormal return computed using the market model. The parameters of the market model are estimated over the 36 months preceding the current fiscal year using value-weighted market returns. The monthly returns are cumulated starting the fourth month after the previous fiscal year end month and ending three months after the termination of the current fiscal year. ΔDomEarn (ΔForEarn) is the change in per share after tax domestic (foreign) earnings scaled by the stock price at the end of the previous fiscal year. SFAS131 is an indicator variable that takes the value one if the observation is post SFAS 131 and zero otherwise. LOB is number of industry segments. PM is profit margin computed as foreign (domestic) after tax earnings divided by foreign (domestic) revenues. Fshare is foreign revenues divided by total revenues. Size is market value in millions. DiffGrowth is the year-over-year percentage change in foreign revenues minus the year-over-year percentage growth in domestic revenues. Year fixed effects are included but not reported for brevity. Firm fixed effects are also included. Standard errors are based on Newey and West (1987). Full Sample refers to the entire sample period; Balanced Sample has seven years before and seven years after SFAS131 adoption observations; and Fixed Sample requires Balanced Sample firms to have data for every year. ***, ** and * denote significance at the 1%, 5% and 10% levels (two-sided tests), respectively.

Table 6

Sensitivity Analyses with Firms Undergoing Structural Changes Removed

$$UR_{i,t} = \beta_{11} + \beta_{12}\,SFAS131 + \beta_{13}\Delta DomEarn_{i,t} + \beta_{14}\Delta ForEarn_{i,t} + \beta_{15}SFAS131 * \Delta ForEarn_{i.t} + \varepsilon_{i.t}$$

	Full Sample				*Balanced Sample*				*Fixed Sample*			
	Coeff.	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*
Intercept	0.085***	3.83	0.085***	3.83	−0.012	−0.60	−0.012	−0.60	−0.023	−0.39	−0.023	−0.38
SFAS131	−0.047*	−1.92	−0.047*	−1.93	−0.051*	−1.91	−0.051*	−1.92	−0.112	−0.86	−0.109	−0.85
ΔDomEarn	0.649***	9.98	0.645***	8.78	0.663***	7.96	0.669***	6.14	0.598***	2.63	0.790**	2.53
ΔForEarn	0.930***	4.96	0.932***	4.97	0.856***	3.57	0.852***	3.48	0.833**	2.12	0.773**	1.98
ΔDomEarn * SFAS131			0.011	0.07			−0.012	−0.07			−0.339	−0.76
ΔForEarn * SFAS131	1.329***	3.21	1.326***	3.21	1.420***	3.22	1.425***	3.21	1.800**	2.48	1.914**	2.59
N	11,293		11,293		8,680		8,680		2,041		2,041	
Adj R^2	0.086		0.086		0.089		0.089		0.129		0.130	

Notes:
The dependent variable is annual abnormal return computed using the market model. The parameters of the market model are estimated over the 36 months preceding the current fiscal year using value-weighted market returns. The monthly returns are cumulated starting the fourth month after the previous fiscal year end month and ending three months after the termination of the current fiscal year. ΔDomEarn (ΔForEarn) is the change in per share after tax domestic (foreign) earnings scaled by the stock price at the end of the previous fiscal year. Year fixed effects are included but not reported for brevity. Firm fixed effects are also included. Standard errors are based on Newey and West (1987). Full Sample refers to the entire sample period; Balanced Sample has seven years before and seven years after SFAS131 adoption observations; and Fixed Sample requires Balanced Sample firms to have data for every year. ***, ** and * denote significance at the 1%, 5% and 10% levels (two-sided tests), respectively. The results in this table are based on the same regressions as in Table 4 after deleting observations with more than 35% increase or decrease in total assets. As explained in the text, results are not sensitive to using alternative cut-offs or to instead deleting observations that Compustat identifies as having either mergers or acquisitions or divestitures.

prior literature suggest that 'exchange rate volatility has little impact on the valuation effect of global diversification.' Nevertheless, we examine this issue in two ways. First, we incorporate the unrecognized foreign exchange gains or losses (Compustat item 230), recorded in other comprehensive income, into the change in foreign earnings variable. Second, we exclude the foreign currency adjustment in income (Compustat item 150) from the change in foreign earnings. No inferences are changed when using these alternative foreign income numbers.

Income taxes

Income taxes could potentially affect the valuation of foreign earnings (e.g., Collins et al., 1998). Prior studies acknowledge that it is difficult to estimate tax effects since researchers have access to external financial statements only and not to income tax records. We repeat the analysis using domestic and foreign earnings before taxes and find similar results as those reported. Although this sensitivity analysis does not exclude the possibility that firms manage their pretax earnings to minimize taxes or that tax rates have changed over time, our robustness test alleviates the concern that our results are driven by the differential tax expense for domestic and foreign operations.

Changes in earnings persistence

Ceteris paribus, if the persistence of foreign earnings increases over time, one would expect a higher valuation multiple applied to this earnings stream. To empirically test the effects of persistence on the results, we estimate domestic and foreign earnings persistence using annual cross-sectional regressions and then add these estimates as control variables to our main tests. We do not employ firm-specific estimates of persistence as there are a limited number of time-series observations (foreign earnings are not provided on a quarterly basis). We find that results are nearly identical to those reported in Table 4.

Non-linear returns-earnings specification

To explore the potential effect of non-linearity in the returns-earnings specification on the effect of SFAS 131 disclosures, we expand our regression specification by adding both a main effect and an interaction term for positive earnings innovations. Untabulated statistics show that there is no significant difference in the number of negative versus positive earnings innovations for foreign as compared with domestic earnings in the pre- and post-SFAS 131 periods.[8] Untabulated results show that positive changes in foreign earnings are priced higher following the new standard. There is no significant change in the foreign ERC when changes in foreign earnings are negative. Finding significant results for positive earnings changes alone seems intuitive, as positive earnings changes are more persistent and therefore are more representative of future firm performance. As such, positive changes in earnings better reflect concurrent changes in firm value. When accounting earnings are less likely to represent investors' valuation model (i.e., in the case of negative changes in earnings), then ERCs have less

8 We have used two different specifications for the positive earnings indicator: earnings levels and earnings changes. Inferences remain unaltered with both specifications.

ability to reflect improvements in the usefulness of accounting earnings brought about by improved disclosures.

Including both earnings changes and earnings levels

Recall that our study is motivated by Bodnar and Weintrop (1997) and that we follow their research design closely. This allows the reader to easily benchmark our results against those of Bodnar and Weintrop. Easton and Harris (1991) show, however, that both earnings levels and earnings changes (deflated by beginning of period stock price) have explanatory power when they are included simultaneously in a regression of annual returns on earnings, although earnings changes provide the predominant explanatory power for abnormal returns. Ali and Zarowin (1992) show that, as suggested by Easton and Harris (1991), the explanatory power of the earnings level variable is consistent with the presence of transitory components in annual earnings. Although we already control for earnings persistence above, as an additional robustness test we add earnings levels to the regressions. After adding domestic and foreign earnings levels as control variables, we find almost no discernible change in the estimated coefficient on the interaction between the SFAS 131 indicator and the change in foreign earnings (and no change in its statistical significance). As an additional test, we also interact the earnings levels variables with the SFAS 131 indicator. We find that the interaction between foreign earnings levels and SFAS 131 is not statistically different from zero. More importantly, the interaction between the change in foreign earnings and SFAS 131 (i.e., the increase in the foreign ERC) is positive and significant as before.

Effects of changes in international cross-listings

Another possibility is that more US firms are listed on foreign stock exchanges after the implementation of SFAS 131 than before. Such overseas listings could attract more foreign investors with greater knowledge about these companies' foreign operations. However, there are strong reasons to believe that this is not the case. First, few US firms are listed outside the US (e.g., Karolyi, 2006; and Sarkissian and Schill, 2004).[9] Second and more importantly, Frost and Gu (2004) show that there has been a marked *decrease* in the number of US firms listed on foreign exchanges over our sample period. Specifically, from Table 1 in Frost and Gu (2004) that compares the years 1992 and 2000, we see that (1) the number of US firms listed abroad decreased from 596 to 367; (2) as a percentage of firms listed on international exchanges, US firms decreased from 5.9 percent to 3.0 percent; (3) the percentage of US firms cross-listing decreases from 9.1 percent to 5.3 percent; and (4) the percentage of US firms to total foreign firms listed on international exchanges decreases from 22.2 percent to 17.1 percent. Thus, there is little reason to suspect that foreign listings by US firms can explain our result.

It is conceivable that an increase in the number of foreign companies listed on US exchanges during our sample period could imply that investors in general become more

9 In addition, even among those US firms that are listed abroad, few actually raise capital in foreign markets. There is also very limited trading of these shares on the foreign exchanges (e.g., Frost and Gu, 2004). Frost and Gu (2004) find that the advertised benefits of listing overseas, such as increased visibility through greater media coverage and a broader investor base, do not appear to be significant for US companies. They suggest that this evidence might explain the steadily diminishing numbers of US firms listed on foreign exchanges.

familiar with foreign operations and thus apply a lower valuation discount to foreign earnings of US multinationals independent of segment disclosure levels. (Recall that we already control for the percent of foreign revenues in our tests.) To control for this possibility, as an alternative to the year fixed effects we include in all reported tests, we add the number of foreign companies on US exchanges for each year to our regression. These numbers represent the sum of direct listings and ADRs on the Amex, Nasdaq and NYSE exchanges. We obtain the data from the World Federation of Exchanges (www.world-exchanges.org). No inferences are affected when we control for variations in foreign listings on US exchanges over time.

Collectively, the evidence presented in Tables 4 to 6 and the additional sensitivity analyses described above suggest that SFAS 131 had a significantly positive effect on the pricing of foreign earnings. Our results may also be consistent with reduced mispricing from SFAS 131 disclosures (Aboody et al., 2002), which we examine formally next.

(v) Mispricing Tests

To test directly whether investors' mispricing of foreign earnings as documented by Thomas (1999) is mitigated by the introduction of SFAS 131 (H_2), we employ the Mishkin (1983) framework and a zero-investment hedge portfolio test (and also footnote results of a third mispricing test).

(a) Mishkin Test

The Mishkin test determines whether the market rationally prices the foreign and domestic earnings components. More comprehensive discussions can be found in Sloan (1996), Dechow and Sloan (1997), Thomas (1999) and Herrmann et al. (2001). We view the mispricing tests as *complements* to our ERC tests. Although the Mishkin test is widely used in the empirical accounting literature, the test is subject to limitations (see for instance, Pope 2001; and Kraft et al., 2007).[10] For this reason, we do not rely on the results of the Mishkin test alone. In addition, we provide results of an alternative mispricing test (a zero-investment hedge portfolio test) in Section 4(*iv*)(b). Finally, we follow Thomas (1999) and use a *changes* specification. Such a specification is likely a stronger test of mispricing than is a levels test (and addresses to some extent the issue of potential omitted variables discussed by Kraft et al., 2007).

As in Thomas (1999), we estimate simultaneously (1) the forecasting equation for total earnings changes and (2) the rational pricing equation for abnormal earnings changes, using nonlinear least squares for the pooled (full) sample:[11]

$$\begin{aligned}\Delta\text{Earn}_{i,t+1} &= \alpha_0 + \alpha_D \Delta\text{DomEarn}_{i,t} + \alpha_F \Delta\text{ForEarn}_{i,t} + \varepsilon_{i,t+1} \\ \text{AR}_{i,t+1} &= \beta_{71} + \beta_{72}(\Delta\text{Earn}_{i,t+1} - \alpha_0 - \alpha_D^* \Delta\text{DomEarn}_{i,t} - \alpha_F^* \Delta\text{ForEarn}_{i,t}) + \xi_{i,t+1}.\end{aligned} \tag{2}$$

In the above equations, $\Delta\text{Earn}_{i,t+1}$ is total earnings change next year, $\Delta\text{DomEarn}_{i,t}$ and $\Delta\text{ForEarn}_{i,t}$ are the domestic and foreign earnings changes in the current year,

10 Pope's (2001) model relies on the assumption that earnings components are independent. In our setting, domestic and foreign ERCs are significantly positively correlated (see Table 2, Panel B), which would directly impact coefficient magnitudes for reasons other than mispricing.
11 Results for the balanced sample are very similar to those reported.

and $AR_{i,t+1}$ is the size-adjusted abnormal return one year ahead. Market efficiency imposes the constraints that $\alpha_D = \alpha_D^*$ and $\alpha_F = \alpha_F^*$. These nonlinear restrictions imply that stock prices impound correctly the persistence of total earnings changes that is attributable to both domestic and foreign earnings changes.[12]

To ensure comparability with the extant literature, we modify the computation of returns from the previous section. Adjusting the raw returns with expected returns from the market model can generate unwanted correlations with the earnings numbers from previous periods over which the parameters of the model are estimated. Following Sloan (1996), we use size-adjusted stock returns. Specifically, we compute abnormal returns by subtracting from the raw returns the value-weighted returns of the size decile portfolios provided by CRSP, where the size decile membership is determined at the time when returns start cumulating (i.e., three months after the fiscal year end). We scale earnings changes by average total assets and control for influential observations that may drive the results by eliminating all observations that have scaled earnings changes greater than 0.25, as in Thomas (1999).[13] These requirements result in a sample of 12,809 observations for the Mishkin test.

We estimate the system of equations separately for both the pre- and post-SFAS 131 periods. The results of these tests are reported in Table 7. The results for the pre-SFAS 131 period are comparable to those reported in Thomas (1999, Table 2, Panel B). The difference in the domestic earnings coefficients ($\alpha_D - \alpha_D^* = -0.002$) is not significant (with a p-value of 0.983), while the difference in the foreign earnings coefficients ($\alpha_F - \alpha_F^* = 0.383$) is significant ($p$-value 0.018).[14] These results suggest that investors rationally price domestic earnings changes, whereas investors discount foreign earnings changes even though they exhibit a lower mean reversal than domestic earnings. Specifically, stock prices underestimate the extent to which changes in foreign earnings persist (see Thomas, 1999, p. 253) in the pre-SFAS 131 period. In the post-SFAS 131 period, however, the differences in domestic coefficients or foreign earnings coefficients are economically small and insignificant (with p-values of 0.863 and 0.650, respectively). These results are consistent with the notion that improved disclosure related to foreign operations can mitigate the mispricing of foreign earnings.

(b) Hedge Return Test

As an alternative to the Mishkin test, we also provide results of a zero-investment hedge return test which closely follows Bernard et al. (1997) and Thomas (1999). We only include December year-ends for this test. This criterion ensures that the variables used to create the hedge portfolios coincide chronologically and are publicly available at the time of portfolio creation (Thomas, 1999). The positions of the hedge portfolio are held for one year and then a new hedge portfolio is created. Our criteria yield samples of 991 and 827 firms with the necessary data available for the pre and post SFAS 131 periods, respectively.

12 Market efficiency is tested using a likelihood ratio statistic that is distributed $\chi^2(q)$ and is equal to $2n \text{ Log}(SSR^r/SSR^u)$ where q is the number of constraints, n is the number of observations, SSR^c is the sum of squared residuals for the constrained system, and SSR^u is the sum of squared residuals from the unconstrained system.

13 This outlier screening reduces the sample by 2 percent. Inferences are not affected if we do not delete extreme observations.

14 Specifically, investors expect changes in foreign earnings to revert by −0.563 whereas they actually revert by −0.180.

Table 7

Mishkin Test of Mispricing

Nonlinear least squares regression of the relation between one-period ahead size adjusted returns and foreign and domestic current earnings changes

$$\Delta\text{Earn}_{i,t+1} = \alpha_0 + \alpha_D \Delta\text{DomEarn}_{i,t} + \alpha_F \Delta\text{ForEarn}_{i,t} + \varepsilon_{i,t+1}$$

$$\text{AR}_{i,t+1} = \beta_{71} + \beta_{72}(\Delta\text{Earn}_{i,t+1} - \alpha_0 - \alpha_D^* \Delta\text{DomEarn}_{i,t} - \alpha_F^* \Delta\text{ForEarn}_{i,t}) + \xi_{i,t+1}$$

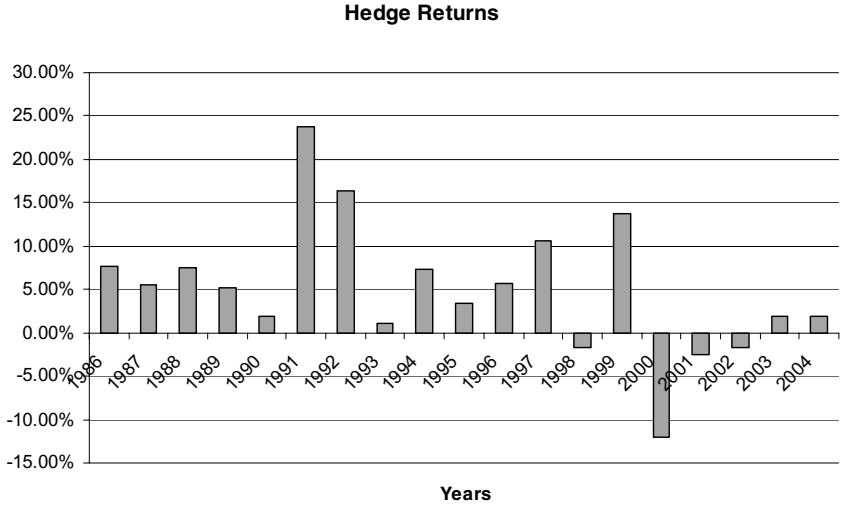
	Pre SFAS 131		*Post SFAS 131*	
	Coefficient	*t-statistics*	*Coefficient*	*t-statistics*
α_0	−0.001	−1.12	−0.001***	−2.27
α_D	−0.185***	−15.48	−0.165***	−10.78
α_D^*	−0.187***	−4.06	−0.179**	−2.04
α_F	−0.180***	−4.40	−0.134**	−2.37
α_F^*	−0.563***	− 3.56	−0.278	−0.86
β_{71}	0.020***	3.63	0.177***	14.88
β_{72}	1.012****	23.53	1.528***	11.92
N	8,152		4,657	
Market efficiency tests	*Chi-Squared Statistic*	*p-value*	*Chi-Squared Statistic*	*p-value*
$\alpha_D = \alpha_D^*$	0.001	0.983	0.029	0.863
$\alpha_F = \alpha_F^*$	5.556	0.018	0.205	0.650
$\alpha_D = \alpha_D^*$ and $\alpha_F = \alpha_F^*$	5.634	0.017	0.256	0.612

Notes:
Abnormal returns are computed by subtracting from the raw returns the value-weighted returns of the size decile portfolios provided by CRSP, where the size decile membership is determined at the time when returns start cumulating (i.e., three months after the fiscal year end). ΔDomEarn (ΔForEarn) is the change in after tax domestic (foreign) earnings scaled by the average total assets over the current year. Market efficiency is tested using a likelihood ratio statistic that is distributed χ^2 (q) and is equal to $2\text{nLog}(\text{SSR}^c/\text{SSR}^u)$ where q is the number of constraints, n is the number of observations, SSR^c is the sum of squared residuals for the constrained system, and SSR^u is the sum of squared residuals from the unconstrained system. SFAS131 is an indicator variable that takes the value one if the observation is post SFAS 131 and zero otherwise (using the Full Sample). The *F*-test for Foreign Earnings tests whether the coefficient of foreign earnings post SFAS 131 is equal to zero. ***, ** and * denote significance at the 1%, 5% and 10% levels (two-sided tests), respectively.-

Following Thomas (1999), we first rank firms based on the magnitude of total earnings changes in the prior year and assign them into 20 portfolios each year. Within each of the 20 portfolios, firms are sorted evenly into quintiles based on the change in foreign earnings in the prior year. Firms in the lowest (highest) quintile are firms that have experienced the most negative (positive) change in foreign earnings for a given change in total earnings. This procedure allows firms to be ranked on changes in foreign earnings while controlling for changes in total earnings (Thomas, 1999, p. 255). The long (short) position consists of all firms in the top (bottom) quintile of the change in foreign earnings per year. We then compute the hedge returns by taking the difference between the adjusted returns of the highest quintile portfolio (long position) and the adjusted returns of the lowest quintile portfolio (short position). We adjust the firm returns in the current year (cumulated starting from month 3 after the start of the year until three months after the fiscal year end) by the returns of a control portfolio of firms computed over the same period. The control portfolio is matched

Table 8
Hedge Return Test of Mispricing

	Pre SFAS 131 Period (1986–1997)		*Post SFAS 131 Period (1998–2004)*	
	Average	*t-stat*	*Average*	*t-stat*
Long Position Adj. Returns	5.34%***	3.76	0.99%	0.17
Short Position Adj. Returns	−2.70%***	−2.13	1.02%	0.27
Hedge Returns (Long – Short)	8.04%***	4.32	−0.03%	−0.01
N (years)	12		7	



Notes:
We first rank firms based on the magnitude of total earnings changes in the prior year and assign them into 20 portfolios each year. Within each of the 20 portfolios, firms are sorted evenly into quintiles based on the change in foreign earnings in the prior year. Firms in the lowest (highest) quintile are firms that have experienced the most negative (positive) change in foreign earnings for a given change in total earnings. The long (short) position consists of all firms in the top (bottom) quintile of the change in foreign earnings per year. We then compute the hedge returns by taking the difference between the adjusted returns of the highest quintile portfolio (long position) and the adjusted returns of the lowest quintile portfolio (short position). We adjust the firm returns in the current year (cumulated starting from month 3 after the start of the year until three months after the fiscal year end) by the returns of a control portfolio of firms computed over the same period. The control portfolio is matched based on quintiles of prior year firm size (market value of equity), book to market, and raw returns. The table reports the average annual returns to the long and short positions (and their associated *t*-statistics) as well as the hedge returns. *** denotes significance at the 1% level (two-sided test).

based on quintiles of prior year firm size (market value of equity), book to market, and raw returns.

Table 8 reports the average annual returns to the long and short positions (and their associated *t*-statistics) as well as the hedge returns. Consistent with the Mishkin results and with the results in Thomas (1999), we find that it was possible to make abnormal profits by following a trading strategy focused on changes in foreign earnings (controlling for changes in total earnings) in the pre-SFAS 131 period. Specifically, we find an economically meaningful (8.04 percent) and statistically significant (*t*-statistic of 4.32) positive return to going long in firms in the top quintile of changes in foreign

earnings and going short in firms in the lowest quintile of changes in foreign earnings. We also note that most of the abnormal return comes from the long position, not the short position. In addition, the figure in Table 8 shows that this trading strategy obtains positive returns in eleven out of the twelve pre-SFAS 131 years.

Following the implementation of SFAS 131, however, we do not find any abnormal returns to following such a strategy. The hedge portfolio return is –0.03 percent which is not significantly different from zero.[15]

Overall, we find clear evidence that the mispricing of foreign earnings is decreasing around implementation of SFAS 131. It is somewhat reassuring that standard setters mandate, and firms provide, information to investors that is useful in correcting the mispricing of foreign earnings.

5. CONCLUSION

Prior research conjectures that poor disclosure of foreign operations may cause investors to discount foreign earnings. The recent mandate of SFAS 131 brought about significant changes in the disclosure of segment information. Our study investigates whether the introduction of SFAS 131 leads to incremental pricing of foreign earnings components and thereby to some extent corrected the underpricing documented in prior research. We document that the foreign earnings response coefficient increases significantly following the implementation of SFAS 131. Our research design is constructed to minimize the concerns in 'before versus after' tests that other, unknown factors could explain the results. In particular, we use different samples, we have a within-firm control (i.e., domestic earnings), we include a number of firm-level control variables that could vary between the two periods, and we control for a host of other factors at both the firm- and economy-level that might explain results. Although one can never rule out the possibility that our results could be related to some unknown effect, we believe that our findings provide standard setters with evidence supporting the benefit of SFAS 131.

We also present results of mispricing based on the Mishkin (1983) hedge portfolio test. Consistent with our ERC tests, the results indicate that the mispricing disappears following the introduction of SFAS 131. We believe that such retesting of market mispricing based on changes in the information environment of a firm has a wide variety of applications in accounting and finance research.

REFERENCES

Aboody, D., J. Hughes and J. Liu (2002), 'Measuring Value Relevance in a (Possibly) Inefficient Market', *Journal of Accounting Research*, Vol. 20, No. 4, pp. 965–86.

Ali, A. and P. Zarowin (1992), 'The Role of Earnings Levels in Annual Earnings – Returns Studies', *Journal of Accounting Research*, Vol. 30, No. 2, pp. 286–96.

15 We have also conducted a third (untabulated) mispricing test. Specifically, following Thomas (1999) we regress one- or two-year-ahead abnormal returns on the current year's change in domestic earnings, change in foreign earnings, an interaction of the change in foreign earnings with a SFAS 131 indicator variable, and the SFAS 131 indicator variable by itself. Using either return interval, we find significant evidence of mispricing in the pre-SFAS 131 period (i.e., a positive relation between future abnormal returns and current changes in foreign earnings) that is mitigated in the post-SFAS 131 period. In other words, regardless of which of the three mispricing tests we use, we find consistent results.

American Institute of Certified Public Accountants (AICPA) (1994), *Improving Business Reporting – A Customer Focus*, Report of the AICPA Special Committee on Financial Reporting (Jenkins Committee), (New York, NY: AICPA).

Association for Investment Management and Research (AIMR) (1993), *Financial Reporting in the 1990s and Beyond: A Position Paper of the Association for Investment Management and Research*, Prepared by Peter H. Knutson (Charlottesville, VA: AIMR).

Balakrishnan, R., T. S. Harris and P. K. Sen. (1990), 'The Predictive Ability of Geographic Segment Disclosures', *Journal of Accounting Research*, Vol. 28, No. 2, pp. 305–25.

Barry, C. B. and S. J. Brown (1985), 'Differential Information and Security Market Equilibrium', *Journal of Financial and Quantitative Analysis*, Vol. 20, No. 4, pp. 407–22.

Bear Stearns (1998), 'FAS No. 131 on Segment Reporting: Management Slices the Pie', in P. McConnell (ed.), *Accounting Issues* (Bear Stearns, December 7).

Behn, B. K., N. B. Nichols and D. L. Street (2002), 'The Predictive Ability of Geographic Segment Disclosures by U.S. Companies: SFAS No. 131 vs. SFAS No. 14', *Journal of International Accounting Research*, Vol. 1, pp. 31–44.

Berger, P. G. and R. N. Hann (2003), 'The Impact of SFAS No. 131 on Information and Monitoring', *Journal of Accounting Research*, Vol. 41, No. 2, pp. 163–223.

Bernard, V., J. Thomas, and J. Wahlen (1997), 'Accounting-based Stock Market Anomalies: Separating Market Inefficiencies from Risk', *Contemporary Accounting Research*, Vol. 14, pp. 89–136.

Boatsman, J., B. Behn and D. Patz (1993), 'A Test of the Use of Geographical Segment Disclosures', *Journal of Accounting Research*, Vol. 31 (Supplement), pp. 46–64.

Bodnar, G. and J. Weintrop (1997), 'The Valuation of Foreign Income of U.S. Multinational Firms: A Growth Opportunities Perspective', *Journal of Accounting and Economics,* Vol. 24, No. 1, pp. 69–98.

———, L. S. Hwang and J. Weintrop (2003) 'The Value Relevance of Foreign Income: An Australian, Canadian and British Comparison', *Journal of International Financial Management & Accounting*, Vol. 14, No. 3, pp. 171–93.

Botosan, C. A. and M. A. Stanford (2005), 'Managers' Motives to Withhold Segment Disclosures and the Effect of SFAS 131 on Analysts' Information Environment', *The Accounting Review*, Vol. 80, No. 3, pp. 751–71.

Burgstahler, D. and I. Dichev (1997), 'Earnings, Adaptation and Equity Value', *The Accounting Review,* Vol. 72, No. 2, pp. 187–215.

Callen, J., O.-K. Hope and D. Segal (2005), 'Domestic and Foreign Earnings, Stock Return Variability, and the Impact of Investor Sophistication', *Journal of Accounting Research*, Vol. 43, No. 3, pp. 377–412.

Christophe, S. E. (2002), 'The Value of U.S. MNC Earnings Changes from Foreign and Domestic Operations', *Journal of Business*, Vol. 75, No. 1, pp. 67–93.

Coles, J. L., U. Loewenstein and J. Suay (1995), 'On Equilibrium Pricing under Parameter Uncertainty', *Journal of Financial and Quantitative Analysis*, Vol. 3, No. 3, pp. 347–64.

Collins, J. and W. Salatka (1993), 'Noisy Accounting Earnings Signals and Earnings Response Coefficients: The Case of Foreign Currency Accounting', *Contemporary Accounting Research*, Vol. 10, No. 1, pp. 119–59.

———, D. Kemsley and M. Lang (1998), 'Cross-sectional Income Shifting and Earnings Valuation', *Journal of Accounting Research*, Vol. 36, No. 2, pp. 209–29.

Dechow, P. M. and R. G. Sloan (1997), 'Returns to Contrarian Investment Strategies: Tests of Naïve Expectations Hypotheses', *Journal of Financial Economics*, Vol. 43, No. 1, pp. 3–27.

Denis, D., D. Denis and K. Yost (2002), 'Global Diversification, Industrial Diversification and Firm Value', *Journal of Finance*, Vol. LVII, No. 5, pp. 1951–79.

Diamond, D. W. (1985), 'Optimal Release of Information by Firms', *Journal of Finance*, Vol. 40, No. 4, pp. 1071–94.

Duru, A. and D. M. Reeb (2002), 'International Diversification and Analysts' Forecast Accuracy and Bias', *The Accounting Review*, Vol. 77, No. 2, pp. 415–33.

Easley, D. and M. O'Hara (2004), 'Information and the Cost of Capital', *Journal of Finance*, Vol. 59, No. 4, pp. 1553–83.

Easton, P. and T. S. Harris (1991), 'Earnings as an Explanatory Variable for Returns', *Journal of Accounting Research*, Vol. 29, No. 1, pp. 19–36.
Emmanuel, C. R. and R. H. Pick (1980), 'The Predictive Ability of UK Segment Reports', *Journal of Business Finance & Accounting*, Vol. 7, No. 2, pp. 201–18.
Ettredge, M., S. Y. Kwon, D. Smith and P. Zarowin (2005), 'The Impact of SFAS No. 131 Business Segment Data on the Market's Ability to Anticipate Future Earnings', *Accounting Review*, Vol. 80, No. 3, pp. 773–804.
Fama, E. F. and J. D. MacBeth (1973), 'Risk, Return, and Equilibrium: Empirical Tests', *Journal of Political Economy*, Vol. 81, pp. 607–36.
Financial Accounting Standards Board (FASB) (1976), 'Financial Reporting for Segments of a Business Enterprise', *Statement of Financial Accounting Standards*, No. 14, (Stamford, CT: FASB).
——— (1997), 'Disclosures About Segments of an Enterprise and Related Information', *Statement of Financial Accounting Standards*, No. 131, (Stamford, CT: FASB).
Frost, C. A. and F. Gu (2004), 'Did U.S. Firms Achieve Benefits From Listing on Overseas Equity Markets?', Working Paper (Dartmouth College and Boston University).
Garrod, N. and W. Rees (1998), 'International Diversification and Firm Value', *Journal of Business Finance & Accounting*, Vol. 25 (November/December), pp. 1255–81.
Gelb, D. and P. Zarowin (2002), 'Corporate Disclosure Policy and the Informativeness of Stock Prices', *Review of Accounting Studies*, Vol. 7, No. 1, pp. 33–52.
Handa, P. and S. C. Linn (1993), 'Arbitrage Pricing with Estimation Risk', *Journal of Financial and Quantitative Analysis*, Vol. 28, No. 1, pp. 81–100.
Healy, P. M. and K. G. Palepu (2001), 'Information Asymmetry, Corporate Disclosure, and the Capital Markets: A Review of the Empirical Disclosure Literature', *Journal of Accounting and Economics*, Vol. 31, Nos. 1–3, pp. 405–40.
Herrmann, D. (1996), 'The Predictive Ability of Geographic Segment Information at the Country, Continent and Consolidated Levels', *Journal of International Financial Management and Accounting*, Vol. 7, pp. 50–73.
——— and W. B. Thomas (2000), 'An Analysis of Segment Disclosures Under SFAS Nos. 131 & SFAS No. 14', *Accounting Horizons*, Vol. 14, No. 3, pp. 287–302.
———,T. Inoue and W. B. Thomas (2001), 'The Relation Between Incremental Subsidiary Earnings and Future Stock Returns in Japan', *Journal of Business Finance & Accounting*, Vol. 28, Nos. 9 & 10, pp. 1115–39.
Holthausen, R. and R. Verrecchia (1988), 'The Effect of Sequential Information Releases on the Variance of Price Changes in an Intertemporal Multi-asset Market', *Journal of Accounting Research*, Vol. 26, No. 1, pp. 82–106.
Hope, O.-K. and W. B. Thomas (2008), 'Empire Building and Firm Disclosure', Forthcoming, *Journal of Accounting Research* (forthcoming).
———, W.B. Thomas and G. Winterbotham (2007), 'Geographic Earnings Disclosure and Trading Volume', Working paper (University of Toronto and University of Oklahoma).
———, T. Kang, W. B. Thomas and F. Vasvari (2008), 'The Effects of SFAS 131 Geographic Segment Disclosures by U.S. Multinational Companies on the Valuation of Foreign Earnings', *Journal of International Business Studies* (forthcoming).
Karolyi, G. A. (2006), 'The World of Cross-Listings and Cross-Listings of the World: Challenging Conventional Wisdom', *Review of Finance*, Vol. 10, No. 1, pp. 99–152.
Khurana, I. K., R. Pereira and K. K. Raman (2003), 'Does Analyst Behavior Explain Market Mispricing of Foreign Earnings for U.S. Multinational Firms?', *Journal of Accounting, Auditing and Finance*, Vol. 18, No. 4, pp. 453–78.
Kim, O. (1993), 'Disagreements Among Shareholders over a Firm's Disclosure Policy', *Journal of Finance*, Vol. 48, No. 2, pp. 747–60.
Kinney Jr., W. (1971), 'Predicting Earnings: Entity Versus Sub Entity Data', *Journal of Accounting Research*, Vol. 9, No. 1, pp. 127–36.
Kraft, A. G., A. J. Leone and C. E. Wasley (2007), 'Regression-Based Tests of the Market Pricing of Accounting Numbers: The Mishkin Test and Ordinary Least Squares', *Journal of Accounting Research*, Vol. 45, No. 5, pp. 1081–114.
Lang, R. and M. Lundholm (1996), 'Corporate Disclosure Policy and Analyst Behavior', *Accounting Review*, Vol. 71, No. 4, pp. 467–92.

Lipe, R. C. (1986), 'The Information Contained in the Components of Earnings', *Journal of Accounting Research*, Vol. 24 (Supplement), pp. 37–64.

Lobo, G., S. S. Kwon and G. A. Ndubizu (1998), 'The Impact of SFAS No. 14 Segment Information on Price Variability and Earnings Forecast Accuracy', *Journal of Business, Finance & Accounting*, Vol. 25, Nos. 7&8, pp. 969–85.

Lundholm, R. and L. A. Myers (2002), 'Bringing the Future Forward: The Effect of Disclosure on the Returns-Earnings Relation', *Journal of Accounting Research*, Vol. 40, No. 3, pp. 809–39.

Mishkin, F. (1983), 'A Rational Expectations Approach to Macroeconomics: Testing Policy Effectiveness and Efficient Markets Models' (Chicago: University of Chicago Press for the National Bureau of Economic Research).

Newey, W. K. and K. D. West (1987), 'A Simple, Positive Semi-Definite Heteroskedasticity and Autocorrelation Consistent Covariance Matrix', *Econometrica*, Vol. 55, pp. 703–8.

Nichols, D., L. Tunnell and C. Seipel (1995), 'Earnings Forecast Accuracy and Geographic Segment Disclosures', *Journal of International Accounting, Auditing and Taxation*, Vol. 4, No. 2, pp. 113–26.

Piotroski, J. D. (2003), 'Discussion of 'The Impact of SFAS No. 131 on Information and Monitoring' *Journal of Accounting Research*, Vol. 41, No. 2, pp. 225–34.

Pope, P. F. (2001), '*Discussion of* The Relation Between Incremental Subsidiary Earnings and Future Stock Returns in Japan', *Journal of Business Finance & Accounting*, Vol. 28, Nos. 9&10, pp. 1141–48.

Sarkissian, S. and M. J. Schill (2004), 'The Overseas Listing Decision: New Evidence of Proximity Preference', *Review of Financial Studies*, Vol. 17, No. 3, pp. 769–809.

Sloan, R. G. (1996), 'Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings?', *Accounting Review*, Vol. 71, No. 3, pp. 289–315.

Street, D. L., N. B. Nichols and S. J. Gray (2000), 'Segment Disclosures Under SFAS No. 131: Has Business Segment Reporting Improved?', *Accounting Horizons*, Vol. 14, No. 3, pp. 259–85.

Thomas, W. B. (1999), 'A Test of the Market's Mispricing of Domestic and Foreign Earnings', *Journal of Accounting and Economics*, Vol. 28, pp. 243–67.

——— (2000), 'The Value-Relevance of Geographic Segment Earnings Disclosures Under SFAS 14', *Journal of International Financial Management and Accounting*, (Summer 2000), pp. 133–55.

Tse, S. (1989), 'Attributes of Industry, Industry Segments, and Firm-Specific Information in Security Valuation', *Contemporary Accounting Research*, Vol. 5, pp. 592–614.

White, G. I., A. C. Sondhi and D. Fried (2003), *The Analysis and Use of Financial Statements* (3rd ed., Hoboken, NJ: Wiley).