

The Effect of Mandatory Disclosure on Shareholder Wealth: Evidence from FASB Statement No. 14 and ASC 280

Zabihollah Rezaee^{1*}, Kingsley O Olibe²

¹²The University of Memphis, United States

ABSTRACT

Financial disclosures either mandatory or voluntary are essential in reducing information asymmetry between management and users of financial reports of corporations. We investigate the market's assessment of the economic effect of geographic segment data reported under ASC 280. Specifically, this paper examines the market valuation of reported foreign assets and sales prior to and post the issuance of Accounting Standards Codification (ASC) 280. Disaggregate segment disclosures and accounting practices prior to ASC 280 and after ASC 280 provide a good setting for comparing the value-relevance implications of segment data reported pre-and post-ASC 280. Using a sample of US firms and ordinary least squares (OLS) we find that both are priced with foreign sales having greater capitalization. These results persist after controlling for other determinants and factors affecting firm value. The findings suggest that the disclosure mandated by ASC 280 enhances overall disclosure related to foreign operations and as a result makes it easier for investors to assess the value of foreign operations. These findings are consistent with management's disclosure of improved segment information under ASC 280 and provide policy, practice, and research implications for segment reporting as well as other mandatory disclosures.

ARTICLE INFO

Article History:

Received : 13-07-2021

Revised : 21-02-2022

Accepted : 24-02-2022

Published : 28-02-2022

Keywords:

ASC 280

SFAS 131

Segment reporting

Market valuation

Foreign assets and sales

JEL: G14, G21, M40, M48

*Corresponding Author E-mail:

zrezaee@memphis.edu



Copyright © 2022 Authors. This is an open access article distributed under the Creative Commons Attribution License (CC-BY-SA 4.0) which permits use, distribution and reproduction in any medium, provided the original work is properly cited & ShareAlike terms followed.

INTRODUCTION

Financial disclosures, either mandatory or voluntary, are important to users of financial reports and the Financial Accounting Standards Board's (FASB) set standards to ensure users

receive useful and relevant financial information. We investigate whether segment data as measured by foreign sales and assets disclosed under Accounting Standards Codification (ASC) 280 (previously Statement of Financial

Accounting Standards, SFAS No.131) are incrementally priced compared to those reported under SFAS 14. Specifically, we examine whether investors' valuation of foreign fixed assets and sales of US firms varies with the disclosure environment (i.e., ASC 280 versus SFAS 14). Prior reporting guidelines and regulations pertaining to SFAS No. 14 issued by the Securities and Exchange Commission (SEC) in 1976 provided insufficient detail on a firm's disclosure of disaggregated segment data (Street et al. 2000). A key change in disclosures under ASC 280 is the requirement to disclose foreign fixed assets and foreign sales by geographic segment in a disaggregated form. Our study determines the extent to which the application of ASC 280 disclosures results in a differing valuation of geographic segments relative to SFAS No.14.

Currently, ASC 280 requires public companies to disclose in their financial statements certain disaggregated information pertaining to their operating segments. These segment disclosures are intended to enable financial statement users, particularly investors, to understand segment operating performance, assess the related cash flows, evaluate future growth prospects, and make informed investment decisions. The flexibility provided to management to discretionally aggregate / disaggregate segment disclosures in compliance with the current segment reporting standards has reduced comparability of segment disclosures (Botosan, Huffman, and Stanford 2019) and raised investor and regulatory concerns about economic consequences and the decision-usefulness of segment reporting (FASB 2016; SEC 2016, 2017; CFA 2018). These concerns have prompted the FASB to undertake a new segment disclosure project (FASB 2019), and Berger and Hann (2007) find that the new standards triggered more informative segment disclosure by inducing firms to disclose previously "hidden" information about their industrial diversification.

The FASB has stated that segment disclosures are intended to allow investors and other financial

statement users to see the firm "through the eyes of management." The FASB further noted that geographic segment data reported under ASC 280 would permit improved valuation of the firm's future cash flow prospects that may result in the future growth of the international diversified firms. Specifically, the FASB segment reporting project is aimed to improve transparency, comparability, and decision-usefulness of segment reporting (FASB 2019), which could either reduce information asymmetry (e.g., Easley and O'Hara 2004) or lower estimation risk (Lambert, Leuz, and Verrecchia 2007). Despite the intuitive appeal of the argument that further regulation relating to SFAS 131 (FASB 2019), the empirical literature has produced mixed results, with studies documenting a negative or positive association between stock returns and firm value (e.g., Denis et al. 2002; Dukas and Kan 2006). Thus, we examine two research questions. First, does the market pricing of the information conveyed by foreign fixed assets and sales improve after ASC 280? If so, is the improvement more on foreign assets compared to foreign sales under the mandatory disclosures required by ASC 280? We use a cross-sectional approach to examine the relation between segment information, as measured by foreign sales, foreign assets, and stock price.

Under ASC 280, the method of disclosing segment information is viewed as management approach, which is the way that management organizes the segments for making performance assessment and operating decisions. ASC 280 requires segment disclosures that are based on the firm's internal organization structure and can be presented in a timely and cost-effective manner. Management approach is flexible and could vary as it is designed to assist a firm's decision makers to make decisions about operating segments. It is possible that management in preparing segment reporting for managerial internal purposes pays no attention to the decision-usefulness of segment information to investors. It is also possible that management disclose of segment information

may not benefit shareholders (e.g., Denis et al 2002). These possibilities introduce tension in our research question of the decision-usefulness of segment reporting to shareholders and whether the disclosed segment information benefits shareholders. Our test does not suffer potential endogeneity, as the reporting period we study has mandatory accounting standards (Piotroski 2003b).

We employ a variant of the Ohlson (1995) framework to assess the market implications of segment disclosures reported under ASC 280. We consider several variants of the basic specification to raise the level of confidence in the results. We focus on foreign segment data since financial statements users likely find foreign operations more difficult to evaluate relative to domestic operations. Without understanding the impact of ASC 280 on the valuation of foreign assets and foreign sales, two essential segment data discussed in ASC 280, it is difficult for regulators to discern whether ASC 280 works as intended or whether current disclosures create unintended consequences. There are several reasons why our predictions may not be borne out empirically. Extant literature points to a limited role for accounting standards in determining observed reporting quality. A mere switch to an alternative accounting standard is insufficient to alter the properties of accounting numbers. Another concern is that corporate ethics plays an important role in reporting quality. Accounting standards alone do not fully determine financial reporting quality and transparency, as economic agents and institutional incentives also play a vital role (Ball, Robin, and Wu 2003). Accounting standards without enforcement may have a minimal effect on actual behavior of the reporting entity. Social and economic forces operating in the institutional environment likely constrain firms by pressuring them to legitimize their behavior and conform to social and ethical business norms.

Our empirical findings are in line with theoretical predictions. Specifically, we find that foreign

assets are more incrementally priced under ASC 280, indicating that information provided by firms in compliance with SFAS 131 is useful to investors and that the disclosure required SFAS 131 seems to be sufficiently material to cause investors to reassess the affected firms' foreign assets. We also report that foreign sales are not incrementally priced under SFAS 131, suggesting that information provided by firms in compliance with SFAS 14 (the prior relevant disclosure standard) was perhaps more useful to investors (e.g., Botossan and Stanford 2005). Further analysis indicates that one standard deviation increase in foreign assets, on average, raises firm value by 21.68 percent of a standard deviation and one standard deviation increase in foreign sales induces, on average, a 9.94 percent increase in firm value. Our results are robust to several sensitivity checks, including control for risk, firm size, profitability, and equity book value. Our tests of the impact of ASC 280 on firm value do not suffer from potential endogeneity, as the reporting change used in this study is mandated (Piotroski 2003b). Our study sheds light on the role of ASC 280 in the market assessment of foreign assets and sales and significantly provides insight into how the market value these segment data reported pre-and-post ASC 280. We also provide evidence of variation in the valuation of foreign assets and sales. These findings add to the previous studies that examined the usefulness of segment data disclosed under SFAS 131.

We contribute to the existing literature on ASC 280 in three ways. First, our results provide support for the FASB's view that the adoption of ASC 280 and its resulting disaggregation of segment data benefit investors. We provide evidence that reinforces the investment community's contention that such disclosures are both relevant and reliable. We believe that ASC 280 allows shareholders to exercise their ownership rights on an informed basis. This paper contributes to the literature on the real economic effects of financial reporting by investigating the joint effects of ASC 280 relative to SFAS 14.

Second, by providing empirical evidence of a direct association between mandatory geographic segment data, we build a case in support of these disclosures. Our findings are relevant to regulators and policymakers. The increasing importance of foreign operations of U.S. firms has caused the accounting and investment communities to improve the transparency and consistency of geographic segment information by introducing reporting standards which improve segment reporting. To our knowledge, this is the first study that provides evidence that the requirements of ASC 280 affect the valuation of foreign assets and foreign sales of U.S. multinational firms. Current valuation literature (e.g., Bodnar and Weintrop 1997; Hope et al. 2009) is silent and focuses on the pricing of earnings components. Neither of these research streams has investigated the impact of ASC 280 on the valuation of foreign assets and foreign sales.

Finally, our study provides policy and practice implications to accounting regulators and practitioners. The results we document are relevant to regulators and standard setters who determine the level of (dis)aggregated segment disclosures. Our findings reinforce the importance of accounting standards in reducing information disparity among different investor class and increasing reporting quality and transparency. From the predictive viewpoint, ASC 280 disclosure would be useful to investors not just predicting the operating and market performance but also in permitting a more precise determination of income, thus facilitating the evaluation of the implications of accounting regulations (e.g., ASC 280) on the various components of consolidated income for future earnings. Whether accounting standards, such as FAS ASC 280, affect investors' decisions have been an issue of considerable interest to standard setters, practitioners, and academic researchers. Second, segment information is generally regarded as an important source of useful information about a company's operations and prospects. In 1997, the United States (US) Financial Accounting Standards Board (FASB) issued SFAS

131 Disclosures about Segments of an Enterprise and Related Information (now ASC 280; FASB, 1997) to improve the quality of segment information provided by companies. Understanding how accounting standards influence equity valuation is of interest to practitioners and academics because of the potential for investors to more precisely forecast earnings, undertake trading activity, and estimate firm value. The evidence in our study suggests that accounting standards are useful for the purpose of lowering investment risk. As Easley and O'Hara (2004) note, opaque financial reporting impairs coordination between firms and their investors with respect to the firms' capital investment decisions and thereby creates information risk (Easley and O'Hara 2004).

The remainder of the paper proceeds as follows. Section 2 provides background information, summarizes prior research, and develops hypotheses. Section 3 explores our research method and data collection. Section 4 presents our results, and Section 5 summarizes and presents conclusions.

LITERATURE REVIEW

Institutional Background

In 1976 the FASB introduced SFAS 14, which mandates the disclosure of identifiable assets and sales revenues by business and region with the primary objective of providing investors with useful information for assessing the overall profitability and risk of firms of segments operating in diverse industries and geographic regions. The CFA Institute in its 1993 position paper requests that financial statement information be disaggregated to provide more information for each segment [AIMR 1993].

Under SFAS 14, firms were required to report segment data based on both line-of-business and geographic area with no specific linkage to the internal organization of the firm or the measurements that were employed for internal decision making. Firms were also required to

disclose information on revenues, assets, and earnings by geographic segment if geographic revenues or assets exceed 10 percent of the consolidated amounts.

ASC 280 issued in June 1997 and became effective after December 15, 1997, takes a different approach to segment reporting. Under ASC 280, segment information is reported in accord with the way management organizes the firm internally for making operating decisions and assessing performance (e.g., lines of products and services, geographic area, major customer, long-lived assets). This approach to segment reporting is referred to as the “managerial approach” [FASB 1997, para. 4]. ASC 280 was implemented to provide additional information concerning foreign operations, which investors and analysts can use to better understand and evaluate a firm. A segment must be reported if much of its revenue is from external customers and if one of the following criteria is met: [1] segment revenues are 10% or more of total revenue; [2] segment income [loss] is 10 percent or more of all segments with a profit (loss), whichever is greater in absolute value; or [3] segment assets are 10% or more of total assets.

SFAS 131 also requires the disclosure of customers that provide more than 10 percent of company-wide revenue and the segment in which those revenues are reported. SFAS 131 regulation applies only to public business entities, remains in force, and is now codified as ASC 280, Segment Reporting. Under ASC 280, operating segment is defined as a part of a firm with distinct financial information about the operating results of its business activities that are often reviewed by the chief operating decision-maker in evaluating performance, in addition to making “resource allocation decisions” (Botosan, Huffman and Stanford 2017). ASC 280 also requires the disclosure of two items by geographic area: sales revenues from external customers and long-lived assets. These disclosures must be made for each country in which a material amount of sales revenues or long-lived assets is located. While ASC 280

comprehensively improved and standardized the accounting for geographic segment data, it does not require the disclosure of earnings (e.g., Hope et al. 2008). Segment data disclosed under ASC 280 should help financial statement users better assess the implications of geographic segment data on prices/returns. In particular, ASC 280 disclosures allow investors to perform segment analysis for each segment data. Such analysis not only improves the ability of investors to understand the impact foreign assets have on prices.

The evolution of segment reporting is attributed to the SEC regulation. As Botosan et al. (2017) points out, the SEC commenced requiring line-of-business information in registration statements in 1969. In 1970, the SEC extended the requirement to annual reports filed with the SEC, and by 1974, to annual reports sent to security holders of firms filing with the SEC. Business segments identified through the application of ASC 280 provide the basis for segregation in the business and MD&A section of a firm’s SEC filings. Regulation S-K, Item 101 (b) requires disclosure of segment financial data including revenues from external customers, a measure of profit/or loss, and total assets, restatement of prior period information when there is a change in reportable segments. Also, Item 101 (d) requires disclosure of financial information by geographic area of operation. Finally, in August 2018, the SEC issued a final rule modifying some disclosure requirements the Commission assessed as repetitive and outdated. These are “contained in the SEC, Disclosure Update and simplification, Final Rule.” It eliminated Items 10 (b) and 10 (d) of Regulation S-K, Item 7(b) of Form 1-A, and Rule 3-03 € of Regulation S-X. The items dropped are regarded as “duplicative of segment reporting requirements under US GAAP” (Botosan et al. 2017).

Related Research

Several studies (e.g., Street et al., 2000; Hermann and Thomas, 2000; Behn, Nichols and Street, 2002; Hope et al., 2008) investigate the general

question of whether SFAS 131 has resulted in increased disaggregated disclosures and suggest that: (1) SFAS 131 altered the way some firms report their line-of-business (LOB) segments information; under SFAS 131, few firms reported more items of information about each reportable segment, suggesting lack of comparability due to FASB's decision not to define segment profit or loss; and (3) significant changes in segment reporting under SFAS 131 regime relative to segment reporting under SFAS 14, while a significant number of firms continue to report segment information in an inconsistent basis. Herrmann and Thomas (2000) analyze the nature of segment disclosures under SFAS 131 versus SFAS 14 and report that there has been an increase in the number of firms providing segment disclosures and firms disclosing more items for each operating segment and such that disclosure of earnings by geographic area has declined substantially, because SFAS 131 does not require the disclosure of foreign income in enterprise-wide disclosures of earnings by geographic area has declined substantially as SFAS 131 does not require this item to be disclosed. Hope, Kang, Thomas, and Vasvari, (2008), using cumulative abnormal returns, compare performances of foreign versus domestic income during the adoption of SFAS 131, find systematic differences in investors' responses to foreign and domestic earnings, and report that changes in the number of geographic segments in which the firm operates are incrementally value relevant beyond other SFAS 131 disclosures.

As Barth et al. (2012) note, the SEC is interested in comparability of accounting information, not just comparability of standards. In this setting, we define comparability as the market pricing of foreign assets and sales from two different accounting standards (ASC 28 and SFAS 14) and determine whether they explain the same variation in economic outcomes. Financial data comparability is important in improving the usefulness of summary accounting numbers used extensively by the investment community (e.g., banks and institutional investors). Standard setters regard comparability as a central feature

of the financial reporting system (e.g., Barth et al. 2012). Prior research generally suggests that geographic segment disclosures under SFAS 131 seem to be more beneficial to investors; however, Hope and Thomas (2008) find that since geographic earnings are no longer required under ASC 280, firms appear to engage in empire building (i.e., firms increase foreign sales but report lower foreign profit margin). Thus, whether we find an increase in the valuation of certain dimensions of the increased disclosure (e.g., foreign sales), may be a dual test of 1) whether the disclosures were more informative of underlying firm value and 2) whether changes in disclosure created incentives that may dampen valuation (e.g., empire building and reduced foreign profit margins).

The role of foreign sales in valuation has not been ultimately decided. For example, Denis et al (2002) using the Berger and Ofek (1995) excess value framework, report that foreign sales reduce shareholder value by 18%, while industrial diversification results in a 20% loss in shareholder value. Conversely, using a similar excess valuation measure, Bodnar et al. (1999) finds that shareholder value increases with foreign sales. Whether foreign sales and foreign assets are incrementally priced under ASC 280 remains an empirical question, since prior work finds mixed results for the valuation of foreign sales e.g., Denis et al. 2002). Further, Doukas and Kan (2006) report that the coefficient estimates of their foreign involvement variable, measured as a foreign sales ratio, are statistically insignificant, suggesting that there no shareholder wealth loss to foreign operations in unlevered bidder firms. We seek to synthesize previous work and provide new evidence on this conflicting and important issue.

Other studies document that ASC 280 contributes to more reliable and useful segment information (Herrmann and Thomas 2000; Street et al. 2000; Ettredge et al. 2005, 2006). ASC 280 provides market benefits for the investment community since quality disclosure reduces information

disparity between insiders and outsiders. Doupnik and Seese (2001) argue that data presented at a less aggregated segment level should be at least as useful as more aggregated data. The survey results of Berger and Hann (2003a) report that both analyst and market expectations are impacted by the release of SFAS 131. Conversely, Hope and Thomas (2009, 591) note that, "nondisclosure of geographic area information creates incentive for managers to engage in 'self-maximizing' decisions that may not necessarily serve the interest of shareholders." As Easley and O'Hara (2004) point out, improvements in the disclosure environment can reduce the risk premium of equity investments and make investors more risk neutral.

Although prior literature shows that foreign earnings are valued more than domestic income [Bodnar and Weintrop 1997; Hope et al. 2008], and segment disclosures increased subsequent to SFAS 131 (Street et al. (2000), none of these other studies investigates the influence of ASC 280 on the market's assessment of foreign assets versus foreign sales, two valuable geographic segment accounting data mandated for disclosure by ASC 280.

Hypotheses Development

Bushman and Smith (2001) provide an overview of the extant literature that documents how financial accounting information is an important source of information used by shareholders in making investment and trading decisions. The increasing trends toward economic integration and global investment have increased the need for understanding how investors use segment data as US firms expand overseas. Management judgments are required in determining the operating segments and whether these segments are reportable. In making decision about reportable segments, management should consider whether the segment disclosures provide useful information in understanding the firm's business activities and operations and how management use segment information in managing the business. Management can choose

to provide limited information that may not be useful to investors in assessing segment performance. Alternatively, management may choose segment information to benefit one group of investors (shareholders) at the expense of the other group (debtholders). Thus, management will record geographic segment data if they deploy assets and have sales to foreign customers. Similarly, in the absence of enforceable restrictions over the reporting of segment accounting information, management may report or not report an economic location of long-lived assets and /or sales abroad, if there are explicit [e.g., contractual] or implicit [e.g., perceived stock market effects] reporting incentives to do so.

Firm value may have a greater association with foreign assets and foreign sales after the standard is adopted, as its guidance may result in a better reflection of the firm's economics. Quality disclosures such as SFAS 131 reduce the information asymmetry component of equity capital because investors tend to discount the value of stocks for which there is limited information [Verrecchia 2001]. To the extent SFAS 131 improves firms' disclosures of geographically disaggregated data SFAS 131 can be expected to be informative about the underlying cash flow of the firm. Further, consistent with prior research that links disclosure quality with ability of financial analysts and investors to predict firm performance [e.g., Lang and Lundholm 1996; Lundholm and Myers 2002], we anticipate investors to face lower uncertainty by having access to disaggregated foreign sales and foreign assets.

On the other hand, the firm's value may have a weak association with foreign assets and foreign sales around SFAS 131 adoption. This could arise, for example, if managers are not able to leverage the now more-defined criteria of SFAS 131 disclosure requirements. If ASC 280 financial reporting requirements were uninformative about shareholder wealth, then such regulation would be an uneventful exercise. The information supplied by managers under SFAS 131 reflects

information about managers' activities only as reported in a given period. While all market participants, in theory, have equal access to the same public information, each may process and interpret the information differently or have relevant private information, hence, there can be ambiguity about the implications of available data regarding the pricing of geographic segment information under SFAS 131. Given that prior research finds that SFAS 131 enhances segment reporting consistency and asserts that investors can now determine a firm "through the eyes of management," the net impact of SFAS 131 on the market's pricing of foreign assets and foreign sales is an empirical question that is addressed in this study. Specifically, the alternative hypothesis of this study is:

H1a: The association between foreign fixed assets / foreign sales and stock price is stronger after mandatory ASC 280 adoption.

The FASB's discussion of the motive for the usefulness of segment data presupposes two characteristics of the accounting data. First, it suggests that geographic segment information is relevant for security valuation, to the extent that the information permits improved estimates of the amounts and timing of future cash flows. Prior research finds overall positive effects of (dis)aggregate segment disclosures, including lowering the cost of capital, improving market's ability to predict future earnings, and increasing firm value (Ettredge, Kwon, Smith, and Zarowin 2005; Tse 1989; Botosan et al. 2009; Chen and Liao 2015; Olibe et al., 2019). Second, it implies that the analysis of diversified firms' foreign operations can be improved by assessing each segment's information. We argue that a greater level of foreign sales and fixed assets can contribute to a greater amount of market and operating performance because of the income effect on global income of US MNCs. We further contend that corporate diversification can affect debt via its effect on firm's expected cash flow and its effect on the variance of cash flows (Olibe et al. 2019).

The potential exists for the economic implications

of foreign assets and foreign sales to vary with the introduction of ASC 280. We argue that foreign assets should be valued less than foreign sales because financial statement users likely find foreign long-lived assets more difficult to assess relative to foreign sales, as fair value information is generally more difficult to obtain for long-lived assets due to their lower liquidity. Unlike foreign sales, foreign assets reflect current as well as historical measures and are subject to allocations and estimations. Foreign sales will generally best reflect the portion and significance of business transactions conducted in foreign countries. Moreover, foreign sales are a relatively current measure of foreign activity and are easy to process by investors. This discussion leads to the second hypothesis (stated in the alternate form) as follows.

H2: Foreign sales have a stronger relation with price than foreign fixed assets after mandatory ASC 280 adoption.

RESEARCH METHOD

Valuation Research Design

All valuation models build on the principle that a firm's market price is equal to investors expected discounted future cash flows. There are two basic types of valuation models in the value relevance studies. The annual returns model describes the linkage between stock returns and accounting earnings (e.g., Ball and Brown 1968; Easton and Harris 1991). The alternative model of price-based valuation is also used by researchers (e.g., Ohlson 1995, 1999; Barth et al. 1998; Burgstahler and Dichev 1997; Chen and Zhang 2003; Ried 2004, among others). Relatively speaking, price models have two advantages over return specifications. First, "if stock markets anticipate any components of accounting earnings and incorporate the anticipation in the beginning stock price (e.g., prices leading earnings), return models will bias earnings coefficients toward zero" (Liu and Liu 2007, 66). Conversely, price specifications yield unbiased earnings coefficients because stock prices reflect the cumulative effect of earnings disclosure (Kothari and Zimmerman 1985). Second, return models only allow the assessment of the value

relevance of accounting earnings whereas price models based on Ohlson (1995, 1999) show how a firm's market value is associated with both book values of equity and accounting earnings.

Consequently, this paper uses a variant of the Ohlson (1995, 1999) valuation models to compare the extent to which SFAS 131 reflects the market's assessment of firm value. In the valuation equation, the dependent variable is market value of common equity outstanding, and the seven independent variables are book value of common equity, adjusted and unadjusted for foreign assets (BVE-ADJ and BVE), abnormal earnings (AEARN), long-term debt (LEV), risk (BETA), industry classification (IND) and year dummy variables (YR). we discuss the control variables in more details below and estimate the following equation:

$$PRICE_{it} = \beta_0 + \beta_1 FAR_{it} + \beta_2 AEARN_{it} + \beta_3 BVE-ADJ_{it} + \beta_4 LEV_{it} + \beta_5 BETA_{it} + \sum_{j=1}^7 FIRM_{jit} + \sum_{y=1}^8 YR_{it} + \varepsilon_{it} \quad (1)$$

$$PRICE_{it} = \beta_0 + \beta_1 FOSA_{it} + \beta_2 AEARN_{it} + \beta_3 BVE_{it} + \beta_4 LEV_{it} + \beta_5 BETA_{it} + \sum_{j=1}^8 IND_{it} + \sum_{y=1}^8 YR_{it} + \varepsilon_{it} \quad (2)$$

where: PRICE_{it} = market value of common equity at year-end scaled the number of common shares outstanding.

FAR_{it} = firm i's identifiable foreign assets scaled by total assets.

EARN_{it} = firm i's abnormal earnings at year-end scaled by the number of common shares outstanding.

BVE-ADJ_{it} = firm i's book value of common equity, excluding foreign assets divided by common shares outstanding.

LEV_{it} = firm i's long-term debt scaled by total assets.

BETA_{it} = equally weighted market model beta for firm i at time t with a minimum of 60 monthly returns

FOSA_{it} = firm i's overseas subsidiary sales plus exports as a percentage of total sales.

IND_{it} = a vector of industry dummy variables corresponding to two-digit SIC codes.

YR_{it} = a vector of year dummies corresponding to the period 1999-2015.

ε_{it} = the residual.

The subscripts i, t, and k refer to company, year, and industry respectively.

Variable Measures and Definitions

Dependent Variable

The dependent variable is price is market value of common equity divided by the number of common shares outstanding at the end of fiscal year t for firm i. Price summarize not only investors' assessment of firms' asset values and expectations about future operating performance, but also effects of firms' investing and financing decisions (Aboody et al 1999). Deflating market value of common equity, book value adjusted for long-lived assets and earnings by number of shares outstanding is consistent with prior studies [e.g., Collins et al., 1998; Louder et al., 1996; Bell, Landsman, Miller and Yeh, 2002].

Test Variables

FAR_{it} is the firm i's identifiable foreign assets (GDATA5) reported in the Annual Compustat Geographic Segment file. Foreign assets capture the firm's relative economic globalization and geographical structural location and provide a measure of a firm's dependence on overseas production capacity. FOSA is defined as overseas subsidiary sales plus exports as a percentage of total sales. We expect positive coefficients on foreign sales and foreign assets. The foreign sales to total sales can be viewed as a proxy for a firm's dependence on its overseas markets for sales revenues.

Control Variables

We control for other factors that conceptually relate to MVE, the dependent variable. We include abnormal earnings (AEARN_{it}) computed as NI_{it} - rBVE_{t-1}; NI_{it} equals net income before extraordinary items and discontinued operations for fiscal year t; BVE_{it} is the book value of common equity at the fiscal year t, minus foreign assets in model 1. Consistent with Aboody et al. (1999, 165) and Louder et al. (1996, 363), we include book value of common equity, excluding foreign assets (BVE-ADJ) in Equation 1. In Equation [2], we include unadjusted book value

of common equity (BVE). Equity book value is a measure of net assets that generate returns on equity; it may be viewed as a proxy for the present value of the benefit stream associated with a firm's reported net assets. Beaver and Ryan (2000) argue that variation in book-to-market ratios is a function of two components: biased accounting recognition and lagged accounting recognition. They suggest that the bias component of book-to-market reflects persistent differences between book and market values resulting, in part, from conservative accounting. Lag and bias in book-to-market ratios may result in a negative relationship between share price and market-to-book ratios. Based on prior research, we expect the coefficients on BVE and AEARN to be positive.

Prior market valuation studies suggest that market participants incorporate risk in valuation. Thus, we include leverage (LEV) as a control for risk. In addition, leverage provides control for the global organization's reliance on debt financing in its capital structure. Beaver and Ryan (2000) show that leverage can proxy for investment for the firm. To the extent that these firms maintain a high debt to equity ratio in general, we expect a negative association between LEV and MVE. Industry dummies (IND) is a vector of industry classification included to control for interindustry differences in earnings and mitigate intertemporal residual dependencies. YR is included to control for microeconomic factors (e.g., exchange rates or stage in economic cycle). Following Dechow et al. (1999) and Barth et al. (1999), we set the expected rate of return on book value of common equity, r , at 12 %, the long-term return on equities. The error term reflects other information as well as random error. Beta is included to control for risk.

Although defining AEARN based on net income before extraordinary items and discontinued operations violates the clean surplus assumption in (Ohlson 1995), it eliminates potentially confounding effects of large one-time items and is consistent with prior empirical research (e.g.,

Dechow et al. 1999; Barth, et al. 1999). Ohlson (1999, p. 160) concludes that this approach is "justified in empirical work because one-time items have no predictive." We do not rely on the Ohlson's (1995) model as basis for interpreting our predictions "because it relies on several restrictive assumptions," such as clean surplus and a particular linear information model. This study uses level rather than the first difference research design. As Beaver (2002, 462) points out, a researcher "chooses the levels design when the problem is to determine what accounting numbers are reflected in firm value, whereas one chooses the first difference research design when the problem is to explain changes in value over a specific period of time." Thus, in the first differences formulation, the issue of timing of the information is essential.

Empirical Measures and Data

The sample firms are from Compustat Annual Geographic Segment file for 1998-2018 period. International corporate diversification measures are foreign assets and foreign sales. After SFAS 131 adoption, firms began reporting identifiable long-lived assets. In addition, Compustat codes geographic asset data as missing if the firm does not report total assets, even though this firm is likely reporting long-lived assets. This change further reduced the number of observations in foreign assets. We also require that firms have long-term liabilities, book, and market values of equity through 1995-1997 and 1998-2003. We obtain monthly stock returns for a minimum of 36 months of the eight-year sample periods from CRSP database. Table 1 summarizes the sample selection process. We include firm-year observations from 1995 to 2003 in the sample to capture the effect of SFAS No. 131. The number of observations ranges from 459 to 998--depending on the variable.

Choice of Geographic Segment Measure

Two measures were considered as a proxy for the level of international diversification: (1) percentage of foreign assets to total assets (FAR) and percentage of foreign sales (revenue), to total sales, i.e., sales to foreign customers (FOSA). First,

Table 1. Sample Selection (1995-2003)

Sample for Testing H1 and H3	Observations
Initial sample with necessary data available in Compustat (1995-2003)	1104
Less observations with missing market value of common equity (MVE)	-73
Remaining observations with market value of common equity (MVE)	1031
Initial sample with necessary data available in Compustat (1995-2003)	1104
Less observations with missing foreign assets (FAR)	-645
Remaining observations with foreign assets (FAR)	459
Initial sample with necessary data available in Compustat (1995-2003)	1104
Less observations with missing foreign sales (FOSA)	-263
Remaining observations with foreign assets (FOSA)	841
Initial sample with necessary data available in Compustat (1995-2003)	1104
Less observations with missing market- to- book value of equity (MTB)	-744
Remaining observations with market-to book value of equity (MTB)	360
Initial sample with necessary data available in Compustat (1995-2003)	1104
Less observations with missing net income (EPS)	-134
Remaining observations with net income (EPS)	970
Initial sample with necessary data available in Compustat (1995-2003)	1104
Less observations with missing total debt (LEV)	-248
	856
Initial sample with necessary data available in Compustat (1995-2003)	1104
Less observations with missing total sales (SIZE)	-106
Remaining observations with total sales (SIZE)	998

FAR was selected because it reflects current and historical measures of a firm's productive assets located overseas. Second, foreign assets capture the firm's relative economic globalization and geographical structural location and provide a measure of a firm's dependence on overseas production. FOSA was selected for various reasons. First, foreign sales as a percentage of total sales would generally reflect the proportion and significance of business transactions conducted in foreign countries versus total world transactions. Second, foreign sales are a relatively current measure of foreign activity, while assets reflect current as well as historical measures. Third, sales are relatively free of allocations and estimations required to allocate assets and the various expense components of operating income.

RESULT AND DISCUSSION

Descriptive Statistics

Table 2 reports the cross-sectional annual mean, median and standard deviation estimate of the variables used in the analysis (MVE, FAR, FOSA, AEARN, BVE-ADJ, BVE, BETA and LEV). Untabulated minimum (maximum) values of market value of equity are \$126.88 million (\$508,329.46 million), minimum (maximum), total assets are \$487.89 million (\$647,483 million), and maximum (minimum) total sales are \$310 million (\$ 184,214 million). These summary statistics suggest that the sample firms are relatively large firms, and there is significant variability in the firms. The average [median] foreign assets deflated by total assets are 34.26 percent (34.94 percent) of total assets, and the mean (median) foreign sales to total sales are

39.61 (38.76) percent, indicating that both foreign assets and foreign sales are of economic significant to the firm. The mean (median) annual MVE is \$43.67 (\$40.00), indicating that MVE has a balance distribution as the mean and median are close. The average (median) leverage is 16.61 percent (16.20 percent), indicating that external financing is economically significant to the firm, which also suggests that leverage has a balanced distribution as the mean and median are very close. Abnormal earnings (AEARN) for the entire sample show an average (median) of 3.3050 (2.9568). Equity book value ratio [BVE] average [median] is 14.9506 (11.6589), while the mean

(median) of book value of equity adjusted for foreign assets is 1.9455 (2.0613), all for the entire sample.

Because multicollinearity among the independent variables is a potential concern, we present in Table 3, both Pearson and Spearman correlation coefficients for the set of variables. Shown above the diagonal is Pearson (P) correlation and below the diagonal is Spearman (S) correlation. Foreign assets (FAR) and foreign sales ratios (FOSA) are as expected, significant and positively correlated with MVE [P = .080, S = .040, for foreign assets and P = .196; S = .172 for foreign sales], suggesting that foreign operations have the potential to

Entire Sample: Panel A

Table 2. Descriptive Statistics for the Regression Variables

Variable	N	Mean	Std. Dev	Q1	Median	Q3
MVE	1031	43.6719	26.0729	25.75	40000	56.5
FAR	459	0.3426	0.1463	0.2395	0.3494	0.4268
FOSA	841	0.3961	0.2123	0.2679	0.3876	0.5028
AEARN	806	3.3050	2.6347	1.5372	2.9568	4.7452
BVE	870	14.9509	11.9512	7.3850	11.6589	18.9276
LEV	831	0.187	0.1262	0.0906	0.1847	0.2668
BETA	1018	1.1639	.7023	.6977	1.0703	1.5281
BVE-ADJ	865	1.9455	4.4323	-.5103	2.0613	4.8454

Panel B: Pre- SFAS

131	N	Mean	Std. Dev	Q1	Median	Q3
MV	379	48.1494	23.8652	32.062	45	62.25
FAR	354	0.3452	0.1408	0.2459	0.3499	0.4264
FOSA	360	0.3920	0.2661	0.2632	0.359	0.4904
AEARN	314	5.1814	4.6345	2.4127	3.77890	6.6554
BVE	315	15.1949	9.6606	8.4969	12.8865	20.2283
LEV	323	0.1661	0.1065	0.0936	0.1620	0.2228
BETA	373	1.1688	.6669	.7294	1.0352	1.4428
BVE-ADJ	299	.5015	11.4914	-2.0211	2.0042	12.8865

Panel B: Post-SFAS

131	N	Mean	Std. Dev	Q1	Median	Q3
MV	652	41.0691	26.9519	22.235	37.285	54.125
FORAS	105	0.3339	0.1641	0.1868	0.3486	0.4375
FOSA	481	0.3991	0.1609	0.275	0.3942	0.5152
AEARN	562	3.8078	5.0927	1.2730	2.6348	4.8532
BVE	556	14.7958	13.0741	6.7500	11.1788	18.0426
LEV	587	0.2047	0.1326	0.109	0.2166	0.2914
BETA	645	1.1610	.7225	.6691	1.0900	1.5751
BV-ADJ	96	2.4099	8.3276	-.0159	2.6949	5.9861

improve share liquidity. FAR is moderately, inversely and significantly correlated with BVE, adjusted for foreign assets (P = -.600; S = -.633). As expected, we note that FAR and FOSA are positively and significantly correlated (P = .461, S = .714). Abnormal earnings [AEARN] is as expected, positive and significantly correlated with MVE (P = .475, S = .578), suggesting that firms with higher income have higher equity value. Both LEV and BETA are as expected, negative, and significantly correlated with PRICE (P = -.150, S = .109 for LEV and P = -.358, S = -.357 for BETA), which suggest the adverse effect of leverage and risk on shareholder value. Tabulated correlations for both pre-and-post SFAS 131 reported in Panels B and C of Table 3

are similar to those reported for the entire sample, Panel A of Table 3.

Price and FAR Results

In this section, we report results of hypothesis test, including several sensitivity analyses. These tests focus on whether foreign assets and foreign sales are valued higher during the implementation of ASC 280. All regressions are estimated using ordinary least squares.

Table 4 reports the results of estimating equation [1] to test Hypothesis 1 regarding whether foreign assets are valued higher around ASC 280 adoption than pre-ASC 280 period. Column [1] of Table 4, presents the results of the entire

Table 3. Pearson and Spearman Correlation Matrix
(Pearson above the diagonal and Spearman below the Diagonal)

Panel A: Entire Sample

	MVE	FORAS	FOSAL	AEARN	BV-AJD	BVE	LEV	BETA
MVE	1	.172**	.039	.474**	-.040	.333**	-.150**	-.358**
FORAS	.196**	1	.461**	.074	-.600**	.031	-.125*	-.055
FOSAL	.028	.714**	1	-.151**	-.404**	-.155**	-.152**	.184**
AEARN	.578**	.051	-.178**	1	-.086	.467**	.298**	-.270**
BV-ADJ	-.063	-.633**	-.432**	-.100	1	.261**	-.067	.083
BVE	.361**	-.010	-.157**	.483**	.298**	1	.271**	-.130**
LEV	-.109**	-.164**	-.272**	.243**	.022	.439**	1	.056
BETA	-.357**	-.083	.196**	-.404**	.092	-.150**	-.150**	1

Panel B: Pre-ASC 280

	MVE	FAR	FOSA	AEARN	BVE-ADJ	BVE	LEV	BETA
MVE	1	.146*	.088	.612**	.013	.561**	-.098	-.305**
FARASS	.174**	1	.463**	.017	-.575**	.008	-.199**	-.022
FOSAL	.068	.747**	1	-.094	-.439**	-.127*	-.223**	.104
AEARN	.719**	.069	-.144*	1	-.102	.695**	.281**	-.215**
BV-ADJ	-.010	-.623**	-.448**	-.108	1	.250**	-.099	.035
BVE	.545**	.030	-.118*	.685**	.242**	1	.090	-.223**
LEV	-.105**	-.187**	-.334**	.380**	-.020	.382**	1	.004
BETA	-.289**	-.025	.138**	-.284**	.037	-.227**	-.182**	1

Panel C; Post-ASC 280

	MVE	FORAS	FOSAL	AEARN	BV-ADJ	BVE	LEV	BETA
MVE	1	.235*	.010	.396**	-.176	.249**	-.165**	-.382**
FAR	.237*	1	.513**	-.238*	-.669**	.092	.060	-.177
FOSA	.001	.612**	1	-.180**	-.341**	-.171**	-.163**	.290**
AEARN	.497**	-.049	-.176**	1	.126	.308**	.236**	-.337**
BVADJ	-.178	-.658**	-.411**	-.037	1	.389**	-.059	.284**
BVE	.272**	-.198	-.170**	.334**	.563**	1	.326**	-.096*
LEV	-.170**	-.038	-.263**	.210**	.067	.509**	1	.068
BETA	-.393**	-.253*	.237**	-.467**	.288**	-.118**	-.011	1

sample that test the contemporaneous relation of FAR and firm value, and the results indicate a positive coefficient on FAR (t-statistic = 3.479), significant at the 1% level, which suggests that foreign assets are incrementally priced beyond the asset amount. FAR (column (1) results) and FAR [2] results are significant at both sub-periods. Column [2] of Table 4, test the valuation of foreign assets pre-SFAS 131. The coefficient estimates on FAR [β_1] is 16.256, positive and significant [t-statistic = 2.299], whereas column [3] test the pricing of FAR, post-ASC280, and the results show that the coefficient on FAR [β_1] is 35.615, positive and significant [t-statistic = 2.617, p = 0.05]. Thus, as predicted by Hypothesis 1, post-SFAS FAR has a stronger association with firm value than pre-SFAS 131. The lesser association between foreign assets and price in the pre-ASC 280 regime is consistent with FAR

being less reflective of the underlying economics, proving some support for critics of SFAS 14 standard. These findings are consistent with management's disclosure of finer segment information under SFAS 131 and suggest that foreign assets and foreign sales have incremental value relevance to investors beyond the general benefits of ASC 280. The coefficient on FAR suggests that a 1percent increase in the ratio of foreign assets to total assets results in an increase in price per share of .3562 percent, post-SFAS 131 and .1625, pre-SFAS 131.

We note that the results for the control variables are generally consistent with expectations: Abnormal earnings (AEARN) is significantly positive, as expected, over the entire sample period and in both sub-periods [t-statistics = 15.744 for the entire sample period, 14.170

Table 4. Results of Testing Hypothesis H1

$$MVE_{it} = \beta_0 + \beta_1FAR_{it} + \beta_2AEARN_{it} + \beta_3BVE-ADJ_{it} + \beta_4LEV_{it} + \beta_5BETA_{it} + \sum \beta_{6k}IND_{it} + \sum_{\gamma t} YR_{it} + \epsilon_{it} \quad (1)$$

Dependent Variable = MVE

Variable	Pred. Sign	Full Sample	Pre-SFAS ASC 280	Post-ASC 280
INTERCEPT	?	14.739 (3.258)***	27.403 (7.417)***	21.872 (2.505)**
FAR	+	25.032 (3.479)***	16.256 (2.299)**	35.615 (2.617)**
AEARN	+	3.799 (15.744)***	3.299 (14.170)***	3.934 (4.350)***
BVE-ADJ	+	.335 (1.941)*	.204 (2.222)**	.082 (.288)
LEV	?	-24.710 (-8.799)***	-24.308 (-6.963)***	-29.468 (-6.089)***
BETA	-	-3.084 (-2.129)**	-5.223 (-3.793)***	.434 (.120)
Observations		349	267	82
Adj. R ²		.526	.526	.445
F-value		28.537	60.361	14.166

Note: N is not equal in each regression because of asymmetric reduction in the sample due to missing observations or outlier deletions. *, **, and *** Denote significance at the 10, 5 and 1% levels, respectively (a one-tailed test is used for hypothesized variables).

pre-ASC 280 sub-period and 4.350 for post-SFAS 131 period]; whereas book value, excluding foreign assets (BE-ADJ) has the expected sign, positive and significant pre-SFAS sub-period, but insignificant in the post-SFAS period, t-statistics = 2.222 for, pre-SFAS 131 period and .288 for post-SFAS-131 period. The results of leverage LEV show that its coefficient is significantly negative, over the entire sample period and in both the pre-and-post SFAS 131 sub-periods [t-statistics = -24.710 for the entire sample, -24.308 for the pre-SFAS 131 sub-period and -29.468 for the post-SFAS 131 sub-period].

We also find that BETA is negatively and significantly related to firm value, over the entire sample period and pre-SFAS 131 period and insignificant in the post-SFAS 131 sub-period [t-statistics = -2.129 for the entire sample, -3.793 for the pre-SFAS 131 period and .120 for the post-SASC 280 sub-period]. Overall, the stronger relations suggest the possibility that disclosures required under ASC 280 has resulted in foreign assets being more informative about firms' underlying economic fundamentals. Further, the results for FAR per se, and the inclusion of earnings and other determinants of value are consistent with prior research showing that geographic segment disclosures may enhance security valuation [e.g., Chen and Zhang, 2003].

PRICE and FOSA Results

Table 5 presents results of estimating valuation Equation [2] to test Hypothesis 1 regarding the contemporaneous relationship between FOSA and MVE, and whether FOSA are valued higher post-SFAS 131 than pre-SFAS 131. Column [1] of table 5, presents the results of the relation of FOSA and MVE, and the results show a positive coefficient on FOSA (t-statistic = 4.050, p = 0.001), which indicates that foreign sales are incrementally priced. Column [2] reports the results of pre-SFAS 131, whereas column [3] shows the result of post-SFAS 131 sub-period. FOSA [columns [2] results] and FOSA [3] results are significant at both sub-periods. Column [2] reveals that the coefficient on FOSA [β_1] is 14.721, positive and significant [t-statistic

= 2.781, p = 0.001], whereas column (3) table 5, also reveals that the coefficient on FOSA [β_1] is 16.654, positive and significant [t-statistic = 2.818, p = 0.001]. Consistent with Hypothesis 1, I find that post-SFAS 131 FOSA appears to be valued more relative to pre-SFAS 131, as the coefficient on FOSA post-SFAS 131 is larger than the coefficient on FOSA, pre-SFAS 131. I interpret the results in Table 5 as demonstrating that the FASB's (1997) regulation plays a significant role in pricing of segment data. The coefficient estimate on FOSA suggests that a 1 percent increase in foreign sales to total sales increases share price by .166 percent, post-SFAS 131, whereas in pre-SFAS 131, a 1 percent increase in the ratio of foreign sales to total sales leads to .1472 increase in share price.

The signs on the control variable coefficients are as expected: Abnormal earnings (AEARN) and book value of equity (BVE) have positive and significant coefficients over the entire sample and in both sub-periods. For the risk proxies, leverage LEV show that its coefficient is significantly negative, over the entire sample period and in both the pre-and-post ASC 280 sub-periods (t-statistics = -24.710 for the entire sample, -24.308 for the pre-SFAS 131 sub-period and -29.468 for the post-SFAS 131 sub-period). I also find that BETA is negatively and significantly related to firm value, over the entire sample period and sub-periods [t-statistics = -6.461 for the entire sample, -4.303 for the pre-ASC 280 period and -4.176 for the post-SFAS 131 sub-period].

Foreign assets and Sales Combine Model

We use similar model as in model 1 and add foreign sales to test which of the two variables of interest—foreign assets and sales are valued more by the market subsequent to ASC 280.

$$PRICE_{it} = \beta_0 + \beta_1 FAR_{it} + \beta_2 FOSA_{it} + \beta_3 AEARN_{it} + \beta_4 BVE_{it} + \beta_5 LEV_{it} + \beta_6 BETA_{it} + \sum \gamma_i IND_{it} + \sum \gamma_i YR_{it} + \epsilon_{it} \quad (3)$$

PRICE_{it} = market value of common equity at year-end scaled the number of common shares outstanding.

Table 5. Results of Testing Hypothesis H1

$$MVE_{it} = \beta_0 + \beta_1 FOSA_{it} + \beta_2 AEARN_{it} + \beta_3 BVE_{it} + \beta_4 BETA_{it} + \beta_6 LEV_{it} + \sum \beta_{7k} IND_{it} + \varepsilon_{it} \quad (2)$$

Dependent Variable = MVE

Variable	Pred. Sign	Full Sample	Pre-ASC 280	Post-ASC 280
INTERCEPT	?	26.194 (8.316)***	26.310 (8.654)***	40.092 (11.639)***
FOSA	+	15.697 (4.050)***	14.721 (2.781)***	16.654 (2.818)***
AEARN	+	2.058 (13.979)***	2.348 (9.435)***	1.608 (8.268)***
BVE	+	.401 (6.724)***	430 (3.903)***	.254 (3.615)***
LEV	?	-16.747 (-10.634)***	-23.596 (-7.003)***	-15.676 (-8.138)***
BETA	-	-6.419 (-6.461)***	-5.810 (-4.303)***	-8.006 (-5.801)***
Observations		670	273	397
Adj. R ²		.454	.552	.369
F-value		43.624	64.714	46.592

Note: N is not equal in each regression because of asymmetric reduction in the sample due to missing observations or outlier deletions. *, **, and *** Denote significance at the 10, 5 and 1% levels, respectively (a one-tailed).

MVE_{it} = market value of common equity (#24x#25) for firm i at time t scaled by the number of common shares outstanding (# 25).

FAR_{it} = firm i's identifiable foreign assets scaled by total assets.

EARN_{it} = firm i's abnormal earnings at year-end scaled by the number of common shares outstanding.

BVE-ADJ_{it} = firm i's book value of common equity, excluding foreign assets divided by common shares outstanding.

LEV_{it} = firm i's long-term debt scaled by total assets.

BETA_{it} = equally weighted market model beta for firm i at time t with a minimum of 60 monthly returns.

FOSA_{it} = firm i's overseas subsidiary sales plus exports as a percentage of total sales.

IND_{it} = a vector of industry dummy variables corresponding to two-digit SIC codes.

The results of Equation [3] that includes FAR and FOSA are reported in Table 6. Column 1 shows summary statistics of the entire sample, while columns [2] and [3] provide the results of the partition sample. FOSA [column [2] results] and FOSA [column [3] results] are significant at both sub-periods. Consistent with H2, the post-SFAS 131 FOSA results is more significant than the pre-SFAS 131 period result; for example, t = 2.755 [p = 0.001] for the coefficient of FOSA in the post-SFAS 131 period, versus t = 2.438 [p = 0.05] in the pre-ASC 280 period [see the respective columns [2] and [3] results. Similarly, FAR (column [2] results) and FAS [column [3] results] are significant at both sub-periods. The post-SFAS 131 FAR results are not more significant than the pre-SFAS 131 period result;

for example, $t = 1.752$ ($p = 0.10$) for the coefficient of FAS in the post-SFAS 131 period, versus $t = 1.742$ [$p = 0.10$] in the pre-SFAS 131 period [see the respective columns [2] and [3] result.

Comparing the FOSA versus FAR results for the entire sample and SFAS 131 sub-periods, I find that FOSA is valued more than FAR for the entire sample and the sub-periods examined. In column 1, the coefficient on FOSA (β_1) is greater than the coefficient on FAS (β_2) with a t-ratio of 4.029 for FOSA and 1.867 for FAR, suggesting that foreign sales enjoy greater capitalization than foreign assets. For pre-SFAS 131 period,

the FOSA coefficient (β_1) is 20.558, whereas the FAR coefficient (β_2) is 18.221, both are on average, significant (t-statistics = 2.438 for FOSA and 1.742 for FAS, respectively), which indicates that foreign sales have a stronger relation with firm value than foreign assets. In column 3, post-SFAS 131 period, the coefficient estimate on FOSA (β_1) is 36.832, while the coefficient estimate on FAR (β_2) is 31.005, both are on average, significant and positively associated with firm value (t-statistics = 2.755 for FOSA and 1.752 for FAS, respectively), which suggests that foreign sales are valued more highly than foreign assets in the post-SFAS 131 period.

Table 6. Results of Testing Hypothesis H2

$$MVE_{it} = \beta_0 + \beta_1 FOSA_{it} + \beta_2 FAR_{it} + \beta_3 AEARN_{it} + \beta_4 BVE_{it} + \beta_5 BETA_{it} + \beta_6 LEV_{it} + \sum \beta_{7k} IND_{it} + \varepsilon_{it} \quad (3)$$

Dependent Variable = MVE

Variable	Pred. Sign	Full Sample	Pre-SFAS ASC 280	Post-ASC 280
INTERCEPT	?	17.205 (3.801)***	20.277 (4.105)***	14.321 (1.639)
FOSA	+	26.262 (4.029)***	20.558 (2.438)**	36.832 (2.755)***
FAR	+	15.596 (1.867)*	18.221 (1.742)*	31.005 (1.752)*
AEARN	+	3.480 (14.328)***	3.532 (13.062)***	4.761 (4.740)***
BVE-ADJ	+	.539 (2.924)***	868 (3.992)***	.489 (.995)
LEV	?	-42.450 (-6.505)***	-7.346 (-5.075)***	-46.422 (-4.222)***
BETA	-	-9.573 (-7.371)***	-7.346 (-5.075)***	-7.050 (-1.883)*
Observations		314	234	76
Adj. R ²		.531	.476	.419
F-value		26.442	36.408	10.138

Note: N is not equal in each regression because of asymmetric reduction in the sample due to missing observations or outlier deletions. *, **, and *** Denote significance at the 10, 5 and 1% levels, respectively (a one-tailed).

SUPPLEMENATAL ANALYSIS

The Interaction between Foreign Assets and SFAS 131 and SFAS 131 and FOSA Design

The tests regarding the informational value of ASC 280 are based on a regression of market value of equity on the interaction of ASC 280 and foreign assets, and the interaction of foreign sales and SFAS 131. To test whether the foreign assets and foreign sales coefficients are higher post-SFAS 131, I modified the model in Equations (1) and (2) to include these interaction terms, and specify the following:

$$PRICE_{it} = \gamma_0 + \gamma_1 FAR_{it} + \gamma_2 AEARN_{it} + \gamma_3 BVE-ADJ_{it} + \gamma_4 LEV_{it} + \gamma_5 BETA_{it} + \gamma_6 FAR*ASC\ 280 + \Sigma\gamma_7 IND_{it} + \epsilon_{it} \quad (4a)$$

$$PRICE_{it} = \gamma_0 + \gamma_1 FOSA_{it} + \gamma_2 AEARN_{it} + \gamma_3 BVE_{it} + \gamma_4 LEV_{it} + \gamma_5 BETA_{it} + \gamma_6 FOSA*ASC\ 280 + \Sigma\gamma_7 IND_{it} + \epsilon_{it} \quad (4b)$$

Subscripts i and t refer to company and year respectively.

ASC 280 is an indicator variable that takes the value of one for periods after SFAS 131 became effective and the value zero otherwise. FAR*ASC 280 is the interaction between FAR and ASC 280. All other variables in Equation (5) are as previously defined in Equation (2). If ASC 280 131 has informational value, we expect the interaction term [FAR*ASSC 280] to be positively associated with firm value. Alternatively, if the SFAS 131 regulation is not value relevant, the interaction variable will be statistically indistinguishable from zero. We have no ex-ante basis for predicting whether or to what extent the relation between MVE and FAR will be affected by the changes of ASC 280. Accordingly, we allow for a possible impact of ASC 280 by incorporating the interaction terms in equation (4a and 4b).

Results of FAR*ASC 280

Table 7 presents regression summary statistics from Equation (4a), which relates the interaction variable (ASC 280*FAR) to firm value. As expected, FAR is significant and positive (t-statistic = 2.734). We document that FAR coefficient decreases with the inclusion of the interaction term (ASC 280*FAR). The focus, however, is on the interaction term between FAR and the indicator variable ASC

280. The estimated coefficient on this interaction term is positive and significantly associated with stock price at the 1% level [t-value = 3.628], supporting the view that foreign assets are valued higher following SFAS 131. The stronger relation between foreign assets and firm value during the adoption of SFAS 131 suggests the possibility that accounting standard that evolve exogenously has resulted in foreign assets being more informative about firms’ underlying economic fundamentals. We note that the results for the control variables are generally consistent with expectations: AEARN is on average, positive, and significant with a t-ratio of 13.612, whereas BVE-ADJ has the expected positive coefficient but lacks statistical power [t-statistic = 1.028]. I also find that leverage [LEV] and systematic risk [BETA] are both negatively and significantly related to firm value [t-statistics = -6.438 for leverage and -4.497 for BETA], suggesting that LEV and BETA are not contributors to high firm value. The results could be interpreted as follows: geographic segment data [FAR] including ASC 280 interact FAR provide some support for the critics of SFAS 14.

Table 7

$$MVE_{it} = \beta_0 + \beta_1 FAR_{it} + \beta_2 AEARN_{it} + \beta_3 BVE-ADJ_{it} + \beta_4 LEV_{it} + \beta_5 BETA_{it} + \beta_6 FAR*ASC\ 280 + \Sigma\beta_7 IND_{it} + \epsilon_{it} \quad (4a)$$

Dependent Variable = MVE

Variable	Pred. Sign	Pre-SFAS 131
INTERCEPT	?	30.027 (7.961)***
FAR	+	18.347 (2.7324)***
ASC 280*FAR	?	20.288 (3.628)***
AEARN	+	3.499 (13.612)***
BVE-ADJ	+	.118 (1.028)
LEV	?	-46.176 (-6.438)***

BETA	-	-6.044
		(-4.497)***
Observations		459
Adj. R ²		0.456
F-value		46.842

Note: N is not equal in each regression because of asymmetric reduction in the sample due to missing observations or outlier deletions. T-statistics are in parenthesis. Coefficients and t-statistics for industry dummies are not reported.

***, **, * indicates that the coefficient estimate is significant at 0.01 and 0.05 (one-tailed).

FOSA interact SFAS 131 Results

Table 8 presents the results of estimating Equation (4b), which relates the interaction variable (ASC280*FOSA) to firm value. FOSA is significant and positive [t-statistic = 2.462]; however, from Table 5, FOSA coefficient decreases with the inclusion of the interaction term [FOSA*ASC280]. The focus, however, is on the interaction term between FOSA and the indicator variable, ASC 280. ASC 280 *FOSA instrumental in testing the effect of the SFAS 131 on foreign sales valuation, confirms to expectations. The estimated coefficient on this interaction is positive and significant [t-statistic = 3.036]. This finding suggests that the disclosure mandated by SFAS 131 enhances overall disclosure related to foreign operations and as a result makes it easier for investors to assess the value of these operations. I note that the results for the control variables are generally consistent with expectations: AEARN and BVE have positive and significant coefficients [t-statistics = 11.961 for AEARN and 5.235 for BVE], indicating that these variables are important contributors to higher equity value. We also find that leverage [LEV] and systematic risk [BETA] are both negative and significantly related to firm value [t-statistics = -5.721 for LEV and -7.815 for BETA]. The results could be interpreted as follows: geographic segment data [FOSA] including SFAS 131*SFAS 131 dummy variable dominate FOSA interact with SFAS 131 in the determination of price.

Table 8

$$MVE_{it} = \beta_0 + \beta_1 FOSA_{it} + \beta_2 AEARN_{it} + \beta_3 BVE_{it} + \beta_4 LEV_{it} + \beta_5 BETA_{it} + \beta_6 FOSA * SFAS 131 + \sum \beta_{7k} IND_{it} + \epsilon_{it} \quad (4b)$$

Dependent Variable = MVE

Variable	Pred. Sign	Full Sample
INTERCEPT	?	36.374 (14.301)***
FOSA	+	11.526 (2.462)**
ASC 280*FOSA	?	9.577 (3.036)***
AEARN	+	1.750 (11.961)***
BVE	+	.308 (5.235)***
LEV	?	-32.660 (-5.721)***
BETA	-	-7.867 (-7.815)***
Observations		672
Adj. R ²		0.358
F-value		63.510

Note: N is not equal in each regression because of asymmetric reduction in the sample due to missing observations or outlier deletions. *, **, and *** Denote significance at the 10, 5 and 1% levels, (a one-tailed test is used for hypothesized variables).

Economic Significance of the Estimated Coefficients

We assess the economic significance of the estimated coefficients on foreign assets and foreign sales on firm value. To report the magnitude of the economic effect of this association, we calculate standardized coefficients—also known as “beta” coefficients for all the independent variables in Table [4] and [5]. They are reported in Table 9, along with the sample means and standard deviations. A beta coefficient is defined as the product of

the estimated coefficient and the standard deviation of its corresponding independent variable, divided by the standard deviation of the dependent variable. It converts the regression coefficients into units of sample of sample standard deviation. For instance, a one standard deviation increase in foreign assets to total assets raises firm value, on average by 21.68 percent of a standard deviation; and a one standard deviation increase in foreign sales to total sales induces, on average 9.94 percent increase in the dependent variable-MVE. Taken together, these results suggest that firm-level geographic segment data adds an important dimension to equity value. These results strongly support the theoretical model's predicted link between firm-level segment data and firm value. Nevertheless, these results must be interpreted with caution, because they may also reflect—at least to some degree—variations in industry characteristics that are not captured by my parsimonious models. This problem is partly taken care of by controlling for leverage, BETA and industry membership.

Table 9. "BETA" Coefficients: Models (1) and (2) With Controls

Panel A: Post - SFAS 131	Mean	Standard Deviation	"Beta" Coefficient
Dependent Variable	41.0691	26.952	
FAR	0.3339	0.1641	0.2168
AEARN	3.8078	5.0927	0.7433
LEV	0.2047	0.1326	-0.1449
Panel B: Pre-SFAS 131			
FOSA	0.3991	0.1609	0.0994
AEARN	3.8078	5.0927	0.3038
BVE	14.7958	13.0741	0.1232
LEV	0.2047	0.1326	-0.0771
BETA	1.1610	0.7225	-0.2146

CONCLUSION

A fundamental objective of accounting standards is to improve disclosure and reduce information asymmetry between insiders and outsiders to the firm. This paper uses (Ohlson, 1995, 1999) valuation models to examine the market's implications of geographic segment data reported under ASC 280 regulatory intervention. Specifically, this paper contrasts the characteristics of foreign assets and foreign sales reported prior versus after the issuance of

SFAS No.131 (i.e., the relative associations across these two regimes). We summarize the results as follows:

Foreign assets and foreign sales are more incrementally priced post-SFAS 131 than pre-SFAS 131. The stronger FAR and FOSA relation with MVE suggests the possibility that both the "general benefits" of ASC 280, such as improved reporting consistency and the use of internal management reporting for external disclosure improve, the information environment related to segment data. The results ARE consistent with the conclusions reached by Hope et al. (2008), Lundholm and Myers (2002) and Lang and Lundholm (1996) that disclosure quality is linked to the ability of investors to predict firm performance. Contrasting the pricing of foreign assets and foreign sales, we find that investors value foreign sales more highly than they do foreign assets. This evidence has not been previously determined by prior studies. These results persist after controlling for other determinants and factors affecting firm value. Taken together, we interpret the study's findings as suggesting that the management approach to accounting for segment data best captures the economic effect of FAR and FOSA on firm value.

We contribute to the literature in three ways. First, in deciding to issue new reporting standards, the FASB weighs the benefits to financial statement users associated with improved segment reporting information against the expected costs of complying with the new regulation. We find that ASC 280 does not value destructive after making the analysis when the disclosure became publicly available. Our results indicate in the case of ASC 280, the FASB was successful in its goal to improve the quality of geographic segment reporting available for investors in making investment decisions.

Second, this study extends the literature examining how investors assess segment information reported under SFAS 131. Hope et al (2008) find a significant positive relation between earnings multiples pre-and-post SFAS 131, with foreign

earnings valued more highly than domestic earnings. Although prior studies document the presence of an increase in segment disclosure around the adoption of SFAS 131, we believe this is the first study that contrasts the pricing of foreign sales vs. foreign assets pre-and-post SFAS 131 regimes. The evidence that ASC 280 leads to a higher valuation extends Hope et al. (2008), Olibe et al. (2009), and Chen and Zhang [2003] conclusions that quality disclosure is associated with higher valuation. Our evidence should be of interest to those interested in corporate reporting, cross-listing as well as those interested in stock market behavior. By revealing how foreign assets and foreign sales impact stock price, this study identifies reporting issues that may also affect the current standard and may provide input to standard setters in their continuing deliberations on how best to structure and implement future segment disclosure standards. The results provide evidence that reinforces investors' contention that disclosing disaggregated segment accounting data are both relevant, suggesting that investors become more proficient at using segment data in making investment decisions.

Third, in contrasting the pricing of foreign assets and foreign sales pre-and-post SFAS 131, the results suggest that investors value foreign sales more highly than foreign assets around the adoption of ASC 280 regulation, suggesting that valuation of segment data varies with the attributes of the segment information. Of course, this analysis provides insights only into the potential benefits to investors of increased disclosure of geographic segment data—we provide no evidence on the costs of expanded segment disclosure. If policymakers determine that the benefits to investors and analysts outweigh the costs to the firms, then they may consider expanded disclosures of geographic segment information. For example, such disclosures could include (1) disclosure of earnings by geographic areas, (2) each foreign segment profit, and (3) disaggregate amount of total fixed assets per geographic area including the fair value of those assets. The issuance of a "brighter line" standard such as ASC 280 constrain managers given their desire for discretionary segment disclosures.

REFERENCES

- Association for Investment and Management Research (AIMR). 1993. Financial Accounting Policy Committee. 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. Reporting in the 1990s and Beyond.
- Ashbaugh, H., and P. Olsson. 2002. An exploratory study of the valuation properties of cross-listed firms' IAS and U.S. GAAP earnings and book values. *The Accounting Review* 77 (January): 107-126.
- Barth, M. E., Aboody, D., and R. Kasznik 1999. Reevaluation of fixed assets and future firm performance: Evidence from U.K. *Journal of Accounting and Economics*. 26:149 – 178.
- Barth, M.E., W.H. Beaver, and W.R. Landsman. 1998. Relative valuation roles of equity book value and net income as a function of financial health. *Journal of Accounting and Economics* 25: 1-34.
- Bell, T.B., W.R. Landsman, B.L. Miller, and S. Yeh. 2002. The Valuation implications of employee stock option accounting for profitable computer software firms. *The Accounting Review* 77 (October): 971-996.
- Biddle, G., P. Chen, and G. Zhang. 2001. When capital follows profitability: Non-linear residual income dynamics. *Review of Accounting Studies* 6: 229-265.
- Behn, B., N. Nichols, and D. 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*,1: 31-44.

- Bens, D.A, and S.J. Monahan. 2004. Disclosure quality and the excess value of diversification. *Journal of Accounting Research* 42:691-730
- Botosan, C.A., A. Huffman and M.H. Stanford, 2017. The state of Segment Reporting by US Public Entities: 1976-2017. Working paper, Financial Accounting Standards Board, The Brattle Group and Texas Christian University
- Bodnar, G.M., C. Tang, and J. Weintrop. 1999. Both sides of corporate diversification: The value impacts of geographic and industrial diversification, NBER Working Paper No. 6224.
- Burgstahler, D., and I. Dichev. 1997. Earning, adaptation, and equity value. *The Accounting review* 72: 187-215.
- Bushman, R. M., and A.J. Smith. 2001. Financial Accounting Information and corporate governance. *Journal of Accounting and Economics* 32: 237-333.
- Brown, P., and Ball, R.1968. An empirical evaluation of accounting income number. *Journal of Accounting Research* (Autumn): 159-178.
- 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* 43" 377-412.
- Chen, P. F. and G. Zhang. 2003. Heterogeneous investment opportunities in multiple-segment firms and the incremental value relevance of segment accounting data. *The Accounting Review*, 78 (2): 397-428.
- Collins, D.W., M. Pincus, and H. Xie. 1999. Equity valuation and negative earnings: The role of book value of equity. *The Accounting Review* 74 (January): 29-61.
- Collins, D., and S. Kothari 1989. An analysis of intertemporal and cross-sectional determinants of ERC. *Journal of Accounting and Economics* 11: 143-183.
- Doupink, T., and L. Seese. 2001. Geographic area disclosures under SFAS 131: Materiality and fineness. *Journal of International Accounting, Auditing and Taxation* 10 (2): 117-138.
- Diamond, D.W., and R.E. Verrecchia. 1991 Disclosure, liquidity, and the cost of capital. *Journal of Finance* 46: 1325-59.
- Epstein, M.J., and K.G. Palepu. 1999. What financial analysts want? *Journal of Finance* 59 (4): 1553-1583.
- Easley, D. and M. O'Hara. 2004. Information and the cost of capital. *Journal of Finance* 59 (4): 1553-1583.
- Herrmann, D. and W. Thomas. 2000. An analysis of segment disclosures under SFAS NO. 131 and SFAS NO. 14. *Accounting Horizons*, 14 (September): 287-302.
- Herrmann, D. 1996. The predictive ability of geographic segment information at the country, continent and consolidated levels. *Journal of International Financial Management and Accounting* 7: 50-73.
- Healy, P., and K. Palepu. 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics* (September): 405-440.
- Hope, O, T. Kang, W. B. Thomas, and F. Vasvari. 2008. The effects of SFAS 131 geographic segment Disclosures on valuation of foreign earnings. *Journal of International Business Studies* (forth coming).
- Hope, O. and Thomas 2008. Managerial empire building and firm disclosure. *Journal of Accounting Research* 46 (June): 591-626
- Jensen, M. 1986. Agency costs of free cash flow, corporate finance, and takeover. *American Economic Review* 76, 323-329.
- Kothari, S., and J. Zimmerman. 1995. Price and return models. *Journal of Accounting and Economics* (September): 155-192.
- Lang, M, and R. Lundholm 1996. Corporate disclosure policy and analyst behavior. *The Accounting Review* 71 (4): 467-92.

- Lombaardo, D., and M. Pagano. 2002. Law and equity markets: A simple model, in corporate governance regimes: Convergence and diversit, edited by L. Renneboog, J. McCahery, P. Moreland, and T. Raaijmakers. Oxford, UK: Oxford Unversity Press: 343-62.
- Liu, J., and C. Liu. 2007. Value relevance of accounting information in different stock market segments: The case of Chinese A-, B- and H-shares. *Journal of International Accounting Research* 6 (2): 55-81.
- Lundholm, R., and L.A. Myers. 2002 Bringing the future forward: The effect of disclosure on the returns-earnings relation. *Journal of Accounting Reseach* 40 (3): 809-839.
- Neter, J., W. Wasserman, and M. H. Kutner. 1989. Applied Linear Regression Models, 2nd Edition. Homewood, IL.: Irwin.
- Nichols, N.B., D.L. Street, and S.J. Gray. 2000. *Journal of International Accounting, Auditing and Taxation*, 9 (1): 59-82.
- Ohlson, J.A. 1995. Earnings, equity book values, and dividends in equity valuation. *Contemporary Accounting Research* 11 (Spring): 661-687.
- Ohlson, J. A. 1999. On transitory earnings. *Review of Accounting Studies* 4 (December): 145-162
- O,Hara, M. 2003. Presidential address: Liquidity and price discovery. *Journal of Finance* 58: 1335-1354.
- Olibe, K.O., F.A. Michello, and J. Thorne. 2009. Systematic risk and international diversification: An empirical perspective. *International Review of Financial Analysis* 17 (5):681-698.
- Ryan, S., and W. Beaver. 2000. Biases and lags in book value and their effects on the ability of the book-to-market ratio to predict book return on equity. *Journal of Accounting Research* 38 (1): 127-148.
- Reid, E.J. 2004. An examination of long-lived asset impairments. *The Accounting Review* 79 (3): 823-852.
- Street, D. L., N. B. Nicholas, and S. J. Gray. 2000. Segment disclosures under SFAS No. 131: Has business segment reporting improved? *Accounting Horizons* (September): 259-285.
- Thomas, W.B. 2004. Firm characteristics and the pricing of foreign earnings of US multinational firms. *Journal of International Financial Management and Accounting* 15: 145-173.
- Tihanyi, L., and W.B. Thomas 2005. Information-processing demands and multinational enterprise: A comparison of foreign and domestic earnings estimates. *Journal of Business Research* 58: 285-292.
- Verrechia, 1990. Endogenous proprietary costs through firm interdependence. *Journal of Accounting and Economics* 12: 245-250.
- Verrecchia, R. E. 2001. Essays on disclosure. *Journal of Accounting and Economics*, 32 (Nos. 1-3): 97-180.
- World Trade Organization. 2000. *WTO annual report*. Geneva, Switzerland: WTO Publications.
- Wooldridge, J.M. 2003. *Introductory Econometrics*, 2nd., Mason, OH: South-Western.
- Zhang, G. 2000. Accounting information, capital investment decisions, and equity valuation: Theory and empirical evidence. *Journal of Accounting Research* 38 (Autumn): 271-295.