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**INVESTORS' VALUATION OF VOLUNTARY AND MANDATORY
DISCLOSURES: GEOGRAPHIC SEGMENT EARNINGS**

by

VICTORIA SHOAF

A dissertation submitted to the Graduate Faculty in Business in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

1997

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This manuscript has been read and accepted for the Graduate Faculty of Business in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract**INVESTORS' VALUATION OF VOLUNTARY AND MANDATORY
DISCLOSURES: GEOGRAPHIC SEGMENT EARNINGS**

by
Victoria Shoaf

Advisor: Joseph Weintrop

This dissertation investigates how mandating a particular financial disclosure affects investors' use of the disclosed data. Hypotheses are developed regarding investors' expected use of voluntary disclosures and undisclosed data, before and after regulation. Empirical tests of the hypotheses use the foreign earnings disclosure of U. S. multinationals around the time of the SEC regulation requiring its disclosure in 1970 and around FAS 14 in 1976. The evaluation of the foreign earnings disclosure is made in the context of its importance as a determinant of stock returns.

The test results indicate a significant and differential valuation of foreign earnings for firms that voluntarily disclosed foreign earnings prior to each of the regulations. There is no evidence of a significant difference in the valuation of foreign earnings for non-disclosers. The association between stock price and foreign earnings for non-disclosing firms does not improve after mandated disclosure. The data, now available, is still not priced by investors, suggesting that the requirement for disclosure is not useful to investors. For voluntary disclosers, the disaggregation of total

earnings is no longer incrementally informative after regulation.

There is no evidence from these tests to suggest that mandating disclosure of foreign earnings is effective. Firms that benefit from disclosure of this data are found to disclose it voluntarily. There is no evidence to suggest that disclosure adds incremental information to the basic earnings/returns relationship for previously non-disclosing firms, so its usefulness to investors is questionable.

This study contributes to an understanding of the changes in the investor's information environment resulting from mandating specific disclosures. It investigates whether foreign earnings data was used by investors in stock valuation before regulation, whether explicitly disclosed or not, but, more importantly, it examines whether its use by investors changed after disclosure was mandated. Hence, it provides empirical evidence on the effectiveness of mandating the foreign earnings disclosure. Issues concerning disclosure effectiveness are of great concern to standard setters and to user advocates.

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Chapter 1: Introduction

In recent years, the number and complexity of required disclosures in financial statements has dramatically increased.¹ Even regulators have begun to question whether additional mandated disclosures are cost-effective or whether they produce “information overload” for users.² In 1995, the Financial Accounting Standards Board (FASB) published a *Prospectus on Disclosure Effectiveness*, calling for research on the effectiveness of current disclosures, particularly on the possibility of changing current requirements and on procedures for identifying less useful disclosures.

¹ Grove (1997, p. 201) estimates an average increase in notes to financial statements of 7.5 percent annually since 1972.

² In 1990, the FASB observed that “...the already extensive disclosures required in general purpose financial statements...may overwhelm users’ ability to assimilate information and focus on the more important matters” (FAS 106, ¶365). In 1992, Todd Johnson, the research manager at the FASB, published a call for research on disclosure effectiveness in *Accounting Horizons*. The AICPA Special Committee on Financial Reporting issued *Improving Business Reporting—A Customer Focus* in December, 1994, recommending that “standard setters should search for and eliminate less relevant disclosures.” Beresford and Hepp (1995) assert the FASB’s intention to address the issue of “disclosure overload.” The SEC considered (but recently rejected) a proposal that would allow firms to disseminate summary reports to shareholders, with the full financial statements and complete disclosures in the 10-K available upon request.

In the *Prospectus*, the FASB identifies a schism between issuers, who favor curbing mandated disclosure, and users, who want to receive more data and to select for themselves what is useful. The American Institute of Certified Public Accountants (AICPA) Special Committee on Financial Reporting (1994), representing the position of preparers and auditors, asserts that users “have insatiable appetites for information” and that they will always demand information beyond that which they use in decision-making. On the other hand, the Association for Investment Management and Research (AIMR) (1993), speaking for analysts and other users, argues that firms themselves benefit from more disclosure. They point out that increased disclosure has been shown to reduce risk, and therefore to reduce the firm’s cost of capital (for instance, Choi 1973; Collins and Simonds 1979; Elliott and Jacobson 1994; Botosan 1997). The benefits to the firm and to society are purported to outweigh the firm’s costs of disclosure, and this argument is used to justify a call for increased mandatory disclosure.

While both perspectives in this controversy have motivated accounting research, this dissertation investigates mandatory disclosure using the FASB’s premise that disclosures are only useful if they affect decisions made by the firm’s constituents. The *Statement of Financial Concepts No. 1, Objectives of Financial Reporting by Business*

Enterprises, states that the objective of financial reporting (which includes disclosures) is “to provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit, and similar decisions” (§34). Regulation of financial reporting is frequently focused on the investor—especially since the Securities and Exchange Commission (SEC) is the official regulator. The most commonly-used method of assessing the usefulness of a particular disclosure is to test whether it is value relevant to investors—*i. e.*, whether it is impounded into stock price (market value of equity) or reflected in stock returns.³

The FASB’s *Prospectus on Disclosure Effectiveness* asks researchers to consider the usefulness of currently required disclosures. This dissertation responds to the FASB’s call for research by examining the effects of disclosure requirements. Specifically, it investigates how mandating a particular disclosure affects investors’ use of the disclosed data.

³ Barth and Murphy (1994) review at least twenty studies of the usefulness of various disclosures, all of which define usefulness as decision-usefulness to investors as reflected in an association with stock prices or returns.

1.1. Research questions.

To assess the effects of mandating disclosure, it is helpful to consider a partitioning of the information environment on two dimensions. The first dimension is the disclosure decision. Prior to regulation, some firms may have voluntarily made a particular disclosure, while others chose not to. This dimension, then, consists of voluntary disclosers and non-disclosers. The second dimension is regulation, dividing the environment into the periods before and after a disclosure regulation. After regulation, all firms affected will make the required disclosure in the form specified in the regulation. Figure 1 illustrates the partitioning of the information environment. Investigating the effects of regulation on the investor's use of specific information involves analyzing each of the four quadrants in Figure 1 separately and assessing the differences between them.

The first quadrant of Figure 1 consists of firms that disclosed voluntarily prior to regulation. Is voluntarily disclosed data useful to investors? If firms are rational in their disclosure decisions—that is, if they have evaluated the costs and benefits of disclosure—then it is expected that voluntary disclosures will be useful to investors in firm valuation. Conveying value relevant data has been shown to be an

important motivation for voluntary disclosure (Lev and Penman 1990). On the other hand, it is possible that voluntary disclosures are not used by investors because they are regarded as merely self-serving (Lewellen, Park, and Ro 1996).

The second quadrant contains non-disclosers--firms that did not disclose specific data prior to regulation. Is undisclosed data sought out and used by investors in firm valuation? The semi-strong form of the efficient market hypothesis (hereafter referred to as the efficient market hypothesis) maintains that all publicly available data important to valuation, whether explicitly disclosed by the firm or not, will be impounded into stock price (Fama 1970). Investors will obtain data from sources other than financial reports up to the point where its marginal benefit equals marginal cost. If it is worthwhile to obtain this data, it will be used in firm valuation. (See, for instance, the discussion in Watts and Zimmerman, 1986, second chapter.) On the other hand, if firms do not make specific disclosures voluntarily, it is possible that the firm believes that the data is not value relevant to investors, or that disclosure costs exceed perceived benefits to the firm.

The third quadrant of Figure 1 consists of mandated disclosures of firms that previously disclosed similar data on a voluntary basis. Does regulation change investors' valuation of a particular disclosure? If

regulation merely formalizes a common practice, then there would be no reason to expect a difference between investors' valuation of voluntary and mandatory disclosures (Dye 1990). However, if regulation restricts the set of available accounting procedures so that variation in disclosed data is reduced, then mandatory disclosures should be valued more highly than voluntary disclosures because they are more consistent and more easily interpretable. Alternatively, if variation in disclosed data is increased by regulation, then voluntary disclosures will be valued more highly than mandatory disclosures (Watts and Zimmerman 1986; Nagarajan and Sridhar 1996).

Finally, in the fourth quadrant of Figure 1 are the mandated disclosures of firms that did not previously choose to disclose. Is there a difference in investors' valuation of undisclosed data and mandatory disclosures? The efficient market hypothesis would imply that the valuation of specific data would not change just because of explicit disclosure, except for changes in the relative cost of obtaining data. On the other hand, regulators rationalize requiring specific disclosures as conveying information to investors (and other firm constituents) that would otherwise not be available. Under this perspective, a mandatory disclosure should be value relevant whereas the previously undisclosed data could not be valued.

1.2. The test of the change in disclosure environments: the foreign earnings disclosure.

The disclosure of foreign earnings provides a unique opportunity for testing the effects of regulation because (1) there were two distinct mandates requiring annual disclosure, by the Securities and Exchange Commission (SEC) in 1970 and by the FASB in 1976, and (2) both regulations included a requirement that foreign earnings data for the previous four years be provided retrospectively. Firms that did not disclose foreign earnings at the time were required to provide later the data that theoretically would have been disclosed in the pre-regulation period. In addition, there were many firms that voluntarily disclosed foreign earnings before being required to do so, enabling comparisons between voluntary and compulsory disclosure.

The earnings component of the geographic segment disclosure is examined in this dissertation because it is an important regulated disclosure that is considered useful in interpreting financial results. Not only have users asserted its value (e. g., AIMR), but in its recent re-assessment of segment disclosure, the FASB confirmed its belief in the usefulness of segment disclosures in making "informed judgments" about firm performance (FASB Research Report, *Reporting Disaggregated Information* 1993).

In this dissertation, the usefulness of the disclosure of foreign earnings (defined as the earnings from non-U. S. operations) is inferred from its value relevance. The association between returns and foreign earnings is tested in the periods before and after both the mandated disclosure of geographic segment data by the SEC in 1970 and the FASB's introduction of *Statement of Financial Accounting Standards No. 14: Financial Reporting for Segments of a Business Enterprise* (FAS 14) in 1976. The retrospective data disclosed upon implementation of these two regulations is used to evaluate whether geographic segment data was reflected in the pricing of U. S. multinational firms' stocks in the periods prior to explicit financial statement disclosure and whether its importance changed with the reporting mandates. These results are compared to the association of stock price and foreign earnings of firms which voluntarily disclosed foreign segment earnings in the pre-mandate period.

1.3. Summary of tests and results.

Six hypotheses are developed from the research questions. To test the hypotheses, approximately 650 firms were examined and categorized according to their initial disclosure of foreign earnings.

Separate tests are made of voluntary disclosers and those who responded to the SEC regulation in 1970 and to the FASB pronouncement in 1976.

In the test of the market response to foreign earnings prior to the SEC mandate in 1970, it is found that voluntarily disclosed foreign earnings were value relevant. They were significantly associated with contemporaneous returns, and they were priced differently than domestic earnings. For firms that did not voluntarily disclose, however, no evidence is found to suggest that foreign earnings were value relevant; no association is found between foreign earnings obtained from retrospective disclosure and contemporaneous stock returns. The lack of association persists for non-disclosers after implementation of the 1970 SEC regulation. For voluntary disclosers, the disclosure is less useful after regulation. The results for tests of the effects of the FASB regulation differ slightly, but the outcome is the same. After the implementation of FAS 14, the foreign earnings of both voluntary disclosers and non-disclosers have a statistically significant association with returns, but no evidence is found that either disclosure provides incremental information to investors.

There is no evidence from these tests to suggest that mandating disclosure of foreign earnings is effective. Firms that benefit from

disclosure of this data are found to disclose it voluntarily. There is no evidence to suggest that disclosure adds incremental information to the basic earnings/returns relationship for previously non-disclosing firms, so its usefulness to investors is questionable. The tests indicate a contemporaneous change in the value relevance of disaggregated earnings at the time of the 1970 SEC regulation, perhaps due to changes in macroeconomic conditions (*e. g.*, foreign currency exchange policies), but apparently not due to the regulation itself. For firms that disclosed voluntarily before regulation, there is a decline in informativeness of the disclosure after each regulation. No evidence is found in the tests of either regulation to suggest that compulsory disclosure is useful to investors.

1.4. Contributions of this study.

This study contributes to an understanding of the changes in the investor's information environment resulting from mandating specific disclosures. Others (*e. g.*, Benston 1973; Chow 1983) have examined the usefulness of regulation and of mandating specific disclosures, but they analyze only the change after regulation (*i. e.*, comparing quadrants (2) and (4) in Figure 1). The data set used in this study provides a

unique opportunity to compare voluntary disclosure of specific data by some firms with later mandatory disclosure of the same period's data by firms that did not disclose contemporaneously. The retrospective disclosure requirement of both mandates provides unusual access to previously undisclosed data, which facilitates the two-dimensional analysis in this study. All four quadrants of the information environment depicted in Figure 1 are represented in the data and are used in the analysis.

This study also responds to the FASB's request for research on disclosure effectiveness by providing an evaluation of the usefulness of the requirement for the foreign earnings segment disclosure in particular. There has been no previously published empirical testing of voluntarily disclosed foreign earnings data which provides evidence of its actual use by investors.⁴ Moreover, there are few empirical tests of whether the disclosures resulting from the mandating disclosure of foreign earnings by the SEC in 1970 and by the FASB in 1976 were reflected in post-regulation stock prices. This study not only investigates whether foreign earnings data was used by investors in stock valuation before regulation, whether explicitly disclosed or not, but, more importantly, it examines whether its use by investors changed after disclosure was mandated.

⁴ A detailed review of the *ABI* and *Dissertation Abstracts* databases revealed no evidence of such research.

Thus, it contributes to the research on disclosure effectiveness.

The FASB and others have spent many years considering how to improve segment reporting, as discussed in Chapter 2. Despite this effort, there has been little empirical research on the value of the foreign earnings disclosure to investors. The FASB has recently issued a new pronouncement, *Statement of Financial Accounting Standards No. 131: Disclosures about Segments of an Enterprise and Related Information* (FAS 131), that significantly changes segment reporting—in fact, eliminating the foreign earnings disclosure requirement in some cases. It is too early to directly test the effectiveness of the new regulation, but findings about the effects of previous regulations on firm valuation by investors will indicate the prospects for the new pronouncement and will illuminate potential problems. Thus, it is timely to investigate whether the foreign segment earnings disclosure is used by investors in valuing the firm's shares, especially in light of the limited research on its usefulness.

1.5. Organization of the dissertation.

In the next chapter, the history of mandated disclosure of geographic segment data is outlined, from the first controversies in the

mid-1960's through the current FASB pronouncement in 1997. The major requirements of the various regulations are described. Chapter 3 briefly reviews related prior research on voluntary disclosure, regulation of disclosure, line-of-business segment disclosure, and geographic segment disclosure. In Chapter 4, the six hypotheses are developed. Chapter 5 covers the sample selection and screening, and it gives a description of pertinent characteristics of the sample subsets. Chapter 6 presents the hypothesis tests, including an overview of the methodology employed, and the test results. A summary and the conclusions are presented in Chapter 7, along with limitations of this study and suggestions for future research.

Chapter 2: Historical Background of Segment Reporting

Segment reporting has been controversial for a number of years. Although many firms chose to disclose some segment data earlier, there was enough public pressure expressed in Congressional hearings that the SEC mandated specific disclosures in 1969 for new registrants and expanded them in 1970 to include all filings. The FASB followed with FAS 14 in 1976. These regulations did not quell the controversy, however, and neither the preparers nor the users of financial statements were satisfied with the mandated disclosure requirements. The issues surrounding segment disclosure have continued to be debated within the profession. In June of 1997, the FASB released a new pronouncement, FAS 131, changing the approach to segmentation and increasing disclosure requirements.

2.1. The pre-regulatory environment.

The issue of separately reporting results from individual business segments first gained widespread public attention in the mid-1960s with the hearings of the Senate Committee on the Judiciary Subcommittee on Anti-Trust and Monopoly on mergers and the effects of conglomeration on industry concentration. During the hearings, it was suggested that firms be required to disclose segment profits for the benefit of both regulatory authorities and investors (Hearings, 1965, p. 769). Manuel Cohen, then Chairman of the Securities and Exchange Commission, took an active stance in promoting this position after the hearings (Rappaport and Lerner 1969, 45). At the same time, an unrelated study by the National Accounting Association (NAA), begun in 1964 on *Financial Reporting for Security Investment and Credit Decisions*, found that almost all of the financial analysts and commercial bankers interviewed expressed a need for better information about operating results of the segments of diversified firms (Backer and MacFarland 1968). Hence, the Senate hearings gave voice to an existing conviction in the financial community.

Because of increasing Congressional pressure, in 1967 the Accounting Principles Board (APB) issued Statement No. 2, "Disclosure

of Supplemental Financial Information by Diversified Companies." Not an official Opinion, it encouraged, but did not require, firms to report sales and profits of their significant business segments. In the statement, the APB acknowledged increasing attention being paid to conglomerate companies and the expressed needs of investors and financial analysts for segment information. However, the Board also recognized the "complex problems" involved in the reporting of segment profits. It declined to issue an official opinion until "substantial research" confirmed the need for segment reporting to fairly represent the financial position of diversified firms. At the same time, it indicated that the problems with reporting segment profits could be overcome (APB Statement No. 2, ¶10). APB Statement No. 2 was a temporary measure intended to preempt Congressional or SEC action until the matter could be fully investigated.

In the next two years, the NAA and the Financial Executives Institute (FEI) published studies on segment reporting by Backer and MacFarland (1968), Mautz (1968), and Rappaport and Lerner (1969). In all three reports, the importance of segment information was asserted, and the need was attributed to significant changes in the business environment, including pervasive diversification, the increased importance of capital markets, a growing body of individual investors and

investment specialists like institutional investors and financial analysts, and the growing complexity of lending decisions. Echoing testimony from the Senate hearings (p. 769), Mautz iterated an oft-quoted definition of a diversified company:

...a company which either is so managerially decentralized, so lacks operational integration, or has such diversified markets that it may experience rates of profitability, degrees of risks, and opportunities for growth which vary within the company to such an extent that an investor requires information about these variations in order to make informed decisions (p. 16).

The notion that segments display differences in profitability, risk, and growth opportunities is repeated in nearly every subsequent statement on segment reporting, and it has become the central justification for segment reporting requirements.

While these studies confirmed the desire of external users for segment information, they also found that managers were often opposed to increasing segment disclosures. Backer and MacFarland surveyed corporate executives and discovered that 78% were opposed to reporting profits by segment (p. 78). The reasons most commonly cited were (1) fear of disclosing too much information to competitors, to the detriment of the stockholders, (2) concern that allocation of common

costs, overheads, *etc.*, would render the information meaningless or even misleading, especially in comparisons among companies, and (3) belief that their businesses were not amenable to segmentation and that it would lead to incorrect conclusions or interference with management decisions (p. 80). While ever-increasing disclosure requirements have overridden the fear of competition, controversy still exists over comparability and over the need for sometimes arbitrary allocations.

2.2. The SEC regulation.

APB Statement No. 2 was insufficient to deflect SEC intervention. In February, 1969, the SEC issued Securities Act of 1933 Release No. 4949 (Securities and Exchange Act of 1934 Release No. 8530), proposing a revision of the securities registration requirements of Forms S-1, S-7, and F-10 to include segment data on revenues and earnings. After consideration of the comments received, the SEC amended and formally adopted this requirement on September 14, 1969 (Releases No. 33-4988 and No. 34-8650). The regulation stipulates that the amount or percentage of segment revenue and profits be reported for the last five years for all business segments constituting at least 10% of either revenues or earnings (15% for firms with revenues under \$50 million).

As a concession to the allocation problem, the SEC allowed that firms might not be able to reliably report earnings before taxes and extraordinary items for each segment and permitted "the contribution to the results of operations most closely approaching such income" to be disclosed instead (Release No. 33-4988).

The SEC mandate was subsequently expanded to include all 10-K reports for years ending after December 31, 1970, and also required five years of retrospective data (Release No. 34-9000). In 1974, the SEC required that the same segment data be included in the annual reports to shareholders of companies filing with the SEC.

The SEC regulations are directed at line-of-business (LOB) segments, and neither release is specific as to its application to foreign segments. Near the end of the text, both regulations mention "operations outside of the United States," but the only guidance is that "appropriate disclosure shall be made with respect to the importance of that part of the business to the registrant and the risks attendant thereto" (Release No. 33-4988). Some firms interpreted "appropriate disclosure" as following the guidelines given for lines of business, but others continued to report (or not report) on foreign operations as they had prior to the regulation.

2.3. The FASB pronouncement (FAS 14).

The APB was replaced by the FASB in 1971, and a project on segment reporting was put on the new board's initial agenda in April, 1973. The FASB compiled existing research, conducted two new studies, and issued a Discussion Memorandum in 1974 (which included results of the two studies in the appendices). The Exposure Draft was issued in 1975, and the FASB adopted its *Statement of Financial Accounting Standards No. 14: Financial Reporting for Segments of a Business Enterprise* (FAS 14) in 1976.

FAS 14 encompasses the SEC requirements, but expands them. For instance, firms must report not only segment revenues and profits, but also identifiable assets, and reporting is required if the segment provides 10% of revenues or constitutes 10% assets. As in the SEC regulations, however, the pronouncement allows management discretion in determining appropriate segmentation. It also contains a disclaimer regarding comparability, stating that "information prepared in conformity with this Statement may be of limited usefulness for comparing a segment of one enterprise with a similar segment of another enterprise" (15).

Under FAS 14, segment earnings are to be reported at the level of

operating profits. However, as with the SEC requirements, considerable flexibility is allowed, with uniformity across segments required and reconciliation to operating profits suggested if earnings are not reported at that level. Certain costs *cannot* be allocated to segment operating profit (such as interest expense, domestic and foreign income taxes, revenues earned at the corporate level), and all segment profits must be reconciled to total net income.

An important difference in the FASB's pronouncement is that, while the SEC regulations mention foreign operations as an ancillary disclosure, FAS 14 devotes eight paragraphs to geographic segments, as an integral part of segment reporting. The emphasis on geographic as well as line-of-business segments is also reflected in the *International Accounting Standard No. 14, Reporting Financial Information by Segment*, approved in 1981, which is very similar in its requirements to FAS 14.

2.4. The new FASB pronouncement (FAS 131).

The implementation of FAS 14 did not resolve the controversy about segment reporting, in either the business or academic communities. The issues of greatest controversy continued to be lack of

comparability, arbitrary and inconsistent aggregation of business segments reported, and distortion caused by cost allocations (see, for instance, AIMR 1993; Arnold, Holder, and Mann 1980; Bavishi and Wyman 1980). Indeed, the FASB, the Canadian Institute of Chartered Accountants (CICA), and the International Accounting Standards Committee (IASC) all had reassessment of segment reporting on their agendas for several years, and they finally approached it as a joint project in the early 1990s (*Projects and Priorities of the Financial Accounting Standards Board* 1993; *IASC Insight*, June, 1994).

The FASB and the CICA jointly issued an Invitation to Comment, *Reporting Disaggregated Information by Business Enterprises*, in 1993. Later that year, they formed the Disaggregated Disclosures Advisory Group to study the issue and to solicit input from users and preparers of financial statements (including AIMR's Financial Accounting Policy Committee). The FASB and the CICA issued similar Exposure Drafts for a new pronouncement in the first quarter of 1996, and the new FASB pronouncement--*Statement of Financial Accounting Standards No. 131: Disclosures about Segments of an Enterprise and Related Information* (FAS 131)--was issued at the end of June, 1997. The IASC's statement is expected later in 1997, and, while it will probably be somewhat different from the FASB and CICA versions, it is expected that FAS 131

disclosures will satisfy its requirements.

The main difference in FAS 131 from previous regulations is that it uses a "management approach" to the segmentation of a business. While FAS 14 required both industry and geographic segment disclosures, FAS 131 requires one primary set of "operating segment" disclosures, with the segments determined by the manner in which the chief decision maker views the firm. That is, the segmentation used in reports to the chief decision maker for assessing segment performance and allocating resources is the form in which segments should be disclosed in the financial statements. Segments may be determined by the areas of functional responsibility of managers reporting to the chief decision maker. The objectives in selecting operating segments over other divisions were: (1) to provide relevant segmentation (since it corresponds to true operating organization rather than an external construct), (2) to ensure internal consistency in all discussions of results in financial reports, and (3) to promote fuller disclosure at lower cost (since the information is already generated for internal purposes). There is no materiality threshold stated, but at least 75% of revenues must be included in reportable segments--i. e., the "all other" category cannot be more than 25% of revenues. On the other hand, the statement also states that after ten segments, the firm should consider whether a

practical limit has been reached.

The information to be provided for each segment's profit or loss and assets has been increased, as long as the requirements correspond to the information reviewed by the chief decision maker. For annual profit or loss, for instance, it would include external and intercompany revenues, interest revenue and interest expense, depreciation and amortization, unusual items, equity in income of investees, income tax expense, extraordinary items, and significant non-cash items--if such elements are reviewed by the chief decision maker. Any allocations, adjustments, and eliminations not included in internal reporting are omitted. Explanations of the method of segmentation and reconciliation to net income and total assets must be made.

A secondary set of segmented disclosures is required for products and services or for geographic areas if they were not specified in the primary segmentation. For instance, if the primary segmentation was by product, then the secondary disclosure would include revenues and assets for each country where revenues are material and a total for all foreign countries with immaterial revenues. Interestingly, no foreign earnings disclosure is required (unless primary segmentation is geographic).

A significant expansion of mandatory segment disclosure is that it

must now be made in interim reports in abbreviated form.

In view of the amount of effort made to improve segment reporting, it is surprising to find so little empirical research on its value to investors. The new regulations significantly change segment reporting requirements--but they do not seem to resolve the problems that have been discussed in the literature (that is, lack of comparability, inconsistent allocations, arbitrary aggregation of segments). It is too early to directly test the effectiveness of the new regulation. However, findings about the effects of previous regulations on firm valuation by investors may indicate the prospects for the new pronouncement and may reveal potential problems.

Chapter 3: Review of Prior Research

Relevant prior research includes work on voluntary disclosure (quadrant one in Figure 1) and comparisons of voluntary disclosers and non-disclosers in the absence of regulation (comparing the first and second quadrants). It also includes studies of the changes that occur when previously voluntary disclosures are regulated (comparing quadrants one and three) and when regulation results in first-time disclosure (quadrants two and four). Research in these areas is reviewed briefly in this chapter. Separate sections are devoted to the line-of-business segment literature and foreign segment literature in this context.

3.1. Voluntary disclosure.

Much research on voluntary disclosure either models the disclosure decision (*e. g.*, Verrecchia 1983; Darrough and Stoughton 1990; Wagenhofer 1990; Kim 1993; Shavell 1994) or empirically tests determinants of voluntary disclosure (*e. g.*, Lev and Penman 1990; Skinner

1994; Lang and Lundholm 1993). The objective of this line of research is to discover the characteristics that distinguish voluntary disclosers (shown here in quadrant one, Figure 1) from non-disclosers (quadrant two) in the absence of regulation.

Previous researchers have found that firms generally make voluntary disclosures when the benefits exceed costs. Disclosure is always costly, both in terms of the direct costs of preparation, publishing, and auditing, and because of indirect costs such as competitive disadvantage, revelation of proprietary information, or potential political costs (*e. g.*, Collins 1975; Watts and Zimmerman 1986; Gray, Radebaugh, and Roberts 1990). For voluntary disclosure to occur, there must be an offsetting benefit. Choi and Levich (1990) report that the financial executives they interviewed balance the direct costs of preparation and the indirect effects on competitive status with the benefits of lower costs of capital in making disclosure decisions.

Another motive for firms to disclose voluntarily (or sooner than required) is to convey "good news" to the market, especially when they feel that the market otherwise may not correctly value the information (*e. g.*, Chambers and Penman 1984; McNichols 1988; Healy, Palepu, and Sweeney 1995; Watts and Zimmerman 1986). Ronen and Livnat (1981, p. 474) explore the reasons for voluntary segment reporting and conclude that "firms provided segment information when expecting a favorable price change to be induced by the information." In this respect, voluntary

disclosure is a signaling mechanism, enabling efficient firms to distinguish themselves from less efficient firms, as described by Spence (1973) and Akerlof (1970). Lev and Penman (1990) confirm this screening motive, finding that managers disclose information that implies that their value is larger than the average valuation assumed by the market.

Empirical research on voluntary disclosure has often focused on the management forecast disclosure (*e. g.*, Patell 1976; Penman 1980; Waymire 1984; Trueman 1986). Overall, findings are consistent with the signaling motive for voluntary disclosure. That is, voluntary earnings forecasts are associated with higher returns for firms with "good news." On the other hand, no evidence is found to support the expected decline in returns for firms that do not voluntarily disclose specific data that other firms in the same industry are disclosing (Waymire 1985; Lev and Penman 1990).

Recent research on voluntary disclosure emphasizes a motivation associated with cost avoidance more than potential gain. In fact, in their review of the development of voluntary disclosure theory, Lang and Lundholm (1993, p. 250) find that "disclosure could be increasing, constant, or even decreasing in firm performance." They identify at least four other motives for voluntary disclosure--to avoid adverse selection in capital markets, to avoid litigation, to reduce transaction costs, and to deter entrants into a monopolistic or oligopolistic market.

Concurrent with the other determinants of disclosure is the size

effect. Foster (1986, p. 44) observes that “the variable most consistently reported as significant in studies examining differences across firms in their disclosure policy is size.” Meek, Roberts, and Gray (1995) and Frost and Pownall (1994), among others, find that company size, as well as domicile, listing status, and industry, are important factors affecting voluntary disclosure.

3.2. Regulation of previously voluntary disclosures.

If regulating a specific disclosure that has previously been made voluntarily merely formalizes a common practice—resulting in no observed differences between quadrants one and three in Figure 1—then the regulation is redundant and costly (Dye 1990). Research shows, however, that is common for regulation to change the amount of data disclosed or the permissible accounting procedures so that the usefulness of the disclosure is affected. There is evidence that costs, but not benefits, are increased by regulation.

Benston (1973) and Chow (1983) test the effects of the SEC’s initial regulation of disclosure in 1933 and 1934. Firms voluntarily reported financial data prior to the mandate, but the SEC mandates defined the permissible form and content of the disclosures thereafter. Benston (1973) finds no change in the estimated risk, average monthly abnormal returns, or

the variance in abnormal returns for firms implementing the securities acts. He concludes that regulating disclosure did not significantly affect security prices or firms' use of the securities markets. He finds no evidence of costs or benefits of regulation. On the other hand, Chow (1983) finds that the 1933 Securities Act's accounting provisions reduced returns to exchange listed stocks. His test results are consistent with the regulation having significant compliance costs, or having affected competitive relationships across firms, or having reduced available investment, financing, or production opportunities by tightening existing accounting-based debt covenants.

Watts and Zimmerman (1986) discuss the effects of regulation on the firm's optimal contracting technology. Contracts (such as bond covenants and managers' bonus plans) are made under an existing set of accounting procedures. If regulation changes the available set of procedures, for instance by eliminating an option selected by the firm, then the firm will incur costs in terms of re-contracting and/or stock price decline. Empirical studies confirm this effect (*e. g.*, Leftwich 1981; Collins, Rozeff, and Dhaliwal 1981; Lys 1984).

Nagarajan and Sridhar (1996) find that mandating disclosure may cause firms to decrease their disclosure levels. Because of the complexity of factors influencing disclosure decisions, they argue that "firms might react to a proposed disclosure standard in ways that are unintended by the

standard setter, thereby potentially defeating the purpose of the standard” (p. 254). Their model demonstrates that firms which voluntarily disclose have incentives to conceal that same data if regulatory requirements increase proprietary costs. They conclude that mandating a specific disclosure can result in less value relevant data being disclosed and can lead to less efficient stock prices. This conclusion is confirmed empirically by Harris (1993), who finds that managers manipulate segmentation to conceal proprietary information.

3.3. Regulation producing first-time disclosures.

An important objective of mandating particular disclosures is to induce previously non-disclosing firms to disclose specific data. Gonedes, Dopuch and Penman (1976) evaluate regulation in terms of information content or resource allocation. Regarding resource allocation, they say that arguments supporting the mandate of a specific disclosure generally allege some kind of “market failure” in the market for information, making some firm constituents better off than others. However, they assert that researchers have found little empirical evidence and have developed insufficient theoretical arguments to support the notion of market failure. Even if true, there is no evidence that specific regulations overcome market failures or that they are the best way to overcome them. This point is also

discussed extensively by Collins (1975), Leftwich (1980), Beaver (1981), and Watts and Zimmerman (1986), among others.

Evaluation of specific regulation, then, depends on what Gonedes, Dopuch, and Penman refer to as the information content issue: whether the disclosed data is relevant to firm valuation. Research investigates whether newly disclosed data is associated with firm valuation (quadrant four of Figure 1) or whether it changes the firm valuation or risk, as reflected in a change in the firm's *beta* (comparing quadrant two with quadrant four). Specific disclosures mandated by the SEC or the FASB (and its predecessors) have been studied extensively. Examples are provided below of the research on the regulation of line-of-business segment disclosure and geographic segment disclosure. Lev and Ohlson (1982), Lev (1989), and Bernard (1989) provide comprehensive reviews of the empirical literature on the information content of various specific mandated disclosures.

Accounting Series Release (ASR) No. 190, requiring disclosure of replacement cost data, is frequently cited as an example of regulation producing first-time disclosure because it is one of the few regulations with almost no voluntary disclosure prior to the regulation (Watts and Zimmerman 1986). Research on this mandate finds no association between either the imposition of the regulation or the newly-disclosed information and security prices (*e. g.*, Beaver, Christie, and Griffin 1980; Gheyara and Boatsman 1980; Ro 1980). On the other hand, research on *Statement of*

Financial Accounting Standards No. 87: Employers' Accounting for Pensions (FAS 87)—which is a regulation with especially complex, multiple tiered disclosure requirements, but which merely augmented existing regulation—consistently finds an association between newly disclosed data and firm value (e. g., Barth 1991; Reiter 1991; Bozewicz 1996; Hand, Landsman and Monahan 1997).

The literature that empirically tests the information content of specific disclosures mandated by various regulations is testing “disclosure effectiveness” even though it is not specifically responsive to the FASB *Prospectus of Disclosure Effectiveness*. The *Prospectus* gives a focal point to diverse studies of specific regulations.

3.4. The regulation of line-of-business segment disclosures.

Research on the effects of the regulation of line-of-business segment disclosures tests information content, as defined by Gonedes, Dopuch, and Penman (1976) in the tradition described in section 3.3. Some studies test informativeness by evaluating changes in earnings predictability with segment data or on the change in systematic risk (firm *beta*) after regulation, comparing non-disclosing firms before and after regulation (quadrants two and four in Figure 1). Others focus on returns or return variability post-regulation (quadrant four).

Kinney (1972) and Collins (1975, 1976) show that future earnings are more accurately predicted with segment data than with consolidated data alone. Kinney uses voluntarily disclosed segment data, and Collins uses data disclosed under the 1970 SEC regulation. However, Collins also shows that there is no incremental value to segment earnings once segment revenues are known. Both conclude that segment data is useful because it improves predictions about future earnings. This finding is confirmed by Baldwin (1984), who shows that the accuracy of *Value Line* earnings forecasts improved after the 1970 segment data requirements.

Horwitz and Kolodny (1977) find no evidence of a shift in *beta* for firms that disclosed segment data for the first time in 1970. Moreover, they find no statistical difference in *beta* between firms reporting segments and firms reporting on a consolidated basis only around the time of the report date. They conclude that their tests provide “no evidence in support of the universally accepted contention that the SEC required disclosure furnished investors with valuable information” (p. 247).

Simonds and Collins (1978) respond to Horwitz and Kolodny (1977) by finding fault with their sample selection and methodology. On the contrary, they find that the SEC regulation of 1970 did provide useful information to investors in assessing firm risk and that it resulted in an average downward shift in *beta* for firms reporting segments in 1970. In their rejoinder, Horwitz and Kolodny (1978) argue that it is counterintuitive

for *beta* to decrease for firms disclosing under mandate and that it should increase. This study was followed by Collins and Simonds (1979), with more thorough testing and diagnostics of the *beta*-shift effects.

Collins and Simonds (1979) focus on the non-disclosers before and after regulation (quadrants two and four in Figure 1). They use single-segment firms and voluntary disclosers (quadrants one and three) as “control” groups. Their assumption is that the only systematic difference in groups is the amount of disclosure prior to regulation. They find that the *betas* for the portfolio of non-disclosers decreases significantly more than for the control groups in the time period that would indicate reassessment of their riskiness with segment information. On a firm-level basis, however, there were both increases and decreases—which is consistent with their hypothesis that investors may value the disclosed data positively or negatively. They conclude that their evidence is consistent with informativeness of the mandated disclosure in that it improves earnings forecasts and reduces investor uncertainty about the future prospects of multisegment firms.

Silhan (1982) and Hopwood, Newbold, and Silhan (1982) simulate mergers between single-segment firms in an experiment designed to test the potential for improvement in the prediction of consolidated earnings from using segment data. They derive conditions under which segmentation improves earnings prediction—namely if segments have different time series

or if one component leads or lags the consolidated series. Their findings are that segment data is able to improve forecasts only minimally.

Kolchanek (1974) evaluates the usefulness of segment data in earnings predictions by testing whether they result in less stock price dispersion. His hypothesis is that if segment data provides more information to investors in predicting firms' future performance, then there will be less weekly stock price variability over time for firms providing the data. His findings support this hypothesis. Swaminathan (1991) also hypothesizes that disclosure of segment data provides a more precise information signal about firm value to investors. However, his tests use a model which shows that increase in precision *increases* price variability as it decreases divergence of beliefs. He finds that price variability is higher around the release of 10-K's with SEC mandated segmented data in 1970 than in 1969 when they did not contain segmented data. Divergence of beliefs, reflected in financial analysts' forecasts, is lower for 1971 than for 1970. Both effects are proportional to the number of segments disclosed. He concludes that the SEC mandated segment data has a significant economic impact in that it provides more precise information to investors.

Ajinkya (1980) evaluates the usefulness of segment disclosure requirements by testing whether voluntary disclosures of segment data and mandatory disclosures after 1970 affect returns. He finds no difference in risk-adjusted returns between groups, either before or after regulation (that

is, comparing quadrants one and two before regulation, and quadrants three and four after). On the other hand, Givoly, Hayn, and D'Souza (1992) find that segment sales are associated with stock returns.

Tse (1989) uses a model of security prices as a function of profit, variability in profit, and expected profit growth to test whether segment earnings data is a significant determinant of price. He finds that industry-specific growth rates help to explain security prices of conglomerates. He concludes that segment data is used by, and is therefore useful to, investors. Benartzi (1994) finds that the relative size and performance of reported segments are incrementally informative, while other segment data is not.

The line-of-business segment research has revealed contradictory theoretical viewpoints on the usefulness of segment disclosure--whether it should cause *beta* to shift up or down, whether it should cause prices to be more variable or less. At the same time, researchers have found empirical results supporting both sides of the theoretical arguments. From this controversy, Tse (1989, p. 595) concludes that "previous research has not resolved the issues of *whether* and *why* segment data might be useful."

3.5. The regulation of foreign segment disclosures.

Both academic and policy-oriented research on the value of segment

disclosure have focused on line-of-business segment data. Research on foreign segment disclosure, following line-of-business research, has pursued the same line of inquiry on the information content of the disclosure, as reflected in: (1) whether segment data contributes to more accurate predictions of earnings, (2) whether segment data improves assessments of a firm's overall risk, and (3) whether stock prices incorporate segment data.

Kinney (1972) applies portfolio theory to the multisegment firm, asserting that "one possible motive for establishing a multisegment firm is to obtain the advantages of diversification" (p. 340). He is specifically interested in whether diversification via business or geographic segments reduces overall firm risk, as measured by the firm's *beta*, the multiplier of market risk experienced by the individual firm. He considers geographic and line-of-business segmentation separately, since he expects the negative covariance of segments across industries to be larger and more significant than the covariance across countries within the same world-wide industry. Consistent with expectations, Kinney finds that only three of 26 firms show negative correlation between geographic segments. The results for industry segments, on the other hand, indicate that industry diversification does reduce the firms' *betas*, which he interprets as lowering the firm's market risk. He acknowledges that the results are inconclusive due to the small sample size--a limitation of many of the segment studies.

After Kinney (1972), there were few published empirical studies of

geographic segment disclosure until recently. The foreign segment literature over the fifteen years following Kinney's study is generally descriptive of contemporary practice in segment disclosure, evaluative of compliance with requirements, or normative in prescribing what would make geographic segment reporting more useful. The most frequently raised problems are the level of aggregation at which segment information is reported and the lack of uniformity in segmentation.⁵

Pointer (1992) repeats Kinney's test of whether geographic diversification reduces risk, using a different methodology and using FAS 14 disclosures. Employing both an operating risk model and a systematic equity risk model, she tests the prediction, based on international portfolio theory, that there will be an inverse relationship between international diversification and firm risk. Like Kinney, she finds that the expected relationship does not prevail, but rather, that more geographic diversification results in more perceived risk.

The initial empirical research to test the effect of the disclosure itself (rather than that of the information disclosed), was Proudhan and Harris

⁵ Arnold, Holder and Mann (1980), for instance, express concern that common segmentation criteria are not consistently applied by a given firm and that segments are not comparable across firms. They find it common to aggregate countries, continents or subcontinents, and global divisions, and to use the classification "Other" as a primary segment. Similarly, Bavishi and Wyman (1980), observe that most firms (73% of their sample) aggregate foreign results into one or two reported segments. They also note that the manner of aggregation across firms differs considerably; for instance, among seventeen firms in the same industry (pharmaceuticals), they find twelve distinctly different segmentation schemes. In revisiting the analysis ten years later, Douppnik and Rolfe (1990) find that inconsistencies and high levels of aggregation persist, with 88% of firms still reporting three or fewer geographic segments.

(1989).⁶ They test whether firms' *betas* changed after implementation of the foreign earnings disclosure in FAS 14, paralleling Collins and Simonds (1976) test of line-of-business disclosures in the SEC regulation. They compare a control group, which reported foreign segment data prior to FAS 14, and a treatment group, which commenced reporting with the pronouncement. The *beta* of the control group is lower than that of the treatment group in the period preceding FAS 14 in 1976 and remains stable over the period from 1973 to 1982, while the *beta* of the treatment group drops to the control group level after adoption of FAS 14. They conclude that decreased risk is associated with the disclosure of foreign segment information.

Collins (1993) extends the work of Proudhan and Harris by considering that disclosure is not merely dichotomous, but rather, that disclosures vary in the quantity and quality of information provided. For testing purposes, he develops composite measures of the level of disclosure of foreign segment information in terms of the number of segments disclosed, whether specific disclosures required by FAS 14 are made (*e. g.*, foreign assets), and the number of informative disclosures in excess of requirements. He studies over time the association of his composite disclosure metrics with systematic equity risk (*beta*). He finds that

⁶ This study parallels previous work by Proudhan (1986) on the foreign disclosures of multinationals in the U. K.

disclosure is negatively associated with risk and concludes that "geographic disclosure may be a determinant of systematic risk (*beta*) in the same class as the size, financial leverage, and accounting *beta* variables" (p. 108).

Balakrishnan, Harris, and Sen (1990) investigate whether geographically segmented data improve forecasting ability relative to consolidated data. They use simple random walk models, as well as growth models which incorporate currency exchange rate and inflation rate changes. Since these rate changes cannot be applied regionally or globally, they do not use the segments as reported because of the inconsistent segmentation and high level of aggregation noted previously. Through other information included in the financial reports, they determine specific countries associated with each reported segment and allocate reported income based on the relative values of the included countries' gross national products. They find that the use of geographic segment data improves earnings forecasts significantly (and sales forecasts to a lesser degree) when known values of the macroeconomic variables are used, *i. e.*, when "perfect foresight" is assumed. The predictive ability of geographic segments is greatly reduced when there are errors in forecasting the macroeconomic variables, but it is still superior to the use of consolidated information alone. The authors also test whether the implementation of *Statement of Financial Accounting Standards No. 52: Foreign Currency Translation* (FAS 52) in 1981, whose purpose was to reduce the volatility of reported income

caused by foreign exchange translation, diminishes the importance of geographic segment reporting. They find that, even after FAS 52, geographic data still slightly improve the ability of financial statement users to predict annual income. Douppnik and Rolfe (1990) perform a laboratory experiment with Chartered Financial Analysts which also indicates that more disaggregation produces better risk prediction. Neither of these studies uses actual foreign segment data as disclosed in the financial statements, nor do they test the actual use of segment data, but only its potential use in forecasting.

Boatsman, Behn, and Patz (1993) investigate whether geographic segment data is used by investors in pricing securities. They perform an event study at the time that annual reports are released, which they presume to be the first disclosure of the geographic segmentation of earnings, although consolidated earnings are already known to the market at that time. The authors theorize that, for segment data to be useful to investors, foreign earnings must be capitalized differently from domestic earnings. They propose that foreign earnings will be less persistent and more risky than domestic earnings, which will cause them to be capitalized at a lower rate. Rather than analyzing all segments reported for a given firm, their cross-sectional tests incorporate only the five most frequently reported segment classifications: Europe, Canada, Asia, Great Britain, and South America. They predict that the coarseness in implementing

segmentation (*i. e.*, aggregation of regions with different persistence and/or risk) impairs its usefulness, and, indeed, they fail to obtain statistically significant results from the segments analyzed. They observe only a weak association between abnormal returns and unexpected geographic segment earnings, which they attribute to a few extreme observations. They conclude that the returns-earnings association is "highly contextual, depending on the magnitude of unexpected foreign profits incurred, time periods examined, and regions selected" (p. 63). Saudagaran (1993), the discussant on this paper, extends the theoretical discussion of reasons for differential valuation of segment earnings. He points out that the availability of earnings for distribution to the U. S. may be restricted by some countries and that the permanent and transitory components of earnings may result from differing economic prospects (as well as from foreign currency exchange, as Boatsman, Behn, and Patz propose). He suggests that their model, in which abnormal returns are regressed on unexpected earnings from the five segments, should be reformulated to include domestic unexpected earnings; by so doing, they could test not only the significance of each foreign component, but whether each foreign segment is valued significantly differently from the domestic. The research design of this dissertation incorporates this suggestion.

Bodnar and Weintrop (1997) consider the market valuation of all foreign operations combined, which they derive from the information given

in the note on foreign and domestic income taxes. They regress abnormal annual returns on unexpected changes in earnings, partitioned into domestic and foreign components. Their tests confirm that investors value foreign earnings significantly differently than domestic earnings, even after controlling for the difference in information environments. In fact, the magnitude of investors' response to the change in foreign segment earnings is significantly greater than for domestic earnings changes. The authors then explore the reasons for this phenomenon, to assess its economic underpinnings. They find that gains and losses from foreign currency translation are impounded as permanent earnings changes, as expected, but that they account for only a portion of the value placed on foreign earnings. Using changes in returns on segmental sales to proxy for growth opportunities in untapped foreign markets, they find that foreign segments provide better growth opportunities, which accounts for their differential value to investors. This finding is extended by Bodnar, Tang, and Weintrop (1997), who show that geographic diversification increases firm value but does not completely offset the negative effects of industrial diversification.

This dissertation is related to prior research investigating the association between returns and foreign earnings. It tests the returns/earnings relationship in each of the four quadrants of Figure 1 separately to determine whether foreign earnings is a significant determinant of returns, indicating its use by investors. It compares voluntary disclosers

and non-disclosers before regulation and after. It also tests whether the response to foreign earnings changes with regulation for either subset of firms. Thus, this study extends prior research by evaluating foreign earnings disclosure before regulation and by testing whether mandating disclosure changes the association between returns and foreign earnings.

Chapter 4: Hypothesis Development

The issue addressed in this dissertation is whether regulating a specific disclosure changes its usefulness. It is addressed through an example, evaluating the mandated disclosure of foreign earnings and the association between foreign earnings and returns. The research questions are thus focused on the foreign earnings disclosure and its valuation by investors before and after regulation. Was foreign earnings data, either from voluntarily disclosures or obtained from other sources, valued by investors before regulation? Does the requirement to disclose foreign earnings change investors' use of it? If investors' response changes, do investors value the mandated disclosure more highly because it provides a source of previously unknown information, reduces their cost of obtaining information, or improves the reliability of the disclosure? Or, do they place less value on the mandated disclosure because the disclosure no longer provides a signal or because only the minimum data mandated is provided after the regulation?

The hypotheses are developed from partitioning the information environment on two dimensions: (1) the disclosure decision (voluntary disclosure *versus* non-disclosure), and (2) the regulatory regime (the periods before and after regulation), as illustrated in Figure 1. Voluntary disclosers and non-disclosing firms are examined and compared in the period before mandated reporting of foreign earnings to investigate the association between returns and foreign earnings and to discover differences attributable to the disclosure environment. Then the association between returns and foreign earnings is investigated after regulation, individually for voluntary disclosers and non-disclosers and comparatively, to assess whether regulation changes the association.

4.1. The SEC regulation.

If firms did not benefit in some way from disclosing foreign segment data, we would expect to see little voluntary disclosure because it is costly. Yet, prior to 1970, when there was no authoritative accounting pronouncement requiring the periodic disclosure of segment data,⁷ it was not uncommon for firms to disclose the earnings of their

⁷ The 1969 SEC regulation, 33-4949, which applied to new registrants, preceded the 10-K requirement in 33-4988. However, because it dealt only with new registrants, the 1969 mandate was not applicable to the firms studied here, so it is omitted from discussions and testing.

line-of-business and geographic segments--often well before the 1967 APB statement suggesting it. Since there was substantial voluntary disclosure of foreign earnings in the period before 1970, it may be inferred that some firms expected the benefits of disclosure to exceed its costs and that disclosing firms either had lower costs than non-disclosers, or anticipated higher benefits, or both. Assuming that voluntary disclosers behaved rationally (and assuming away any agency conflicts as described in Jensen and Meckling 1976), it is expected that the foreign earnings data disclosed was value relevant.

The first hypothesis, in null form, relates to the subset of firms that voluntarily disclosed foreign earnings in the period prior to the first SEC mandate:

H₁₀: Voluntarily disclosed foreign earnings were not value relevant.

Failing to reject this hypothesis would imply that foreign earnings were not significant in investors' valuation of voluntarily disclosing firms. It could also be that the data was not meaningful to investors in the form reported (which was unrestricted, since disclosure was completely discretionary). The alternative hypothesis is that foreign earnings as disclosed were valued by investors.

Even if voluntarily disclosed foreign earnings are value relevant, however, it cannot be assumed that their disclosure is important to investors. In order for the disclosure of foreign earnings to be incrementally informative to investors once total earnings are known, foreign earnings have to be capitalized at a different rate than domestic earnings (see Boatsman, Behn and Patz 1993). Jennings (1990) explains the importance of differential valuation:

...knowledge of the components of income is preferred by investors only when the components are valued (associated with returns) differently from each other. For components that are valued by the market equivalently, disclosure of their sum is sufficient because investors are indifferent to which component contributed more or less to income (p. 926).

If the components of earnings were valued equally, then total earnings would be adequate data for valuation.

The second hypothesis is that the domestic and foreign components of earnings are valued differently for the subset of firms which voluntarily disclosed segment data prior to the 1970 SEC regulation. The second hypothesis, in null form, is:

H₂₀: There is no difference in the value investors placed on domestic earnings and foreign earnings voluntarily reported.

Failure to reject this hypothesis would suggest that disclosure of the domestic and foreign components of total earnings is unnecessary, even if they are both economically significant. The alternative is that foreign earnings were valued differently from domestic earnings. The inference from differential valuation is that the voluntary disclosure of foreign earnings has incremental information content over total earnings for investors.

A second subset of firms did not voluntarily provide geographic segment data prior to the SEC regulation. They began reporting in 1970 as required by SEC Release No. 33-4988 and provided retrospective data in their disclosures for at least one, and as many as four, prior years. The regulation required the four previous years to be reported for segments that met the regulation's materiality tests in the year of implementation, but compliance varied. For example, the 1970 report should include foreign earnings disclosures for 1969, 1968, 1967, and 1966, which were not previously disclosed in those years. Using this retrospective data, it is possible to evaluate whether foreign earnings were value relevant to investors even though they were not explicitly disclosed in the 10-K's filed with the SEC or in the annual reports to shareholders. In an efficient market, it is assumed that this data would

be obtained from other sources if it were important to investors' pricing decisions. In null form, the third hypothesis, for non-disclosers, is:

H3₀: Foreign earnings (determined from retrospective disclosures) were not contemporaneously value relevant.

Failure to reject this hypothesis implies that foreign earnings were not known to investors by means other than explicit disclosure or that, if known, they were not value relevant. The retrospective disclosure will differ from the voluntary disclosures discussed above, and may differ from the information known to investors at the time, in that the definition of segments and level of earnings reported will follow the guidelines provided in the regulation. If the foreign earnings data obtained by investors at the time was different from the retrospectively disclosed data, then the disclosure may not be associated with contemporaneous returns. The alternative hypothesis is that undisclosed foreign earnings were known to investors and were significant determinants of value.

As discussed above, the disclosure of foreign earnings may be value relevant, but distinguishing foreign earnings is unnecessary to firm valuation unless they are priced differently from domestic earnings. Therefore, it is necessary to question whether foreign earnings which were not explicitly reported before 1970 were valued differently from

domestic earnings. Pertaining to the second subset of firms, the non-disclosers, the fourth hypothesis, in null form, is:

H4₀: There is no difference in investors' valuation of undisclosed foreign earnings and domestic earnings.

Failing to find a difference in the value placed on foreign and domestic earnings would suggest either that disclosure of the foreign and domestic components of earnings was not useful to investors, or that in the pre-regulation period, investors were unable to partition earnings without the required disclosure. The first interpretation is consistent with an efficient market; the second is not.

The first four hypotheses consider separately the value relevance and the incremental information content of foreign earnings for voluntary disclosers and for non-disclosers in the period before the SEC regulation. Next, it is necessary to consider whether there is a difference between the valuation of foreign earnings for voluntary disclosers and for non-disclosers before regulation. Were the foreign earnings of non-disclosers valued as highly as the foreign earnings of voluntary reporters? Investors may value data in reports published or filed with the SEC more highly than data obtained otherwise, or they may respond to the signal of voluntary disclosure as well as to the data disclosed, as suggested by

the results of Ronen and Livnat (1981). Stated in the null form, hypothesis five is:

H5₀: The valuation of foreign earnings for firms which voluntarily reported was not significantly higher than for firms which did not explicitly report their foreign earnings.

Accepting this hypothesis implies that foreign earnings are equally value relevant regardless of reporting requirements or how the data is obtained. Rejection of the hypothesis would imply that investors valued voluntarily disclosed foreign earnings more highly than the foreign earnings of non-disclosers.

After examination of the value relevance of foreign earnings prior to mandated reporting, the period after regulation is considered. The focal issue of this dissertation is whether regulation changes the usefulness of disclosures. Examination of the post-regulation period and the changes from before regulation are important. How did the SEC regulation change the value relevance or the incremental information content of the foreign earnings disclosure, either for voluntary reporters or for those who had previously not disclosed?

In efficient markets, it is expected that all data useful in firm valuation will be obtained by investors, whether from financial reports or

otherwise (Fama 1970). However, there are several reasons that mandatory disclosures might be more value relevant than other data. Investors may value mandatory disclosures more highly because they consider them more reliable than either voluntary disclosures or other sources due to closer monitoring by regulators. For previously non-disclosing firms, investors might use mandatory disclosures in firm valuation because they are virtually costless and are easily accessible, where they might not have been willing to incur the necessary costs to acquire the same data if it were not disclosed.⁸ Therefore, it is possible that foreign earnings disclosed under regulation will be valued more highly than before regulation for either voluntary disclosers or non-disclosers, or both--or may become value relevant for non-disclosing firms if the data was previously unobtainable.

On the other hand, if regulation causes a change in investors valuation of the foreign earnings disclosure, it could be that the mandated disclosure will have less importance because it is less informative. Part of the information conveyed by voluntary disclosure may be that the firm itself finds the disclosure relevant (*e. g.*, Ronen and Livnat 1981); requiring disclosure would neutralize this effect.

⁸ According to Beaver (1981), investors will seek to acquire information to the point where "...the expected benefits of being more informed (*e. g.*, in the form of expected superior returns due to better information) are equal to (or offset by) the costs incurred to obtain the additional information" (p. 193).

Additionally, Watts and Zimmerman (1986) discuss the fact that regulation may restrict the available set of accounting procedures in such a manner that disclosed data is more variable, and so less value relevant. Nagarajan and Sridhar (1996) show that firms that voluntarily disclosed may deliberately obscure their disclosures after regulation if they feel that the regulation invades proprietary information. In either case, regulation may decrease the informativeness of the foreign earnings disclosure.

The sixth hypothesis is that there is no difference in the relative value placed on foreign earnings before and after the 1970 regulation for either sub-set of firms.

H₆: There is no difference in the relative valuation of foreign earnings which were reported before and after mandated disclosure.

This hypothesis may not be rejected regardless of the outcome of previous tests. The alternative is that foreign earnings reported under regulation are valued differently than foreign earnings data obtained from voluntary disclosure or from other sources.

These six hypotheses cover the four individual states in the intersection of disclosure/non-disclosure and pre-regulation/post-

regulation (as depicted in Figure 1) and compare the differences across states. They examine whether voluntarily reported foreign earnings and unreported foreign earnings were value relevant in the period prior to the 1970 SEC regulation, whether there was any difference in the way they were valued by investors, and whether the regulation made a difference in the way they were valued. It is expected that voluntarily disclosed foreign earnings will be found to be value relevant, that they are significant determinants of returns, and that they are valued differently than domestic earnings. This finding would suggest benefits to firms voluntarily disclosing foreign earnings--*i. e.*, if they have a strong positive association with returns. On the other hand, while efficiency in capital markets would imply that foreign earnings of non-disclosers were known (at least, to some investors), it is expected that foreign earnings were less important determinants of returns for firms that did not disclose.

If markets were efficient, then regulations requiring disclosure would provide no benefits. Foreign earnings would only become more important in valuation if investors value the regulation itself. That is, it is possible that investors find regulated disclosure more trustworthy than voluntary disclosure or other sources of data. If investors do not value the regulation itself or do not value monitoring of the disclosure, then requiring disclosure may actually decrease the value that investors place

on it because of restrictions in accounting procedures or because it is no longer a signal.

4.2. The FASB regulation.

Not all firms with foreign operations responded to the SEC disclosure regulation in 1970. As discussed in Section 2.2., the regulation was not specific regarding the treatment of foreign segments, allowing considerable latitude. Still, firms that clearly met the firm-size criterion and had segment revenues and earnings over 10% of the respective totals, neglected to disclose foreign segment data as a result of the 1970 SEC regulation.⁹ Consequently, many firms only began reporting geographic segment data with the adoption of FAS 14 in 1976. For this reason, the promulgation of FAS 14 represents another instance of regulation impacting the information environment regarding foreign earnings; the partitioning shown in Figure 1 is applicable, with FAS 14 representing the regulation. It provides a second opportunity to evaluate the effects of mandated disclosure on firm valuation by investors, using the foreign earnings disclosure.

⁹ This study disregards firms that did not meet the regulations' thresholds for disclosure or firms that only attained those thresholds during the post-regulation periods.

The fourth subset of firms includes those which did not report foreign earnings in their Form 10-K's or in their annual reports until it was required by FAS 14. Since FAS 14 also required up to four years of retrospective data to be provided upon adoption, this subset of firms faces a reporting environment similar to that of the second subset of firms which began disclosing foreign earnings with the SEC's Release 33-4988. Thus, the third and fourth hypotheses can be applied in this context, with FAS 14 as the reporting mandate.¹⁰ This non-disclosing group of firms is compared to the original voluntary disclosers (the first subset), since firms that disclosed to comply with a previous mandate would not be truly *voluntary*, even though they disclosed segment data prior to FAS 14.

In applying the hypotheses to the FASB regulation, the first concern is whether the foreign earnings that were not explicitly reported prior to the implementation of FAS 14 by the fourth subset of firms were value relevant (H3). Then, even if value relevant, for the components to be incrementally informative, it is important that there is a differential valuation of foreign and domestic earnings (H4). Voluntary disclosers from the first subset are compared to non-disclosers to determine whether investors value explicitly disclosed foreign earnings more highly

¹⁰ The hypotheses are generic with respect to the particular regulation.

than undisclosed foreign earnings (H5). Finally, an investigation is made as to whether the change in the information environment after adoption of FAS 14 changes investors' valuation of foreign segment earnings (H6).

The expectations regarding the SEC's initial regulation of the foreign earnings disclosure are unchanged for the implementation of FAS 14. That is, it is expected that the foreign earnings of voluntary disclosers will continue to be value relevant, and the foreign earnings of non-disclosers will not be value relevant, implying rational disclosure decisions. Regulation need not change the relative value relevance of foreign earnings, but it could either increase or decrease value relevance, depending on how it alters investors' information sets and perceptions.

Chapter 5: Data

Data were obtained by searching for firms with foreign operations that disclosed the data required before and after the two regulations examined in this study. The sample was screened for extreme values and for undue influence. Sample characteristics--industry affiliation, proportion of foreign earnings, firm size--are also discussed in this chapter.

5.1. Sample selection.

The firms analyzed in this research were selected using two approaches. First, a search was made of the *NAARS* database for firms which discussed or reported geographic segments in 1980 (the first year available on the database). A total of 639 firms were identified. Each firm's annual reports to shareholders and SEC filings of Form 10-K were searched, beginning backward from 1980, for the first year in which geographic segment earnings were reported. Secondly, a list of firms that reported foreign segment earnings in the years 1967-1969 was obtained from *Accounting Trends and Techniques* in each year. This list

provided 15 firms that did not survive until 1980, and so would not otherwise have been included.

From these two search strategies, five sub-samples were obtained: (1) firms which voluntarily reported foreign earnings prior to 1970, (2) firms that began reporting as a result of the 1970 SEC regulation and provided at least one year of retrospective data, (3) firms that began reporting in 1970 after the SEC regulation but did not provide retrospective data or only began reporting sometime between 1972 and 1975, (4) firms that began reporting as a result of implementing FAS 14, providing retrospective data, and (5) firms that began reporting with FAS 14, but provided no retrospective data. Firms were eliminated if their 10-K or annual reports were unavailable. Other firms were omitted because their foreign operations were so immaterial that they were not quantified or because their "foreign segments" did not really represent foreign operations (*e. g.*, Scott Paper's foreign subsidiaries sold only to the parent company). Firms remaining in the sample also had to have fifteen months of returns data available on the *CRSP NYSE/AMEX Monthly Returns File*.

From the complete sample of 654 firms identified by the two searches, it was impossible to locate the 10-K or annual reports of 153 firms for this time period at the Baruch College, New York City Public, or

Brooklyn Public Libraries. Another 151 firms were eliminated because their foreign segments did not fit the definition of foreign operations used here, or because they did not disclose foreign *earnings* (but only assets or revenues). Of these, 21 firms were rejected because they did not begin actually reporting foreign segment earnings until after 1980. There was no *CRSP* data for another fifteen firms. The remaining 335 firms are distributed among the sub-samples as follows: (1) 132 firms voluntarily reported before the SEC requirement, 84 of which were randomly chosen to be used in the tests for this study; (2) 28 firms began reporting with the 1970 mandate and provided retrospective data; (3) 86 firms either began reporting in 1970 but provided no retrospective data, or they began foreign earnings disclosure between 1972 and 1975 (*i. e.*, not directly responding to the regulations in question); (4) of the 89 firms that began segment reporting as a result of implementing FAS 14 between 1976 and 1980, 32 provided retrospective data, and (5) 57 of the FAS 14 firms provided no retrospective data. The distribution of the sample is presented in Table 1, Panel A.

The full sample is fairly large, considering the dates for which data is required and the consequent problems with data availability. Each sub-sample (other than voluntary disclosers) is on the order of magnitude of the sample used by Kinney (1972) in the geographic portion of his

study; except for the SEC non-disclosers, in fact, the sub-samples all exceed his total of 29 firms. Previous geographic segment studies have obtained samples of similar magnitude. For instance, Balakrishnan, Harris and Sen (1990), using more readily available data from 1984 and 1985, had 89 firms. Smaller samples may limit the inferences which can be drawn from test results, but measurements of statistical significance generally operate satisfactorily for samples of thirty or more observations (central limit theorem, as discussed, for instance, in Chao 1974, p. 188).

5.2. Sample screening.

All of the 335 firms selected were included in the testing that follows except: (1) the 86 firms in the third sub-sample of firms, which began disclosing foreign earnings sometime between 1970 and 1976,¹¹ and (2) 44 of the firms that voluntarily disclosed foreign earnings prior to the SEC mandate. A random selection was made of two-thirds of the firms in this sub-sample (SS1 on Table 1) to be used for testing. The reduction of this sub-sample was made because of the inordinately large

¹¹ The third sub-sample of firms may contain truly voluntary disclosers--*i. e.*, firms that did not meet the criteria for disclosure under the SEC regulations but that made the decision to disclose nonetheless. However, it may also include firms that delayed compliance to the SEC mandate. Because this sub-sample is merely an aggregation of all firms that began disclosing between 1970 and 1976, when the regulation was already in effect, it would be difficult to separate voluntary from mandatory disclosures in this period. Hence, this sub-sample is not used in any of the testing

proportion of voluntary disclosers compared to other sub-samples and because of high data-collection costs. The fraction was reduced by the unavailability of *CRSP* data for four firms in this category.

The first observation for each firm is the earliest year for which foreign earnings are disclosed, regardless of the year in which the disclosure is made. For instance, one firm responding to the 1970 SEC regulation might present foreign earnings retrospectively for 1969 only, while another firm supplies data for 1966 through 1970. Thus, the number of observations per firm differs. The number of usable observations, or firm years, for each sub-sample is shown on Table 1, Panel B.

The primary screen on the sample obtained for testing was made for observations with extreme values for the scaled earnings variable. The limits established by Easton and Harris (1991) were used--*i. e.*, eliminating observations where net income scaled by the market value of equity was less than -1.5 or more than 1.5. This screen resulted in the elimination of 28 observations, 22 of which were from two firms with extremely low market capitalization. In addition, eight observations which were unduly influential in the regression tests were eliminated.¹² The complete screening resulted in dropping 36 observations, or

¹² Influence is determined using Greene's (1990) leverage measurement.

approximately 2.4% of the original number of observations (as shown on Table 1, Panel B).

5.3. Sample characteristics.

Table 2 shows the industry affiliations of firms in the screened sub-samples. Although there is some industry concentration (*e. g.*, in the chemicals and electronics industries), the distribution of firms across industries does not differ significantly between sub-samples. Panel B of Table 2, graphing the industry affiliations, illustrates the similarity in distribution across the three sub-samples. Industry effects should not affect the comparison of groups in the tests.

In terms of size, however, the groups appear to be quite different. Table 3, Panel A, presents averages of the proportion of foreign earnings and of various size measures for voluntary disclosers and non-disclosers prior to the SEC regulation.

Before the SEC regulation, the voluntary disclosers are more than twice as large as the non-disclosers in terms of revenues and net income--\$1,514.8 million and \$94.3 million, respectively, *versus* \$663.2 million and \$44.5 million for non-disclosers. Their assets are \$1,183.6 million, compared to \$605.4 for non-disclosers, which makes them

almost twice as large in assets. The dollar value of foreign income for non-disclosers (\$15.6 million) is only 68% of the level of voluntary disclosers (\$22.8). However, there is no difference between the proportion of foreign earnings for the SEC non-disclosers and for voluntary disclosers prior to regulation. Non-disclosure does not result from a relatively low proportion of foreign earnings in the period before the SEC regulation. There are differential benefits, as well as marginal costs, related to size, however, that influence the disclosure decision and deter disclosure from smaller firms.

In the period after the SEC regulation, the sizes of both groups of firms are about 40% larger than before in terms of revenues and assets. At the same time, net income of voluntary disclosers has increased 28%, while non-disclosers increased only 22%. Voluntary disclosers are still roughly twice as large as non-disclosers in revenues (\$2,168.9 million *versus* \$919.1 million), assets (\$1,652.1 million against \$846.5 million), and net income (\$120.5 and \$54.2 millions respectively). The proportion of foreign income to the total has increased from 24.1% for both groups, but the period average for voluntary disclosers (29.3%) is now higher than for non-disclosers (27.2%).

Examining the changes in the proportions of foreign income with the annual detail provided in Table 3, Panel B, reveals that the

percentage of foreign income for non-disclosers was much lower than for voluntary disclosers in 1971 (16.9% *versus* 28.5% respectively). The relationship reversed in 1972 and 1973, however, with non-disclosers showing foreign earnings of 34.3% and 34.6% of total earnings, while voluntary disclosers report only 28.9% and 29.9%.

Table 3, Panel B, also shows that net income did not increase monotonically over the period. There were declines in 1969 and 1970 for both groups. On the other hand, 1972 and especially 1973 reflect a large growth in revenues and income for non-disclosers that is even more extreme for voluntary disclosers.

Table 4, Panel A, shows the average proportion of foreign earnings and size measures for the periods before and after the FASB regulation for the voluntary disclosers and for the set of non-disclosers that began disclosing as a result of FAS 14 and made retrospective disclosures. As noted before and after the SEC regulation, the pre-FASB regulation revenues and net income of voluntary disclosers (\$3,218.7 and \$187 million respectively) are about twice those of non-disclosers (\$1,682.4 and \$86.6 million). In terms of total assets, the voluntary disclosers are now only 1.6 times as large as non-disclosers (\$2,262.8 million *versus* \$1,452.7 million). In the proportion of foreign earnings to total, however, the pre-FASB non-disclosers have a very low average

percentage of foreign earnings—17.1% compared to 36.1% for voluntary disclosers. The low proportion of foreign earnings could have influenced the disclosure decision beyond the relatively lower benefits and higher marginal costs due to size.

After the FASB regulation, the average revenues of voluntary disclosers (\$4,796 million) are still twice those of non-disclosers (\$2,374 million); assets are 1.5 times as large (\$3,049.4 *versus* \$1,979.6 million); but net income of voluntary disclosers is now more than three times that of non-disclosers (\$316.1 million compared to \$102.9 million). The proportion of foreign to total earnings decreases for voluntary disclosers after regulation, from 36.1% to 34.8%, but for non-disclosers it increases from 17.1% to 20.1%.

Panel B of Table 4 gives the annual means. Voluntary disclosers experienced income growth in every year except 1975. The percentage of foreign income to total, however, decreased steadily from 38.4% in 1974 until it reached 30.4% in 1977; then it began to increase again, with a large upward shift to 40.8% in 1979. For voluntary disclosers, total income declined in 1975 and 1977. The percentage of foreign income reached its nadir of 14.5% in 1975, and increased steadily to 22.3 in 1979. These differences probably reflect different macroeconomic effects for these two groups of firms.

Firms with the lowest level of disclosure in this study, the FASB non-disclosers that did not provide retrospective data, are the smallest in revenues and assets. Revenues and assets in each year from 1977 to 1979 are less than half those of the non-disclosers that provided retrospective data. On the other hand, the proportion of foreign earnings and the average dollar level of foreign earnings are higher in each of the years than for non-disclosers with retrospective disclosure. The relative magnitude of foreign earnings appears to be less influential in the disclosure decision than firm size.

Chapter 6: Tests and Results

The six hypotheses are tested for both the SEC and the FASB mandates. Testing provides evidence that voluntary disclosures of foreign earnings were value relevant while undisclosed foreign earnings data (obtained from the subsequent retrospective disclosures) was not contemporaneously value relevant. These findings support the inference that firms had appropriate disclosure decision strategies prior to regulation. There is no evidence to suggest that mandating disclosure of foreign earnings results in its use by investors, as reflected in returns. For non-disclosers, foreign earnings continue to lack value relevance after mandated disclosure. For voluntary disclosers, the incremental informativeness of the disclosure decreases after regulation. Neither regulation is effective in compelling disclosure that is useful to investors.

6.1. Methodology.

The hypotheses are tested using methods developed in the

earningsresponse coefficient (ERC) literature, as it evolved from Ball and Brown (1968, p. 160), who viewed “security prices as an operational test of usefulness.” Building on this connection, subsequent research has commonly used the association between “the change in stock price (return) . . . and the change in the firm’s equity (earnings)” to empirically test the use of earnings information by investors (Lev 1989, p. 158), in the relationship:

$$R_{it} = \alpha_i + \beta_i X_{it} + \varepsilon_{it} \quad [1]$$

where R is the return, X is earnings per share for firm i in period t , and ε is the disturbance term. The parameter β , the earnings-response coefficient, represents the rate at which earnings are reflected in stock prices.

Although the model has frequently been respecified in order to consider only the relation between abnormal returns and unexpected earnings to improve the power of the returns-earnings association (Lev 1989; Easton and Zmijewski 1989), recent research indicates that the use of earnings levels produces results similar to the use of unexpected earnings (Collins and Kothari 1989; Easton and Harris 1991; Kothari 1992). Kothari (1992) suggests that the levels formulation is a better

model when there is no good proxy for unexpected earnings.

The proxies of expected earnings most commonly used in the literature have been (a) previous period's earnings (*e. g.*, Bernard and Thomas 1989, 1990; Dhaliwal and Reynolds 1994), (b) projections based on various time-series models (*e. g.*, Beaver 1970; Ball and Watts 1972; Albrecht, Lookabill, and McKeown 1977; Watts and Leftwich 1977; Lipe 1986; Hopwood and McKeown 1992; Finger 1994), and (c) analysts' forecasts (*e. g.*, Swaminathan and Weintrop 1991; Elgers and Lo 1994; Soo and Soo 1994). There is evidence that analysts' forecasts provide the most accurate earnings expectations (Brown *et al.* 1987), but since analysts' forecasts by segment are not available for this time frame (Collins 1976), their forecasts cannot provide a proxy for expected foreign segment earnings in the expanded model to be used for hypothesis testing in this paper. Similarly, the number of previous observations required for time-series forecasting would not be available for most firms in the sample. Ball and Watts (1972), for instance, use annual data for twenty years; they exclude firms with fewer years of data because "the estimating procedures are sensitive to both few and missing observations" (p. 667). Using the change in earnings (*i. e.*, assuming that investors expect this period's earnings to equal last period's, so that any change is unexpected) is especially problematic

when firms experience losses, since the loss will generally not be the next period's earnings expectation (Hayn 1995; Elgers and Lo 1994; Basu 1997). Due to the number of net losses occurring in this sample, the earnings change proxy for unexpected earnings is unsuitable. Thus, because of the problems determining unexpected earnings, and to avoid reduction of the sample, the basic model provided in Equation [1] is used as the basis for hypothesis testing.

The earnings variable is scaled by size, as:

$$R_t = \alpha_{\alpha} + \alpha_{1t} X_t / P_{t-1} + e_t \quad [2]$$

where P is the share price at the beginning of the cumulation period. Earnings are scaled by the market value of equity at the beginning of period t , to normalize the coefficient values and to reduce heteroscedasticity (e. g., Christie 1987; Easton and Harris 1991; Kothari and Zimmerman 1995).

Returns are adjusted for overall market effects because the downward trend of the stock market in some parts of the period studied often results in negative relationships between raw returns and earnings (Clements 1996). Market-adjusted returns are the difference between the firm's return and the *CRSP* equal-weighted market return index (as in

Chan and Seow 1996, for example).

The windows over which returns have been measured in the ERC literature vary from a few days to as much as ten years (Lev 1989). Short windows are used for event studies in which the earnings announcement (or other event) is considered to be the primary source of information to investors. However, the results obtained by Ball and Brown (1968) indicate that as much as 85-90% of the information contained in earnings is impounded in stock prices prior to earnings announcements. While this phenomenon occurs for total earnings, it is likely that more information about foreign segments is contained in the actual announcement (*e. g.*, Boatsman, Behn and Patz 1993). Thus, the announcement may be an information event for foreign earnings, but not for domestic or total earnings. To encompass both conditions, the tests of the association of earnings with stock returns are made over a twelve-month window which includes the announcement date, beginning the fourth month of the year and extending for three months past year-end--*i.e.*, from April through March for firms with December fiscal year-ends. Research has shown that earnings are generally reported within three months of year end for U. S. firms (*e. g.*, Givoly and Palmon 1982), and most firms comply with the SEC requirement to file Form 10-K within ninety days of year end unless there are severe problems (see Chambers

and Penman 1984).

The primary model used for testing disaggregates the earnings variable into foreign and domestic components. Where the sum of reported foreign and domestic earnings is not equivalent to total net income (*i. e.*, if there are unallocated expenses, interest, taxes), then a third variable, representing other items, is needed to complete the disaggregation. The disaggregated regression equation is:

$$R_t = \beta_{0t} + \beta_{1t}FX_t / P_{t-1} + \beta_{2t}DX_t / P_{t-1} + \beta_{3t}OX_t / P_{t-1} + \varepsilon_t \quad [3]$$

where FX is foreign earnings per share, DX is domestic earnings per share, OX is other elements of earnings per share, and ε is a disturbance term. The OX variable represents unassigned expenses, and the value of each observation has been negatively signed. Hence, the negative relationship between expense and return will not be reflected in the coefficient; the coefficient should be positive.

6.2. Summary statistics.

Summary statistics for the scaled variables are given in Table 5. Panel A shows statistics for the variables of voluntary disclosers and

non-disclosers before and after the SEC regulation. The mean scaled foreign earnings variable, FX_t/P_{t-1} , is smaller for voluntary disclosers than for non-disclosers, both before and after regulation (.0156 *versus* .0243 before and .0245 *versus* .0287 after). However, while larger for non-disclosers, it is also more variable. The standard deviation for voluntary disclosers compared to non-disclosers is .0147 to .0198 before regulation, but afterwards, it is .0320 to .0508. While magnitude reflects relative importance, variability reduces usefulness (Watts and Zimmerman 1986, p. 241).

In Panel B, covering the period before and after FASB regulation, the relative size and variability relationships for voluntary disclosers and non-disclosers is reversed. That is, the mean scaled foreign earnings variable is now larger for voluntary disclosers for both periods: .0318 before and .0614 after, compared to .0294 and .0470 for non-disclosers. It is also more variable to voluntary disclosers. The standard deviation for voluntary disclosers *versus* non-disclosers is .0442 to .0363 before regulation and .0682 to .0510 after. On the other hand, variation in the mean of the scaled domestic variable, DX_t/P_{t-1} , decreases for voluntary disclosers after regulation but increases for non-disclosers. The standard deviation goes from .1332 to .1202 for voluntary disclosers, but from .1180 to .1520 for non-disclosers.

It is interesting to note that the average market-adjusted return is negative in all periods except after the SEC regulation, from 1970 to 1973 (seen in Panel A), which immediately preceded the 1973-74 market crash. The time span covered in the first three periods of this study (that is, 1966-70, 1971-71, and 1974-76) is among the worst in the century in terms of returns to investors (Clements 1996), and poor returns are reflected in the summary statistics in Table 5.

Panel C of Table 5 shows the annual detail of the scaled income variable, X_t/P_{t-1} . The annual detail reveals erratic growth patterns indicative of macroeconomic changes that could affect the regressions, especially where they impact voluntary disclosers and non-disclosers differently. Voluntary disclosers experience significant income declines in 1967 and 1975 (both down 19%) and minor declines of 1-2% in 1969, 1970, 1976, and 1979. Then, voluntary disclosers have an abrupt increase in income in 1973 (up 48%) and again in 1974 (another 42% increase). The pattern for non-disclosers is similar in some respects. Non-disclosers have income declines in 1967 and 1975, but they are not as extreme (10% and 16% respectively). However, the non-disclosers also have a significant drop of 20% in 1969. As with voluntary disclosers, minor declines occur in 1970 and 1979, but non-disclosers also have minor declines in 1973 and 1974 instead of

increases.

Panel D of Table 5 shows correlations between the disaggregated earnings variables. Highly correlated independent variables produce extremely large variances, and would necessitate further diagnostics for detecting multicollinearity in the regressions. However, the cross-sectional correlations between the domestic and foreign variables here are relatively small.¹³

Before the SEC regulation, the *FX-DX* correlation for both voluntary disclosers and non-disclosers is negative and very low: -.0710 and -.0098. After regulation, the negative correlation for non-disclosers is higher (-.3715) and the correlation for voluntary disclosers is higher and positive (.2206). In the next periods, they remain positive for voluntary disclosers: .0791 before the FASB regulation and .1833 after. The correlations for non-disclosers are considerably higher in this period and are positive: .2273 before and .4862 after the regulation. Finding higher correlations for non-disclosers is consistent with the expectation that firms make efficient disclosure decisions. It would be expected that less benefit would be derived from disclosing components that were more highly correlated. The magnitude of the foreign/domestic earnings correlations increases for all firms in both post-regulatory periods. This

¹³ Condition indices, computed for each regression, were between 2 and 5—well below the critical value of twenty that indicates serious multicollinearity (Greene 1990).

increase predicts that the disaggregations will be less informative after regulation.

6.3. Pre-SEC regulation tests.

Table 6, Panel A, presents the results of the basic regression to confirm comparability with results obtained by previous researchers and to provide a benchmark for evaluating improvement in the explanatory power of the model (adjusted R^2). The magnitudes and significance of the intercept and earnings coefficients are generally consistent with the results obtained by Easton and Harris (1991, Table 1) for this time period. Their three annual regressions for this period (1968, 1969, and 1970) have intercepts of .12, -.20, and .01, and the coefficients on earnings are 2.52, 1.46, and 1.39. Here, for the period prior to the SEC regulation (1966-1970), the intercept and earnings coefficient are -.1134 and 1.1960 for voluntary disclosers and -.1996 and 2.2686 for non-disclosers. The explanatory power of the regressions is lower than theirs-- .0381 for voluntary disclosers and .0518 for non-disclosers, compared to their average of .09--but it is not inconsistent with adjusted R^2 from previous studies (Lev 1989). The adjusted R^2 obtained in ERC studies overall is low (Lev 1989; Bernard 1989), indicating that earnings

are incomplete in explaining returns. Regardless of its absolute value, the adjusted R^2 from the basic model can be used as a benchmark for evaluating whether the disaggregated variables are informative.

The first hypothesis, in null form, states that foreign earnings which were voluntarily reported in the period prior to the first SEC mandate were not a significant determinant of stock returns. Using equation [3], the hypothesis test can be stated as: $H1_0: \beta_1 \leq 0$. If the coefficient is not found to be significantly greater than zero in the disaggregated regression for voluntary disclosers, then the conclusion is that the FX variable is not important in determining returns during the period. On the other hand, the finding $H1_A: \beta_1 > 0$ would indicate that foreign earnings are value relevant for voluntary disclosers.

The regression of market-adjusted returns on earnings disaggregated into foreign, domestic, and other components is shown in Table 6, Panel B. For the group of firms that voluntarily disclosed disaggregated earnings prior to the SEC mandate, the coefficient on foreign earnings of 3.4574 is statistically significant, with a p-value of less than .01 in a one-tailed test. Based on this test $H1_0: \beta_1 \leq 0$, the hypothesis that the foreign earnings segment is not important as a determinant of returns is rejected.

For the group of firms that did not disclose voluntarily, the third

hypothesis, in null form, states that foreign earnings which were determined from the retrospective disclosures for the period prior to the first SEC mandate were not contemporaneously value relevant. The hypothesis test is $H_{3_0}: \beta_1 \leq 0$. For non-disclosers, also shown in Panel B of Table 6, the coefficient of 2.7381 on foreign earnings is not statistically significant. H_{3_0} cannot be rejected.

Foreign earnings are value relevant for the voluntary disclosers, but there is no evidence of value relevance for the non-disclosers, in the pre-regulation period. The information in the retrospective disclosures of non-disclosers was not obtained at the time by investors, or if it was, it was not used by them in firm valuation.

For the foreign earnings disclosure to be important in valuation, however, it must have incremental information content. Disaggregation would be meaningful only if there were a difference in the value that investors placed on foreign and domestic earnings. The second hypothesis, regarding differential valuation for voluntary disclosers is tested by a t -test of the equivalence of the coefficients on foreign and domestic earnings, or $\beta_1 = \beta_2$. The t -statistic obtained for voluntary disclosers is 1.995. The critical value for t is 1.96 with a p -value of .05. Thus, equivalence of the coefficients is rejected for voluntary disclosers. This finding confirms the incremental information content of foreign

earnings for the voluntary disclosers. Interestingly, in the regression results, the response coefficient on foreign earnings (3.4574) is significantly higher than the coefficient on domestic earnings (1.0395), indicating that investors place more value on foreign earnings than on domestic earnings in firm valuation. This result is consistent with the findings of Bodnar and Weintrop (1997).

The fourth hypothesis, regarding differential valuation of foreign and domestic earnings for non-disclosers, can be stated as: H_{4_0} : $\beta_1 = \beta_2$. In the t -test of the equivalence of the coefficients, the t -statistic obtained for non-disclosers is .188--well below the critical value of 1.96 for t (with a p -value of .05). For non-disclosers, there is no statistically significant difference in the valuation of foreign and domestic earnings.

Incremental information content is also implied by comparison of the adjusted R^2 of the regressions before and after the disaggregation of earnings. Table 6 indicates that disaggregation increases the explanatory power (adjusted R^2) of the regression for voluntary disclosers from .0381 to .0509, but explanatory power is greatly reduced for non-disclosers, from .0518 to .0215. There is no evidence that the disaggregation is meaningful for the non-disclosers because the components are not valued differently--as evidenced by the fact that the coefficients on the

components are not significantly different. The finding that disaggregation improves explanatory power for returns of voluntary disclosers, but not for non-disclosers, supports the inference that firms selected the appropriate disclosure strategy prior to regulation.

The fifth hypothesis is that there is a difference in the valuation of foreign earnings between voluntary reporters and non-disclosers in the period before regulation. While some of the results of the previous tests differ for voluntary disclosers and non-disclosers, they do not necessarily imply a statistical difference between the two subsets because the standard error of the coefficients is high, especially for non-disclosers, while the coefficient values are comparable. The difference between disclosers and non-disclosers is tested directly by combining the two sets of firms and adding a dummy variable *DISC* to regression equation [3], whose value is 0 if the firm voluntarily disclosed foreign earnings in this period and 1 if not. Interactive terms between the disclosure dummy and each of the earnings components are also added. The new regression equation is:

$$\begin{aligned}
 R_t = & \gamma_{0t} + \gamma_{1t}FX_t / P_{t-1} + \gamma_{2t}DX_t / P_{t-1} + \gamma_{3t}OX_t / P_{t-1} \\
 & + \gamma_{4t}DISC + \gamma_{5t}(FX_t / P_{t-1}) * DISC + \gamma_{6t}(DX_t / P_{t-1}) * DISC \\
 & + \gamma_{7t}(OX_t / P_{t-1}) * DISC + v_t
 \end{aligned}
 \tag{4}$$

where *DISC* is disclosure dummy and $(FX_t/P_{t-1}) * DISC$, for instance, is the interaction between disclosure and foreign earnings per share scaled by beginning price. Significance of the disclosure dummy would indicate a significantly different intercept for disclosers and non-disclosers; significance of the interactive terms indicates a statistical difference in the valuation of the disaggregated earnings variables for voluntary disclosers and non-disclosers.

Table 7 presents the results of this regression, along with the basic and disaggregated regressions for the combined sample. The effects of non-disclosers are drawn out of the foreign, domestic and other earnings variables by the interactive terms, so that the coefficient values on these variables are those of the voluntary disclosers alone. The disclosure dummy is insignificant, and each of the interactive variables is insignificant, indicating that there is no statistically significant difference in the valuation of these variables between disclosers and non-disclosers. The results imply that investors value foreign earnings of non-disclosing firms in the same manner economically as they value the foreign earnings of voluntary disclosers, even though they are not, in themselves, relevant determinants of returns for non-disclosers. The signs on the coefficients on the interactive terms $FX * DISC$ and $DX * DISC$, $-.7193$ and 1.1057 respectively, indicate that more weight is

placed on domestic, and less on foreign, earnings for non-disclosers than for voluntary disclosers. It is also possible that, with the small number of available observations, the tests lack the statistical power to detect a difference.

A problem with this direct test is that it pools two groups with the assumption that the only difference between firms in the two groups is the disclosure of foreign earnings. Yet prior tests have shown that there are distinct, but undefined, differences between the two groups. (Only size has been identified as a distinguishing characteristic, and scaling by the market value of equity is an attempt to control for this factor.) Control variables should be added for these differentiating qualities, if they were known. Otherwise, the regressions have omitted variables that affect coefficient values and bias the results.

6.4. The SEC regulation.

To evaluate the sixth hypothesis, which posits a difference in the relative valuation of foreign earnings which were disclosed upon mandate, the basic and the disaggregated models, regression equations [2] and [3], are run for each sub-sample for the period after implementation of the SEC regulation through 1973. The results are presented in Table 8.

After mandatory reporting, the coefficient on foreign earnings is less significant for firms that had previously disclosed voluntarily (p-value less than .05 rather than .01). It remains insignificant for non-disclosing firms. Consistent with this result, adjusted R^2 for both groups is lower with disaggregation. For voluntary disclosers, the adjusted R^2 declines from .0704 to .0639 for the disaggregated regression; for non-disclosers, it goes from .0413 to .0226. At the same time, the t -test of equivalence of the coefficients on foreign and domestic earnings fails to reject equivalence of the foreign and domestic coefficients for both voluntary disclosers and for non-disclosers, consistent with the increased correlation between foreign and domestic earnings shown in Table 5, Panel D.

For voluntary disclosers, it appears that regulation has changed investors' valuation of foreign earnings in that there is not longer evidence that they are incrementally informative. It is possible that voluntary disclosers derive less benefit in the market from the foreign earnings disclosure after regulation, because, now mandated, it is no longer a signal (see Spence 1976). It may also be that loss of discretion in reporting has reduced its informativeness. Watts and Zimmerman (1986) argue that restrictions in accounting procedures reduce value relevance if they cause increased variability in reported values. There is

more variation in the scaled foreign earnings variable after the SEC regulation (see Table 5, Panel A), which would support the explanation of decreased value relevance. Nagarajan and Sridhar (1996) find that firms disclose less information after regulation. On the other hand, it is possible that the conditions that prompted voluntary disclosure (presumably the differential valuation of domestic and foreign earnings) have changed in this period due to other macroeconomic effects.

The results in Table 8 are particularly revealing for non-disclosers. There is no evidence that mandated disclosure of foreign earnings increased or improved investors' differential valuation of foreign earnings for firms that did not previously disclose. It would be reasonable to conclude that the lack of importance placed on the foreign earnings of these firms was *not* due to the fact that they were not known, but rather that, for some other reason, they were not important to firm valuation. The results suggest that firms made an appropriate decision not to incur the costs of disclosing foreign earnings before regulation and that investors do not benefit from the requirement for disclosure.

There may be other explanations for the failure to find evidence of value relevance of foreign earnings for non-disclosers, or it may be that stricter regulation might improve value relevance. For instance, it is possible that the foreign operations of these firms are important, but that

the earnings measure is noisy due to the problem of allocations (mentioned previously). If so, and if noise in foreign earnings alone accounts for the lack of value relevance, then there still should be an association between foreign revenues and returns. It is possible to disaggregate net income vertically (as in Swaminathan and Weintrop 1991) into revenues and expenses, and to further disaggregate revenues into their domestic and foreign components, to test this proposition.¹⁴

The regression equation becomes:

$$R_t = \beta_{0t} + \beta_{1t}FR_t / P_{t-1} + \beta_{2t}DR_t / P_{t-1} + \beta_{3t}EXP_t / P_{t-1} + \varepsilon_t \quad [5]$$

where *FR* is foreign revenues per share, *DR* is domestic revenues per share, *EXP* is total expenses per share—all of which are scaled by market price at the beginning of the period, P_{t-1} —and ε is a disturbance term.

The test sample consists of the non-disclosing firms (the second subset in Table 1) that disclosed foreign revenues in addition to foreign earnings.¹⁵

The results of this regression for non-disclosers before and after regulation, and pooled over the entire period, are shown in Table 9. The

¹⁴ This test was suggested by Joshua Livnat, New York University.

¹⁵ Firms that disclosed foreign revenues, but not foreign earnings, would already have been eliminated from the test sample. These observations are from the same non-disclosing firms included in Tables 1 through 7, except that some firms failed to disclose foreign revenues, either retrospectively or concurrently (or both). Consequently, the number of observations is smaller than in previous tables.

pre-regulation regression fails to register significance for even the basic earnings/returns relationship (adjusted R^2 of $-.0067$). After regulation, however, the foreign and domestic components of revenue show some statistical significance (p-value less than $.05$), but they are valued almost identically: 1.2870 and 1.2424 respectively. Adjusted R^2 decreases with disaggregation in both cases, from $-.0067$ to $-.0611$ before regulation and from $.0669$ to $.0569$ after, indicating that the disclosure has no incremental informativeness. These tests fail to find any evidence to suggest that foreign revenues are more relevant to firm valuation for these firms than foreign earnings are. It may be inferred from this test that the lack of value relevance of foreign earnings is not simply due to noise in measurement.

To directly test the effects of the SEC regulation, a dummy variable is added to regression equation [3], whose value is 1 after implementation of the SEC regulation and 0 for prior years. Interaction terms between the regulation dummy and the earnings component variables are also added. The new regression equation is:

$$\begin{aligned}
 R_t = & \delta_{0t} + \delta_{1t} FX_t / P_{t-1} + \delta_{2t} DX_t / P_{t-1} + \delta_{3t} OX_t / P_{t-1} \\
 & + \delta_{4t} SEC + \delta_{5t} (FX_t / P_{t-1}) * SEC + \delta_{6t} (DX_t / P_{t-1}) * SEC_t \\
 & + \delta_{7t} (OX_t / P_{t-1}) * SEC + v_t
 \end{aligned}
 \tag{6}$$

where *SEC* is the regulation dummy and $(FX_t/P_{t-1}) * SEC$, for instance, is the interaction between foreign earnings per share scaled by price and the *SEC* regulation dummy. Observations are pooled for the pre-regulation and post-regulation periods for voluntary disclosers, non-disclosers, and the combined groups. The results of these regressions are presented in Table 10. The interaction terms draw the post-regulation effects out of the coefficients on the foreign, domestic, and other earnings variables, making them equivalent to the pre-regulation coefficients. The interaction terms are insignificant for the non-disclosing firms, implying no significant difference in valuation of the earnings components after the *SEC* regulation. Specifically, the coefficients on foreign earnings are not statistically different after regulation than before for non-disclosers. Again, it is evident that the lack of value relevance of foreign earnings for non-disclosers cannot be attributed solely to the fact that they were not reported, since regulation did not alter their relative importance.

On the other hand, the significance of the *SEC* regulation dummy variable itself (p-value less than .01 for voluntary disclosers and less than .05 for non-disclosers) indicates an intercept shift after regulation. The coefficient on the *SEC* regulation dummies (.1322 for voluntary

disclosers and .2095 for non-disclosers) is approximately equal in magnitude and opposite in sign from the pre-regulation intercepts (-.1376 and -.2069, respectively)—*i. e.*, bringing the post-regulation intercept closer to its theoretical value of zero. One possible conclusion from these results is that the SEC regulation of disclosure is valued by investors, even though it does not significantly change investors' valuation of the earnings components—perhaps by allowing them to estimate disaggregated components more precisely than before. However, this explanation is contradicted by the increased variance in both foreign and domestic earnings after the SEC regulation (note the increase in standard deviations of FX_t/P_{t-1} in Panel A of Table 5, discussed in Chapter 5).

Another possible conclusion is that the SEC indicator variable is not merely representing the SEC regulation, but is detecting a more general shift in macroeconomic conditions around 1970. There were a number of specific events and unusual economic situations in the early 1970s—such as the dollar devaluation in 1971 and the final breakdown in 1973 of the Bretton Woods agreement fixing the exchange rates of currencies, the oil crisis of 1973, and the 1971 wage and price controls to curb what had become serious inflation. These conditions might have caused the valuation of foreign earnings to be different after 1970 than

before, and this change might be reflected in the significance of the SEC indicator. This conclusion is supported by the change in the valuation of foreign earnings for voluntary disclosers, previously observed in Table 8 and evidenced in Table 10 by the significance of the interaction between the SEC indicator and the foreign earnings variable.

To pursue the possibility of macroeconomic changes after 1970 (without attempting to explain them), Table 11 repeats the disaggregated regression for voluntary disclosers for each of the years 1971, 1972 and 1973, with an indicator variable for the year and interaction terms between the year and the earnings variables. The interaction terms show the effects of the year on the elements in the pooled sub-sample. Clearly, the valuation of foreign earnings in 1971 is significantly different from the rest of the period. With the year effects drawn out, the coefficient on *FX* is .6172 and is not significant at conventional levels, but the year effect on *FX* in 1971 has a coefficient of 4.0151 and is significant (p-value less than .05). The year 1971 significantly influences the pooled regression. In 1972 and 1973 combined (the effects remaining in the 1971 regression), investors placed lower value on the foreign earnings of voluntary disclosers than on domestic earnings (.6172 *versus* 1.0884). The annual differences in the magnitude of net earnings in total, observed previously in Table 5, Panel C, are probably

influential. These results suggest that contemporaneous changes in macroeconomic conditions may confound the attempt to isolate specific effects of the SEC regulation.

6.5. Pre-FASB pronouncement.

Although many firms were already disclosing foreign earnings before FAS 14 was issued in 1976, there were still a number of firms that only began disclosure as a result of the regulation (see Table 1). The provisions of FAS 14 were similar to the SEC mandate in requiring the retrospective disclosure of foreign earnings (as well as assets and revenues) for the previous four years. Also similar to the SEC regulation, the implementation of the retrospective requirement was uneven across firms. In fact, almost twice as many firms ignored the requirement as observed it.¹⁶ Because of the research design of this project, only the firms that provided retrospective information when they adopted FAS 14 are used in testing, comprising the non-disclosers in this section, and they are compared to firms in the original group of voluntary disclosers (*i. e.*, those that disclosed foreign earnings before the SEC mandate in 1970). The same six hypotheses are tested, with FAS 14 representing

¹⁶ This fact calls into question the effectiveness of any mandates.

the disclosure regulation.

Again, the first hypothesis, in null form, states that the foreign earnings of voluntary disclosers were significant determinants of stock returns in the period prior to FAS 14. The test of this hypothesis, using equation (3), can be stated as: $H1_0: \beta_1 \leq 0$. If the coefficient is not found to be significantly greater than zero, then the conclusion is that the *FX* variable is not important in determining returns for voluntary disclosers during the period evaluated. On the other hand, the finding $H1_A: \beta_1 > 0$ would indicate that foreign earnings are value relevant.

Table 12 presents test results for the basic model and the regression of market-adjusted returns on earnings disaggregated into foreign, domestic, and other components. For voluntarily disclosers, once again the coefficient on foreign earnings (.8137) is statistically significant, with a p-value of less than .05 in a one-tailed test. Based on this test $H1_0: \beta_1 \leq 0$, the hypothesis that the foreign earnings segment is not important as a determinant of returns is rejected.

For the non-disclosers, the third hypothesis posits that foreign earnings (determined from retrospective disclosures) were not contemporaneously value relevant. The test of $H3_0$ is $\beta_1 \leq 0$. As shown in Table 12, Panel B, the coefficient on foreign earnings (.7827) is not statistically significant. Since β_1 is not significantly different from zero,

the null hypothesis cannot be rejected. Once again, foreign earnings are value relevant for the voluntary disclosers, but not for the non-disclosers. Again, these results suggest that the disclosure practices for both types of firms were efficient.

The second hypothesis, regarding differential valuation of foreign and domestic earnings for voluntary disclosers, is tested by a t -test of the equivalence of the two coefficients on foreign and domestic earnings, $\beta_1 = \beta_2$. In the t -test, the statistic of .029 is far below the critical value for significance (1.96). Equivalence of the coefficients cannot be rejected, for voluntary disclosers. However, the incremental information content of disaggregation may also be indicated by comparing the adjusted R^2 of the regressions before and after the disaggregation of earnings. Table 12 indicates that disaggregation considerably increases the explanatory power (adjusted R^2) of the regression for voluntary disclosers--from .1411 to .1674. Thus, it may be inferred that disaggregated earnings are more informative.

The fourth hypothesis posits a differential valuation of foreign and domestic earnings for non-disclosers. For this group, not only is the t -statistic for the test, $\beta_1 = \beta_2$, insignificant (.962), but the explanatory power of the disaggregated regression declines from .1467 to .1298. This confirmation of the previous finding that disaggregation improves

the explanatory power for returns of voluntary disclosers, but not for non-disclosers, supports the inference that firms selected the appropriate disclosure strategy prior to regulation.

The fifth hypothesis is that there is a difference in the valuation of foreign earnings between voluntary disclosers and non-disclosers in the period before regulation. While a difference is suggested by the results of the previous tests, it is tested directly by combining the two sets of firms and adding a dummy variable *DISC* to regression equation [3], whose value is 0 if the firm voluntarily disclosed foreign earnings in this period and 1 if not. Interactive terms between the disclosure dummy and each of the earnings components are also added. The new regression equation is:

$$\begin{aligned}
 R_t = & \gamma_{0t} + \gamma_{1t}FX_t / P_{t-1} + \gamma_{2t}DX_t / P_{t-1} + \gamma_{3t}OX_t / P_{t-1} \\
 & + \gamma_{4t}DISC + \gamma_{5t}(FX_t / P_{t-1}) * DISC + \gamma_{6t}(DX_t / P_{t-1}) * DISC \\
 & + \gamma_{7t}(OX_t / P_{t-1}) * DISC + v_t
 \end{aligned}
 \tag{7}$$

where *DISC* is disclosure dummy and $(FX_t/P_{t-1}) * DISC$, for instance, is the interaction between disclosure and foreign earnings per share scaled by beginning price. Table 13 presents the results of this regression, along with the basic and disaggregated regressions for the combined sample.

The interactive terms pull the effects of the non-disclosers out of

the foreign, domestic and other earnings variables, so that the coefficient values on these variables are those of the voluntary disclosers alone. As noted in the SEC section, the disclosure coefficient (-.0182) is insignificant, indicating that there is no intercept shift between voluntary disclosers and non-disclosers. There is also no statistically significant difference in the valuation of foreign earnings, suggesting once again that investors value undisclosed foreign earnings in the same manner economically as they value disclosed foreign earnings. It is interesting to note, however, that the domestic earnings of the non-disclosing firms are valued significantly higher than those of voluntary disclosers. The coefficient on *DISC*DX* is 1.3490, with a p-value of less than .05, indicating a 1.3490 higher valuation of domestic earnings by non-disclosers than voluntary disclosers. This result is consistent with the relative difference in firm size (see Table 4, Panels A and C). It has been empirically demonstrated in the literature (*e. g.*, Atiase 1985, 1987; Freeman 1987; Collins, Kothari, and Rayburn 1987) that response coefficients are generally larger for smaller firms. The non-disclosers also have a much higher percentage of domestic earnings than voluntary disclosers in this period (82.9% *versus* 63.9%), which strengthens this effect.

The problem discussed in section 6.4 of combining two

heterogeneous groups without appropriate control variables occurs in this case as well, and mitigates against drawing inferences from the test.

6.6. The effect of FAS 14.

To provide a comparison of the basic and the disaggregated models before and after regulation, regression equations [2] and [3], are run for each sub-sample for the period after implementation of FAS 14 (generally in 1977) through 1979, and the results are presented in Table 14. After mandatory reporting, the coefficient on foreign earnings (.7422) is more significant for firms that had previously disclosed voluntarily (p-value now less than .01). The coefficient is lower than the domestic earnings coefficient of 1.0310 for the first time in this study, indicating that domestic earnings are valued more highly than foreign earnings by voluntary disclosers in this period.

For non-disclosers, the foreign earnings coefficient of 1.9188 is significant for the first time (p-value less than .05). Contrary to voluntary disclosers, the foreign earnings coefficient is now higher than the coefficient on domestic earnings (.7316).

The t -test of $\beta_1 = \beta_2$ fails to reject equivalence of the foreign and domestic coefficients for either voluntary disclosers or for non-disclosers

(*t*-statistics of .425 and 1.120 respectively). Adjusted R^2 for both groups is lower with disaggregation—falling from .1460 to .1292 for voluntary disclosers and from .0823 to .0815 for non-disclosers—indicating that requiring disclosure of foreign earnings is not useful to investors.

To directly test the effects of the FASB regulation, a dummy variable is added to regression equation [3], whose value is 1 after implementation of FAS 14 and 0 for prior years. Interaction terms between the regulation dummy and the earnings component variables are also added. The new regression equation is:

$$\begin{aligned}
 R_t = & \delta_{0t} + \delta_{1t} FX_t / P_{t-1} + \delta_{2t} DX_t / P_{t-1} + \delta_{3t} OX_t / P_{t-1} \\
 & + \delta_{4t} FAS + \delta_{5t} (FX_t / P_{t-1}) * FAS + \delta_{6t} (DX_t / P_{t-1}) * FAS_t \\
 & + \delta_{7t} (OX_t / P_{t-1}) * FAS + v_t
 \end{aligned}
 \tag{8}$$

where *FAS* is the regulation dummy and $(FX_t/P_{t-1}) * FAS$, for instance, is the interaction between foreign earnings per share scaled by price and the *FAS* regulation dummy. Observations are pooled for voluntary disclosers, non-disclosers, and the combined groups in the pre-regulation and post-regulation periods. The results of these regressions are presented in Table 15. The interaction terms draw the post-regulation effects out of the coefficients on the foreign, domestic, and other

earnings variables, making them equivalent to the pre-regulation coefficients.

For the non-disclosing firms, it is interesting to observe that even though there is a change in the significance of foreign earnings (noted above), there is no significant difference in valuation of the foreign earnings component after the FASB regulation. That is, the coefficient of 1.1361 on the *FAS*FX* interaction variable is insignificant. Investors did not value foreign earnings significantly differently after they were disclosed than before disclosure. Given the relatively small firm size in this sub-sample, the information environment may be such that investors did not know--and did not find it worthwhile to discover--the value of undisclosed foreign earnings. On the other hand, the *FAS*DX* coefficient of -1.4100 is marginally significant (p-value less than .10), indicating that investors valued domestic earnings less highly in the post-regulation period than before. This result is consistent with the increased variability in domestic earnings of non-disclosers observed in discussing Table 5, Panel B, in Chapter 5. Another explanation for this condition may be the change in auditor liability (and consequent conservatism of U. S. auditors) from the pre-regulation to the post-regulation period (see Basu 1997, especially Figure 3).

For voluntary disclosers, the significance of the FAS regulation

dummy variable coefficient of $-.0660$ (p-value less than $.05$) indicates an intercept shift after regulation. As noted in testing the SEC regulation, it is possible that the FAS indicator variable is not merely representing the regulation, but is detecting a more general shift in macroeconomic conditions. This notion is supported by the fact that the response coefficient on foreign earnings is lower than the coefficient on domestic earnings for voluntary disclosers for the first time in the periods studied. It was observed previously on Table 5, Panel B, that foreign earnings of voluntary disclosers become more variable and domestic earnings less variable in the period after FAS 14. These findings suggest that differences in macroeconomic conditions before and after 1976 affect the regression results.

The significance of the interaction of the FAS indicator variable and the other earnings variable for voluntary disclosers results from the reporting differences initiated by FAS 14. Before FAS 14, many voluntary disclosers disaggregated earnings at the level of net income, allocating all overhead costs to foreign and domestic. The provisions of FAS 14, however, prevent firms from allocating certain costs (such as interest and taxes). Therefore, the value of the other earnings variable changed considerably for voluntary disclosers after the FAS 14 regulation was implemented--from zero in most cases before 1976 to some

relatively high negative amount (representing unallocated expenses). It is not surprising, then, to find a change in investors' valuation of other expenses for voluntary disclosers.

The association between foreign earnings disclosed under FAS 14 and stock returns is similar for non-disclosing firms that did not provide retrospective disclosure (the fifth sub-sample, which is not included in the previous tests). The basic and disaggregated regressions for this group are presented in Table 16, compared to non-disclosers that did provide retrospective disclosure. This fifth sub-sample includes the smallest firms in the entire sample (refer to Table 4, Panel B). It is consistent with the theory that size affects the costs and benefits of providing information that they have provided the least amount of information of all groups--adopting FAS 14 (sometimes late) with current information only, and no retrospective disclosure.

Although there are some interesting effects noted in the period of the FASB regulation, they are tangential to the issue of disclosure effectiveness. Overall, the results of FAS 14 are similar to those of the SEC regulation. Prior to regulation, firms disclosed foreign earnings voluntarily when they were value relevant and did not disclose when they lacked value relevance, implying efficient disclosure decisions. After regulation, the foreign earnings disclosure failed to attain value

relevance for non-disclosers; for voluntary disclosers, it became less informative. For both the SEC and the FASB mandates, the regulations failed to produce incremental information that was actually used by investors in firm valuation.

Chapter 7: Summary and Conclusions

7.1. Summary

The purpose of this research project is to evaluate how mandating a particular disclosure affects investors' use of the disclosed information. Hypotheses are developed regarding investors' expected use of voluntary disclosures and undisclosed data, before and after regulation. Empirical tests of the hypotheses use the foreign earnings disclosure of U. S. multinationals.

The foreign earnings disclosure provides a unique opportunity for testing the effects of regulation for several reasons. First, segment disclosures are considered by users and by regulators to be important to interpreting financial results. Secondly, both the Securities Exchange Commission (SEC) and the FASB have long-standing mandates for disclosure of geographic segment information. Hence, there are two

opportunities to test the regulation of foreign earnings. Thirdly, both regulations have a requirement to provide retrospective information for periods prior to adoption. This retrospective requirement is perhaps the most important feature of the geographic segment regulations for this study because it provides the pre-regulation data for non-disclosers. Finally, there were many firms that voluntarily disclosed foreign earnings before being required to do so, enabling comparisons between voluntary and compulsory disclosures. These features provide unique data that facilitates partitioning the information environment on two dimensions: the disclosure decision (voluntary disclosure *versus* non-disclosure), and the regulation (the periods before and after regulation).

Using a methodology developed in the earnings response literature, the evaluation of the foreign earnings disclosure is made in the context of its importance as a determinant of stock returns. For non-disclosers, it tests whether foreign earnings were associated with stock returns before they were explicitly disclosed in the financial statements and considers whether their value relevance changed as a result of mandatory disclosure. It evaluates whether the foreign earnings disclosure has incremental information content by testing whether investors impound foreign earnings into price at the same rate as domestic earnings. The same tests of voluntary disclosers are directly

compared to the non-disclosers.

The test results indicate a significant and differential valuation of foreign earnings for firms that voluntarily disclosed this data in the period prior to the SEC regulation of 1970. There is no evidence of a significant difference in the valuation of foreign earnings for non-disclosers. After the SEC regulation mandating disclosure, the lack of value relevance of foreign earnings for previous non-disclosers remains unchanged, and for voluntary disclosers, the disaggregation of total earnings is no longer incrementally informative. There is an intercept-shift closer to zero after SEC regulation, indicating that the regulation of disclosure might be important to investors in both types of firms. On the other hand, since implementation of the SEC regulation occurred in 1971 for most firms, it is also possible that the direct test of the differences before and after regulation is confounded by macroeconomic effects (*e. g.*, monetary policy shift). The same tests were made for the FASB regulation in 1976, with similar results. Before regulation, disaggregation of earnings into foreign and domestic components increased the association with returns for voluntary disclosers, but not for non-disclosers; after FAS 14, it decreased for all firms.

7.2. Conclusions.

The evidence from the tests of both regulations is that foreign earnings are value relevant for firms that voluntarily disclosed them and *not* value relevant for firms that did not disclose--supporting the proposition that firms make rational disclosure decisions. The association between stock price and foreign earnings for non-disclosing firms does not improve after mandated disclosure. The data, now available, is still not priced by investors, suggesting that the requirement for disclosure is not useful to investors--at least for these firms. For voluntary disclosers, the incremental informativeness of the disclosure declines after regulation. Regulation is not useful to investors in these firms either. One interpretation of these results is that regulation imposes costs on firms without benefits to the firms or to investors. Another is that firms will make disclosures that benefit investors in the absence of mandates.

The findings of this dissertation have implications for the mandatory disclosure of segment information, which has been under review by the FASB (as well as the CICA and the IASC) for several years. The approach taken by the FASB in the recently released FAS 131 on disaggregated disclosures does not constrain firms as to the

nature of the disclosure as long as it conforms to the firm's internal segmentation of the business. This regulation is more likely to produce relevant information than FAS 14 because firms have the discretion to make firm-specific disclosures. For instance, it is likely that firms that did not disclose foreign earnings before FAS 14 will use some method of segmentation other than geographic to satisfy FAS 131 because they are probably not organized geographically. If not, they will no longer even be required to disclose foreign earnings--but will still have to disclose foreign revenues (which have also been shown to lack value relevance) and foreign assets. The prediction implied by the results of this dissertation is that the segmented information required under FAS 131 that is actually used internally is likely to be value relevant to investors, while the additional information required (*i. e.*, foreign disclosures for firms organized by product, and *vice versa*) is not.

This study also has policy implications for the regulation of financial disclosures in general. Overall, if firms make rational disclosure decisions, as this research suggests, then compelling a particular disclosure will be costly, without compensating benefit. The mandated disclosure for a firm that would not otherwise disclose may be useless to investors in firm valuation.

7.3. Limitations of this study.

Data limitations impose the most serious constraint in this study. Whereas all firms adopting both the SEC and the FASB regulations should have provided four years of retrospective data, few complied. There are only 28 SEC adopters and 32 FASB adopters that provided any retrospective data, and most of those provided only one or two years. Consequently, the data sets for hypothesis testing, while adequate, are small. Moreover, there may be a self-selection bias since many adopters failed to make retrospective disclosures and so were eliminated from consideration.

The data limitation constrains the use of alternate specifications of the regressions used for testing. Levels are used exclusively because using an earnings change specification would halve the number of observations in the pre-SEC regulation tests (from 63 to 35) and in the pre-FASB regulation tests (from 54 to 22)--which would reduce the power of the tests. The inability to test the robustness of the results with alternate specifications of unexpected earnings is a serious limitation.

There are also limitations in not using alternate specifications of returns. Since earnings levels are used in the ERC regression, it would

be customary to use raw returns as the dependent variable. However, because of the market effects described in section 6.1 above, raw returns are often negatively associated with earnings in the time around the SEC regulation.¹⁷ It is necessary to adjust raw returns to obtain a rational earnings/returns relationship. The *CRSP* equal weighted market adjustment is used to make a mean market adjustment. No adjustment is made for firm risk because the calculation of firm beta is constrained by the data limitations. Brown and Warner (1980) show that the simple mean adjustment to returns is comparable to other specifications and produces satisfactory results. However, it is limiting not to be able to use raw returns or other specifications of the returns variable in testing.

This study shares the limitation of any ERC research that makes intertemporal comparisons. That is, earnings response coefficients are not constant over time (*e. g.*, Collins and Kothari 1989). They are subject to firm-specific changes in risk and earnings persistence, as well as to macroeconomic effects like the change in riskless interest rates. The years included in this dissertation (1966 through 1979) are economically volatile. They include a devaluation of the dollar in 1971, followed by a second devaluation and the unpegging of foreign currency

¹⁷ Other researchers have encountered the same problem in this time period. For instance, Collins (1975) observed a "consistent *negative* association between consolidated-based earnings forecast errors and residual security price changes" for 1970, so he omitted that year from his tests.

in 1973, oil embargoes in 1971 and 1973, a market crash in 1973-4, and high inflation with government-imposed "wage and price controls" throughout the period.

In the tests in Chapter 6, it is evident that the magnitudes of the earnings response coefficients change considerably from one period tested to the next as a result of these macroeconomic effects. Acceptable controls for these effects have not yet been developed in the literature. Consequently, there are omitted variables, which can bias the coefficients and variances of included variables. To the extent that the effects are the same for the subsets of firms tested, they should not unduly influence comparisons among groups. In this study, however, different effects are observed on the sub-samples, presumably resulting from differences in size, which is the only systematic difference in groups identified here. There may be other differences not identified in this study that affect the costs and benefits of disclosure. Hence, the omission of controls for macroeconomic effects presents a serious limitation.

Another limitation may be the functional form of the regression equation. Consistent with prior ERC literature, it assumes a linear relationship between earnings and returns. However, recent research provides considerable evidence of non-linearity in the earnings/returns

relationship (*e. g.*, Freeman and Tse 1989, Hayn 1996, Basu 1977). The use of a non-linear model is prohibited by the data limitations in this study. In this case, however, since the objective is to detect differences in the use of disclosed data, the pertinent relation should be discernible even if the functional form is incorrect. The firm is its own control in the two-period tests (before and after regulation)—although this control is mitigated by the observed instability of the earnings/returns relationship over time.

7.4. Future research

The results of this research suggest several areas of further study. More work is needed on the determinants of disclosure decision, on the reasons for differential valuation of foreign and domestic components of earnings, on the value relevance of other mandated disclosures, and, in time, on the effectiveness of FAS 131.

Because of the unusual retrospective disclosures, this data set has features that would be particularly beneficial in analyzing determinants of voluntary disclosure. The results in this dissertation suggest that value relevance to investors prompts disclosure, but other aspects of the disclosure decision could be investigated with this data.

The lack of value relevance of foreign earnings for non-disclosing firms should be investigated. While it is quite apparent that foreign earnings lack value relevance for firms that did not disclose them before regulation, it is not clear why they would be unimportant in firm valuation for these firms. Several explanations were suggested and rejected in this dissertation: that they represented "bad news," that they were too small to be important, that they were a noisy measure of foreign operations.

The results of this research also indicate that there is a differential valuation domestic and foreign earnings for some firms, which apparently changes over time. If a different value is placed on foreign earnings than domestic earnings, then one direction for further research is to examine the reasons for the difference. Bodnar and Weintrop (1997) have obtained results in this area. It might be fruitful to consider the effects of non-financial variables (such as the allocative aspects of transfer pricing or differential rates in taxation) in addition to considering risk and persistence--although there are many aspects of persistence which remain to be explored. Another avenue suggested by the importance of foreign earnings in total is investigation of the use of individual segment data. Boatsman, Behn and Patz (1993) had little success with this line of inquiry, but Saudagaran (1993) suggests that their research design may

have been at fault. It is not reasonable to expect that all foreign earnings would be valued equally by investors, so it is possible that differences between segments may drive the results in the aggregate, dampening observed effects. However, many measurement problems would need to be overcome in this area.

The methodology used in this dissertation could be applied to other mandatory disclosures. Although it is unusual to find a retrospective disclosure requirement, there are undoubtedly other disclosures that were made voluntarily before regulatory requirement, to which it could be adapted. FAS 131, for instance, has a requirement to restate previous segment disclosures to conform to the new standard for years included in the financial statements. When this data is available, it will be possible to test the prediction that segment information used internally will be more value relevant to investors than information generated solely to comply with regulation.

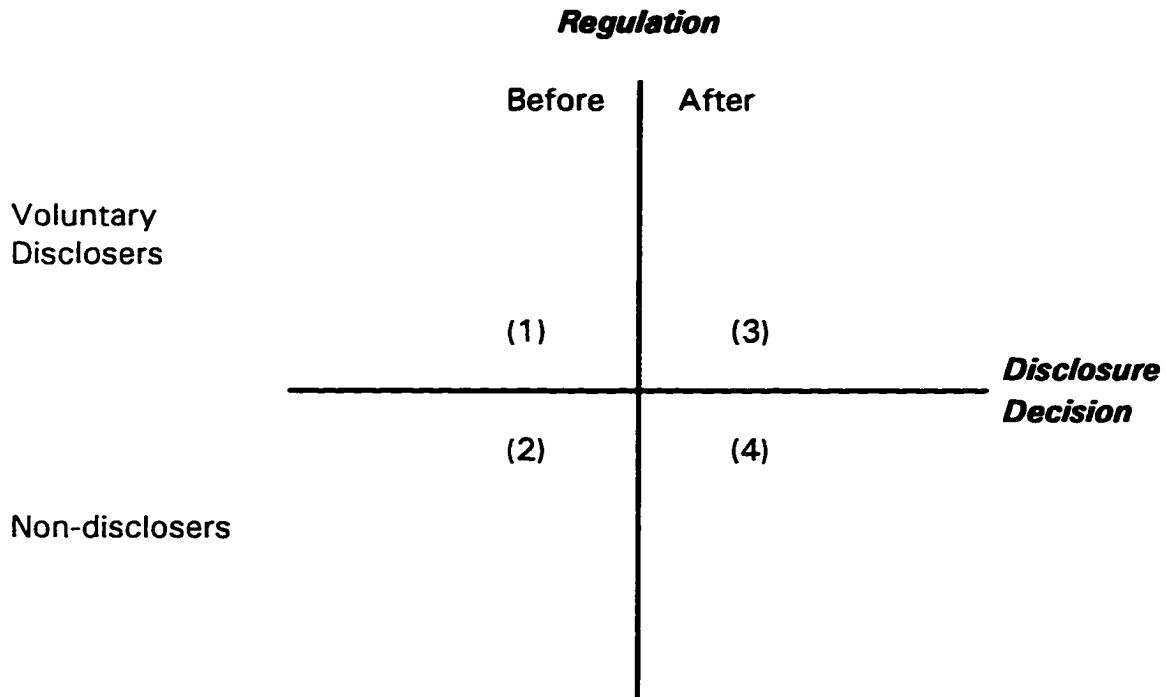
Figure 1**Partitioning the Information Environment**

Table 1
Sample Selection and Screening

Panel A: Sample Selection						
	Total	SS1	SS2	SS3	SS4	SS5
Total sample selected	654					
Eliminated:						
Reports not found	(153)					
Foreign not appropriate	(151)					
No <i>CRSP</i> data	(15)					
Total available sample	<u>335</u>	132	28	86	32	57
Panel B: Sample Screening						
Sample used in testing:						
Firms	201	84	28		32	57
Firm years	1,474	1,026	155		160	133
Firm years (after screening)	<u>1,438</u>	<u>1,002</u>	<u>151</u>		<u>154</u>	<u>131</u>

SS1 = foreign earnings voluntarily reported prior to SEC mandate of 1970.

SS2 = began reporting foreign earnings with the SEC mandate in 1970; provided retrospective data.

SS3 = began reporting foreign earnings sometime after the 1970 regulation, but prior to 1976.

SS4 = began reporting foreign earnings with FAS 14 in 1976; provided retrospective data.

SS5 = began reporting foreign earnings with FAS 14 in 1976 with no retrospective data.

Table 2

**Sample Firm Characteristics:
Industry Affiliation**

Panel A: Standard Industry Classification Codes (SIC)				
Primary Codes	Description	Voluntary Disclosers	SEC Non-Disclosers	FAS Non-Disclosers
1300	Oil & Gas	2	1	1
2000	Food & Kindred Products	9	2	3
2100-2700	Tobacco, Textiles, Paper	9	4	3
2800	Chemicals & Allied Products	15	8	4
2900-3000	Refining; Rubber & Misc. Plastics	9	1	2
3200	Stone, Clay, Glass, Concrete	3	0	1
3300-3400	Metal, Fabricated Metal, Parts	8	3	4
3500-3700	Machinery, Computers, Electrical	17	6	8
3800-3900	Misc. Manufacturing	8	1	3
5000	Merchandising	3	2	2
7300	Business Services	1	0	1
Total Firms		84	28	32

Panel B: Industry Affiliation by Sub-Sample

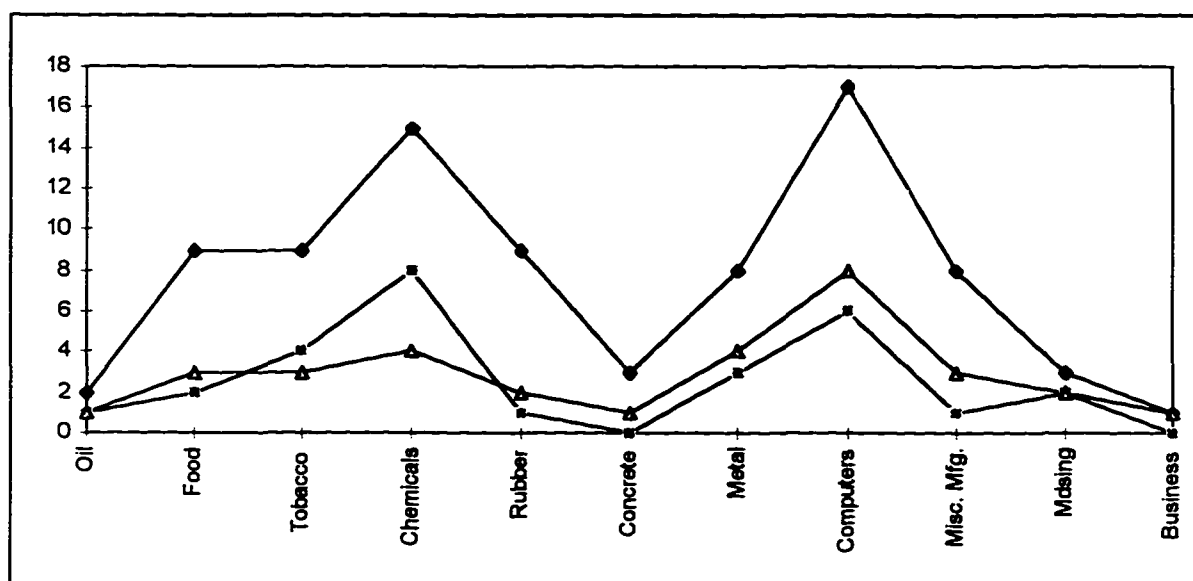


Table 3

Sample Firm Characteristics
Panel A: Average Proportion of Foreign Earnings and Size Measures
For the Periods Before and After the SEC Regulation

Voluntary Disclosers (SS1)						
<i>Period</i>	<i># of firm years</i>	<i>Mean % foreign income</i>	<i>Mean \$ foreign inc (millions)</i>	<i>Mean \$ total net income (millions)</i>	<i>Mean \$ total revenues (millions)</i>	<i>Mean \$ total assets (millions)</i>
Pre-SEC (1966-1970)	269	24.1	22.8	94.3	1,514.8	1,183.6
Post-SEC (1971-1973)	273	29.3	39.8	120.5	2,168.9	1,652.1

Non-Disclosers - SEC Regulation (SS2)						
<i>Period</i>	<i># of firm years</i>	<i>Mean % foreign income</i>	<i>Mean \$ foreign inc (millions)</i>	<i>Mean \$ total net income (millions)</i>	<i>Mean \$ total revenues (millions)</i>	<i>Mean \$ total assets (millions)</i>
Pre-SEC (1966-1970)	63	24.1	15.6	44.5	663.2	605.4
Post-SEC (1971-1973)	88	27.2	17.5	54.2	919.1	846.5

Period = before or after adoption of the SEC regulation (years approximate)

% Foreign = foreign earnings divided by the sum of foreign and domestic earnings at the level at which they are disclosed

\$ Foreign = foreign earnings at the level at which they are disclosed

Table 3

Sample Firm Characteristics
Panel B: Annual Proportion of Foreign Earnings and Size Measures
1966-1973

Voluntary Disclosers (SS1)						
<i>Year</i>	<i># of firm years</i>	<i>Mean % foreign income</i>	<i>Mean \$ foreign inc (millions)</i>	<i>Mean \$ total net income (millions)</i>	<i>Mean \$ total revenues (millions)</i>	<i>Mean \$ total assets (millions)</i>
1966	19	18.0	23.2	106.1	1,249.1	935.5
1967	55	19.8	19.8	104.0	1,311.0	1,027.6
1968	67	21.9	22.4	108.9	1,523.1	1,148.8
1969	76	25.9	23.0	80.3	1,641.6	1,265.8
1970	81	31.1	26.1	81.6	1,631.5	1,364.2
1971	80	28.5	30.4	104.0	1,921.3	1,519.9
1972	82	28.9	35.7	119.4	2,163.5	1,638.3
1973	82	29.9	57.9	151.5	2,606.1	1,896.8

Non-Disclosers (SS2)						
<i>Year</i>	<i># of firm years</i>	<i>Mean % foreign income</i>	<i>Mean \$ foreign inc (millions)</i>	<i>Mean \$ total net income (millions)</i>	<i>Mean \$ total revenues (millions)</i>	<i>Mean \$ total assets (millions)</i>
1966	5	22.3	7.1	34.3	505.5	440.1
1967	14	24.0	17.6	46.5	572.5	526.6
1968	15	24.2	18.9	46.4	641.1	587.6
1969	22	25.2	14.4	45.6	730.2	660.9
1970	24	21.8	14.4	40.7	793.6	744.4
1971	24	16.9	16.6	46.9	837.2	789.7
1972	24	34.3	16.8	56.5	921.3	852.3
1973	23	34.6	21.3	69.5	1,094.9	975.0

% Foreign = foreign earnings divided by the sum of foreign and domestic earnings at the level at which they are disclosed

\$ Foreign = foreign earnings at the level at which they are disclosed

Table 4

Sample Firm Characteristics
Panel A: Average Proportion of Foreign Earnings and Size Measures
For the Periods Before and After the FASB Regulation

Voluntary Disclosers (SS1)						
<i>Period</i>	<i># of firm years</i>	<i>Mean % foreign income</i>	<i>Mean \$ foreign inc (millions)</i>	<i>Mean \$ total net income (millions)</i>	<i>Mean \$ total revenues (millions)</i>	<i>Mean \$ total assets (millions)</i>
Pre-FASB (1974-1976)	241	36.1	70.0	187.0	3,218.7	2,262.8
Post-FASB (1977-1979)	219	34.8	139.6	316.1	4,796.0	3,049.4

Non-Disclosers - FASB Regulation (SS4)						
<i>Period</i>	<i># of firm years</i>	<i>Mean % foreign income</i>	<i>Mean \$ foreign inc (millions)</i>	<i>Mean \$ total net income (millions)</i>	<i>Mean \$ total revenues (millions)</i>	<i>Mean \$ total assets (millions)</i>
Pre-FASB (1974-1976)	54	17.1	23.8	86.6	1,682.4	1,452.7
Post-FASB (1977-1979)	100	20.1	30.5	102.9	2,374.0	1,979.6

Period = before or after adoption of the FASB regulation (years approximate)

% Foreign = foreign earnings divided by the sum of foreign and domestic earnings at the level at which they are disclosed

\$ Foreign = foreign earnings at the level at which they are disclosed

Table 4

Sample Firm Characteristics
Panel B: Annual Proportion of Foreign Earnings and Size Measures
1974-1979

Voluntary Disclosers (SS1)						
Year	# of firm years	Mean % foreign income	Mean \$ foreign inc (millions)	Mean \$ total net income (millions)	Mean \$ total revenues (millions)	Mean \$ total assets (millions)
1974	81	38.4	68.0	170.0	2,900.5	2,093.9
1975	80	37.4	60.6	152.4	3,080.0	2,233.7
1976	80	32.6	81.4	238.8	3,679.5	2,463.0
1977	76	30.4	104.4	287.2	4,236.9	2,544.0
1978	73	33.7	127.8	304.5	4,793.7	3,127.6
1979	70	40.8	190.2	359.5	5,405.5	3,516.6

Non-Disclosers with Retrospective Disclosure (SS4)						
Year	# of firm years	Mean % foreign income	Mean \$ foreign inc (millions)	Mean \$ total net income (millions)	Mean \$ total revenues (millions)	Mean \$ total assets (millions)
1974	12	22.9	17.1	74.0	1,586.3	1,304.1
1975	18	14.5	18.6	66.3	1,567.4	1,369.2
1976	28	16.2	31.1	108.2	1,816.6	1,589.6
1977	32	18.2	24.8	90.6	2,079.3	1,791.3
1978	32	20.3	27.7	111.5	2,385.6	2,002.3
1979	32	22.3	38.8	106.0	2,726.8	2,194.0

Non-Disclosers without Retrospective Disclosure (SS5)						
Year	# of firm years	Mean % foreign income	Mean \$ foreign inc (millions)	Mean \$ total net income (millions)	Mean \$ total revenues (millions)	Mean \$ total assets (millions)
1977	39	22.1	34.5	52.1	748.4	641.6
1978	57	21.9	32.4	49.0	864.6	727.2
1979	55	28.1	46.2	67.9	1,009.6	851.5

% Foreign = foreign earnings divided by the sum of foreign and domestic earnings at the level at which they are disclosed

\$ Foreign = foreign earnings at the level at which they are disclosed

Table 5
Descriptive Statistics on Variables
Panel A: Before and After SEC Regulation (1966-1973)

Voluntary Disclosers		N = 269 and 273			
<i>Pre-regulation</i>	MEAN	STD	MEDIAN	MIN	MAX
R_t	-.0390	.2736	-.0727	-.5979	.7911
X_t/P_{t-1}	.0622	.0467	.0655	-.2472	.3743
$F X_t/P_{t-1}$	.0156	.0147	.0121	-.0189	.1039
$D X_t/P_{t-1}$	.0503	.0488	.0506	-.3102	.3192
$O X_t/P_{t-1}$	-.0037	.0166	0	-.1053	0
<i>Post-regulation</i>					
R_t	.0700	.2639	.0530	-.6782	1.0130
X_t/P_{t-1}	.0756	.0726	.0719	-.5428	.3886
$F X_t/P_{t-1}$	.0245	.0320	.0180	-.2479	.2964
$D X_t/P_{t-1}$	.0584	.0687	.0486	-.2949	.3681
$O X_t/P_{t-1}$	-.0072	.0327	0	-.3161	0

Non-Disclosers		N = 63 and 88			
<i>Pre-regulation</i>	MEAN	STD	MEDIAN	MIN	MAX
R_t	-.0271	.2951	-.0209	-.7594	.7222
X_t/P_{t-1}	.0760	.0337	.0793	.0020	.1632
$F X_t/P_{t-1}$	.0243	.0198	.0204	-.0014	.0686
$D X_t/P_{t-1}$	.0785	.0519	.0688	-.0018	.2033
$O X_t/P_{t-1}$	-.0269	.0407	0	-.1537	0
<i>Post-regulation</i>					
R_t	.0717	.2054	.0572	-.3600	.5659
X_t/P_{t-1}	.0779	.0609	.0676	-.1040	.3035
$F X_t/P_{t-1}$	.0287	.0508	.0157	-.0213	.3782
$D X_t/P_{t-1}$	.0731	.0702	.0675	-.2631	.2584
$O X_t/P_{t-1}$	-.0239	.0365	0	-.1234	0

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends 1966-1973.

X_t = annual accounting income per share before extraordinary items and discontinued operations.

$F X_t$ = foreign earnings per share before extraordinary items and discontinued operations as reported.

$D X_t$ = domestic earnings per share before extraordinary items and discontinued operations as reported.

$O x_t$ = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

Table 5

Descriptive Statistics on Variables
Panel B: Before and After FASB Regulation (1974-1979)

Voluntary Disclosers			N = 241 and 219		
Pre-regulation	MEAN	STD	MEDIAN	MIN	MAX
R_t	-.0812	.2767	-.0807	-.6332	1.0800
X_t/P_{t-1}	.1246	.1201	.1086	-.4536	.9590
$F X_t/P_{t-1}$	.0318	.0442	.0261	-.1951	.2678
$D X_t/P_{t-1}$	.1058	.1322	.0846	-.3786	1.1670
$O X_t/P_{t-1}$	-.0131	.0577	0	-.6694	0
<i>Post-regulation</i>					
R_t	-.1455	.2487	-.1798	-.6695	.9264
X_t/P_{t-1}	.1321	.0895	.1313	-.3978	.4447
$F X_t/P_{t-1}$	.0614	.0682	.0463	-.1598	.4691
$D X_t/P_{t-1}$	.1579	.1202	.1307	-.3299	.6915
$O X_t/P_{t-1}$	-.0825	.1376	0	-1.034	0

Non-Disclosers			N = 54 and 100		
Pre-regulation	MEAN	STD	MEDIAN	MIN	MAX
R_t	-.0449	.3325	-.0748	-.6727	.9802
X_t/P_{t-1}	.0960	.0745	.0813	-.0237	.2731
$F X_t/P_{t-1}$	.0294	.0363	.0199	-.0267	.1675
$D X_t/P_{t-1}$	.1274	.1180	.1051	-.0228	.5730
$O X_t/P_{t-1}$	-.0608	.0754	-.0284	-.3232	0
<i>Post-regulation</i>					
R_t	-.1014	.3372	-.1855	-.6977	1.1770
X_t/P_{t-1}	.1294	.1051	.1444	-.2653	.5457
$F X_t/P_{t-1}$	.0470	.0510	.0350	-.1055	.2330
$D X_t/P_{t-1}$	.1850	.1520	.1621	-.1143	1.1500
$O X_t/P_{t-1}$	-.1026	.1321	-.0596	-.7853	0

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends 1974-1979.

X_t = annual accounting income per share before extraordinary items and discontinued operations.

$F X_t$ = foreign earnings per share before extraordinary items and discontinued operations as reported.

$D X_t$ = domestic earnings per share before extraordinary items and discontinued operations as reported.

$O X_t$ = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

Table 5
Descriptive Statistics on Variables
Panel C: Annual Detail on the Earnings Variable X_t/P_{t-1}

Voluntary Disclosers						
	MEAN	STD	MEDIAN	MIN	MAX	N
1966	.0751	.0459	.1068	.0079	.2055	18
1967	.0604	.0426	-.0165	-.1417	.1087	55
1968	.0654	.0355	.0607	-.0699	.1912	67
1969	.0638	.0473	.1631	-.0481	.3743	75
1970	.0578	.0660	.0184	-.2472	.2839	81
1971	.0581	.0461	.0782	-.1011	.2575	80
1972	.0690	.0434	.0618	-.0758	.1994	83
1973	.1021	.1032	-.0772	-.5428	.3886	83
1974	.1448	.1440	.4500	-.0590	.9590	81
1975	.1169	.1188	-.0002	-.4536	.4532	80
1976	.1145	.0912	.1618	-.2739	.5974	80
1977	.1254	.1078	.2959	-.2174	.8092	76
1978	.1470	.1372	.3853	-.2951	1.0660	73
1979	.1454	.1743	.1763	-.6158	.9677	70

Non-Disclosers						
SEC	MEAN	STD	MEDIAN	MIN	MAX	N
1966	.0884	.0469	.0813	.0167	.1458	5
1967	.0794	.0354	.0827	.0169	.1486	14
1968	.0853	.0334	.0934	.0238	.1632	15
1969	.0684	.0254	.0674	.0217	.1131	22
1970	.0634	.0371	.0528	-.0113	.1169	24
1971	.0811	.0780	.2080	.0036	.4124	24
1972	.1154	.1668	.4270	.0034	.8505	24
1973	.1115	.1043	.1176	-.1040	.3392	23

FASB	MEAN	STD	MEDIAN	MIN	MAX	N
1974	.1077	.0955	.1452	-.0186	.3091	12
1975	.0906	.1046	-.0120	-.2198	.1958	18
1976	.1256	.0896	.1136	-.0594	.2866	28
1977	.1269	.1264	.1402	-.2653	.5457	32
1978	.1339	.0889	.0303	-.1889	.2506	32
1979	.1277	.0777	.0680	-.1146	.2507	32

X_t = annual accounting income per share before extraordinary items and discontinued operations.

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

Table 5
Descriptive Statistics on Variables
Panel D: Correlation between Variables

Correlation between Variables Before and After SEC Regulation (1966-1973)			
	<i>FX-DX</i>	<i>FX-OX</i>	<i>DX-OX</i>
<i>Pre-SEC regulation</i>			
Voluntary Disclosers	-.0710	-.0515	-.3504
Non-Disclosers	-.0098	-.2062	-.7707
<i>Post-SEC regulation</i>			
Voluntary Disclosers	.2206	-.0686	-.5268
Non-Disclosers	-.3715	-.0136	-.4752

Correlation between Variables Before and After FASB Regulation (1974-1979)			
	<i>FX-DX</i>	<i>FX-OX</i>	<i>DX-OX</i>
<i>Pre-FASB regulation</i>			
Voluntary Disclosers	.0791	-.0236	-.5987
Non-Disclosers	.2273	-.3293	-.8717
<i>Post-FASB regulation</i>			
Voluntary Disclosers	.1833	-.5065	-.6827
Non-Disclosers	.4862	-.5314	-.8089

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends 1974-1979.

X_t = annual accounting income per share before extraordinary items and discontinued operations.

FX_t = foreign earnings per share before extraordinary items and discontinued operations as reported.

DX_t = domestic earnings per share before extraordinary items and discontinued operations as reported.

OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

Table 6

**Market-adjusted Security Returns Regressed on Deflated Earnings and on
Disaggregated Deflated Earnings Prior to SEC Regulation
(1966-1970)**

Panel A: Basic Model: $R_t = \alpha_{0t} + \alpha_{1t} X_t / P_{t-1} + e_t$

	α_{0t}	α_{1t}	Adj. R ²	N
Voluntary Disclosers	-.1134 (-4.157)***	1.1960 (3.409)***	.0381	269
Non-Disclosers	-.1996 (-2.219)**	2.2686 (2.095)**	.0518	63
All Firms	-.1213 (-4.625)***	1.3045 (3.918)***	.0416	332

Panel B: Disaggregated Earnings Model:

$$R_t = \beta_{0t} + \beta_{1t} FX_t / P_{t-1} + \beta_{2t} DX_t / P_{t-1} + \beta_{3t} OX_t / P_{t-1} + \varepsilon_t$$

	β_{0t}	β_{1t}	β_{2t}	β_{3t}	Adj. R ²	N	t-statistic
Voluntary Disclosers	-.1376 (-4.576)***	3.4574 (3.113)***	1.0395 (2.907)***	2.1114 (2.007)**	.0509	269	1.995**
Non-Disclosers	-.2069 (-2.195)**	2.7381 (1.378)	2.1451 (1.843)*	2.0590 (1.356)	.0215	63	.188
All Firms	-.1416 (-4.999)***	3.1324 (3.326)***	1.1493 (3.348)***	1.6407 (2.306)**	.0488	332	

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends prior to implementation of the regulation.

X_t = annual accounting income per share before extraordinary items and discontinued operations.

FX_t = foreign earnings per share before extraordinary items and discontinued operations as reported.

DX_t = domestic earnings per share before extraordinary items and discontinued operations as reported.

OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

N = the number of observations in each regression.

The OLS t-statistics are shown parenthetically.

***/(**)/(*) Indicates significance of one-sided tests for p-values < .01 / (<.05) / (< .10).

t-statistic = the statistic obtained from the test of $\beta_1 = \beta_2$. Critical t-value for p < .05 is 1.96.

Table 7

**Market-adjusted Security Returns Regressed on Deflated Earnings and on
Disaggregated Deflated Earnings Prior to SEC Regulation
With Disclosure and Interactive Dummy Variables**

Basic Model: $R_t = \alpha_{0t} + \alpha_{1t} X_t / P_{t-1} + e_t$

Disaggregated Earnings Model with Disclosure and Interactive Dummy Variables:
 $R_t = \gamma_{0t} + \gamma_{1t} FX_t / P_{t-1} + \gamma_{2t} DX_t / P_{t-1} + \gamma_{3t} OX_t / P_{t-1} + \gamma_{4t} DISC + \gamma_{5t} (FX_t / P_{t-1}) * DISC$
 $+ \gamma_{6t} (DX_t / P_{t-1}) * DISC + \gamma_{7t} (OX_t / P_{t-1}) * DISC + u_t$

Variable	Coefficient on Variable		N = 332
Intercept	-0.1213 (-4.625)***	-0.1416 (-4.999)***	-0.1376 (-4.496)***
X_t	1.3045 (3.918)***		
FX_t		3.1324 (3.326)***	3.4574 (3.058)***
DX_t		1.1493 (3.348)***	1.0395 (2.855)***
OX_t		1.6407 (2.306)**	2.1114 (1.972)**
$DISC$			-0.0693 (-0.747)
$DISC * FX_t$			-0.7193 (-0.332)
$DISC * DX_t$			1.1057 (0.969)
$DISC * OX_t$			-0.0524 (-0.030)
Adj. R ²	.0416	.0488	.0431

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends prior to implementation of the SEC regulation (approximately 1966-1970).

X_t = annual accounting income per share before extraordinary items.

FX_t (DX_t) = foreign (domestic) earnings per share before extraordinary items as reported.

OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

$DISC$ = 1 if no disclosure of foreign earnings was made prior to the regulation; 0 if voluntarily disclosed.

$DISC * FX_t$ ($DISC * DX_t$) = the interaction of disclosure and foreign (domestic) earnings as reported.

N = the number of observations in each regression.

The OLS t-statistics are shown parenthetically.

*** (**)[*] Indicates significance of one-sided tests for p-values < .01 (< .05) / [< .10].

Table 8

**Market-adjusted Security Returns Regressed on Deflated Earnings and on
Disaggregated Deflated Earnings After SEC Regulation
(1971-1973)**

Panel A: Basic Model: $R_t = \alpha_{0t} + \alpha_{1t}X_t / P_{t-1} + e_t$

	α_{0t}	α_{1t}	Adj. R ²	N
Voluntary Disclosers	-.0046 (-.207)	.9874 (4.649)***	.0704	273
Non-Disclosers	.0116 (.333)	.7715 (2.179)**	.0413	88
All Firms	-.0000 (-.001)	.8925 (4.367)***	.0478	361

Panel B: Disaggregated Earnings Model:

$$R_t = \beta_{0t} + \beta_{1t}FX_t / P_{t-1} + \beta_{2t}DX_t / P_{t-1} + \beta_{3t}OX_t / P_{t-1} + \varepsilon_t$$

	β_{0t}	β_{1t}	β_{2t}	β_{3t}	Adj. R ²	N	t-statistic
Voluntary Disclosers	-.0054 (-.239)	1.1087 (2.234)**	.9425 (3.469)***	.9330 (1.675)*	.0639	273	.189
Non-Disclosers	.0026 (.067)	.7527 (1.585)	.7937 (2.035)**	.4391 (.630)	.0226	88	-.047
All Firms	-.0033 (-.159)	1.0800 (2.869)***	.8338 (3.703)***	.7018 (1.591)	.0439	361	

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends after implementation of the regulation.
 X_t = annual accounting income per share before extraordinary items and discontinued operations.
 FX_t = foreign earnings per share before extraordinary items and discontinued operations as reported.
 DX_t = domestic earnings per share before extraordinary items and discontinued operations as reported.
 OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).
 P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).
N = the number of observations in each regression.
The OLS t-statistics are shown parenthetically.
***/(**)/(*) Indicates significance of one-sided tests for p-values < .01 / (<.05) / (< .10).
t-statistic = the statistic obtained from the test of $\beta_1 = \beta_2$. Critical t-value for p < .05 is 1.96.

Table 9

**Market-adjusted Security Returns Regressed on Deflated Earnings and on
Disaggregated Deflated Revenues and Expenses for Non-Disclosers
Before and After SEC Regulation**

Panel A: Basic Model: $R_t = \alpha_{0t} + \alpha_{1t} X_t / P_{t-1} + e_t$

	α_{0t}	α_{1t}	Adj. R ²	N
Before Regulation	-.1207 (-.861)	1.4049 (.858)	-.0067	41
After Regulation	-.0087 (-.179)	1.0449 (2.207)**	.0669	55
Pooled (1966-73)	-.0521 (-1.032)	1.1411 (2.158)**	.0371	96

Panel B: Disaggregated Revenues and Expenses Model:

$$R_t = \beta_{0t} + \beta_{1t} FR_t / P_{t-1} + \beta_{2t} DR_t / P_{t-1} + \beta_{3t} EXP_t / P_{t-1} + \varepsilon_t$$

	β_{0t}	β_{1t}	β_{2t}	β_{3t}	Adj. R ²	N
Before Regulation	-.1201 (-.772)	1.3930 (.586)	1.3897 (.581)	-1.3900 (-1.573)	-.0611	41
After Regulation	.0015 (.029)	1.2870 (1.862)**	1.2424 (1.828)**	-1.2647 (-1.830)**	.0569	55
Pooled (1966-73)	-.0422 (-.776)	1.1144 (1.467)	1.0877 (1.454)	-1.097 (-1.443)	.0221	96

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends after implementation of the regulation.

X_t = annual accounting income per share before extraordinary items and discontinued operations.

FR_t = foreign revenues per share as reported.

DR_t = domestic revenues per share as reported.

EXP_t = total expenses and other deductions from revenue.

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

N = the number of observations in each regression.

The OLS t -statistics are shown parenthetically.

***/**/*/(*) indicates significance of one-sided tests for p -values < .01/[<.05]/(< .10).

Table 10

**Market-adjusted Security Returns Regressed on Disaggregated Deflated Earnings before and after the SEC Regulation (1966-1973)
With Regulation and Interactive Dummy Variables**

Disaggregated Earnings Model with Regulation and Interactive Dummy Variables:

$$R_t = \delta_{0t} + \delta_{1t}FX_t / P_{t-1} + \delta_{2t}DX_t / P_{t-1} + \delta_{3t}OX_t / P_{t-1} + \delta_{4t}SEC + \delta_{5t}(FX_t / P_{t-1}) * SEC + \delta_{6t}(DX_t / P_{t-1}) * SEC + \delta_{7t}(OX_t / P_{t-1}) * SEC + v_t$$

Variable	Coefficient on Variable	
	Voluntary Disclosers	Non-Disclosers
Intercept	-.1376 (-4.675)***	-.2069 (-2.629)***
FX_t	3.4574 (3.180)***	2.7381 (1.659)
DX_t	1.0395 (2.969)***	2.1451 (2.208)**
OX_t	2.1114 (2.051)**	2.0590 (1.624)
SEC	.1322 (3.536)***	.2095 (2.296)**
$SEC * FX_t$	-2.3487 (-1.957)*	-1.9854 (-1.132)
$SEC * DX_t$	-.0970 (-.217)	-1.3514 (-1.253)
$SEC * OX_t$	-1.1784 (-1.002)	-1.6200 (-1.067)
N	542	151
Adj. R^2	.0929	.0553

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends 1966-1973.

X_t = annual accounting income per share before extraordinary items and discontinued operations.

FX_t (DX_t) = foreign (domestic) earnings per share before extraordinary items and discontinued operations as reported.

OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

SEC = 0 prior to the regulation; 1 after implementation of the regulation.

$SEC * FX_t$ ($DISC * DX_t$) = the interaction of regulation and foreign (domestic) earnings as reported.

$SEC * OX_t$ = the interaction of regulation and other earnings effects.

N = the number of observations in each regression.

The OLS t-statistics are shown parenthetically.

***(**)[*] Indicates significance of one-sided tests for p-values < .01/(.05)/(< .10).

Table 11

**Market-adjusted Security Returns Regressed on Deflated Earnings and on
Disaggregated Deflated Earnings after the SEC Regulation (1970-1973) for
Voluntary Disclosers with Year Effects**

Disaggregated Earnings Model with Disclosure and Interactive Dummy Variables:

$$R_t = \delta_{0t} + \delta_{1t}FX_t / P_{t-1} + \delta_{2t}DX_t / P_{t-1} + \delta_{3t}OX_t / P_{t-1} + \delta_{4t}YR + \delta_{5t}(FX_t / P_{t-1}) * YR \\ + \delta_{6t}(DX_t / P_{t-1}) * YR + \delta_{7t}(OX_t / P_{t-1}) * YR + v_t$$

Variable	Coefficient on Variable			N = 273
	1971	1972	1973	
Intercept	-.0097 (-.369)	-.0485 (-1.911)*	.0007 (.023)	
FX_t	.6172 (1.182)	1.4198 (2.648)***	1.8153 (1.956)*	
DX_t	1.0884 (3.762)***	.9680 (3.184)***	.6699 (1.703)*	
OX_t	1.3292 (2.155)**	.5543 (.793)	1.0083 (1.459)	
YR	-.0578 (-1.079)	.1899 (3.037)***	-.0432 (-.841)	
$YR * FX_t$	4.0151 (2.514)**	-2.4307 (-1.597)	-1.1421 (-1.012)	
$YR * DX_t$	-1.3198 (-1.622)	-.5541 (-.776)	.6751 (1.201)	
$YR * OX_t$	-2.1856 (-1.522)	.3659 (.301)	-.4210 (-.331)	
Adj. R ²	.0826	.0962	.0636	

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends prior to implementation of the FASB regulation (approximately 1974-1976).

X_t = annual accounting income per share before extraordinary items.

FX_t , (DX_t) = foreign (domestic) earnings per share before extraordinary items as reported.

OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

YR = 1 if the year is 1971 (1972, 1973 in the second and third columns respectively); 0 if not.

$YR * FX_t$ ($YR * DX_t$) = the interaction of the year dummy and foreign (domestic) earnings as reported.

$YR * OX_t$ = the interaction of the year dummy and other earnings effects.

N = the number of observations in each regression.

The OLS t-statistics are shown parenthetically.

***(**)[*] Indicates significance of one-sided tests for p-values < .01 [(< .05)] [< .10].

Table 12

**Market-adjusted Security Returns Regressed on Deflated Earnings and on
Disaggregated Deflated Earnings Prior to FASB Regulation
(1974-1976)**

Panel A: Basic Model: $R_t = \alpha_{0t} + \alpha_{1t} X_t / P_{t-1} + e_t$

	α_{0t}	α_{1t}	Adj. R ²	N
Voluntary Disclosers	-1.903 (-7.988)***	.8761 (6.357)***	.1411	241
Non-Disclosers	-.2177 (-3.175)***	1.8002 (3.180)***	.1467	54
All Firms	-.1852 (-8.179)***	.9275 (6.742)***	.1314	295

Panel B: Disaggregated Earnings Model:

$$R_t = \beta_{0t} + \beta_{1t} FX_t / P_{t-1} + \beta_{2t} DX_t / P_{t-1} + \beta_{3t} OX_t / P_{t-1} + \varepsilon_t$$

	β_{0t}	β_{1t}	β_{2t}	β_{3t}	Adj. R ²	N	t-statistic
Voluntary Disclosers	-.1922 (-8.028)***	.8137 (2.198)**	.7925 (5.131)***	-.0978 (-.277)	.1674	241	.029
Non-Disclosers	-.2104 (-3.012)***	.7827 (.625)	2.1416 (2.881)***	2.1439 (1.788)*	.1298	54	.962
All Firms	-.1909 (-8.345)***	.7328 (2.028)**	.8633 (5.598)***	.0634 (.203)	.1565	295	

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends prior to implementation of the regulation.

X_t = annual accounting income per share before extraordinary items and discontinued operations.

FX_t = foreign earnings per share before extraordinary items and discontinued operations as reported.

DX_t = domestic earnings per share before extraordinary items and discontinued operations as reported.

OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

N = the number of observations in each regression.

The OLS t-statistics are shown parenthetically.

***|**|*|(|) indicates significance of one-sided tests for p-values < .01 / [.05] / (< .10).

t-statistic = the statistic obtained from the test of $\beta_1 = \beta_2$. Critical t-value for p < .05 is 1.96.

Table 13

**Market-adjusted Security Returns Regressed on Deflated Earnings and on
Disaggregated Deflated Earnings Prior to FASB Regulation
With Disclosure and Interactive Dummy Variables**

Basic Model: $R_t = \alpha_{0t} + \alpha_{1t} X_t / P_{t-1} + e_t$

Disaggregated Earnings Model with Disclosure and Interactive Dummy Variables:

$$R_t = \gamma_{0t} + \gamma_{1t} FX_t / P_{t-1} + \gamma_{2t} DX_t / P_{t-1} + \gamma_{3t} OX_t / P_{t-1} + \gamma_{4t} DISC + \gamma_{5t} (FX_t / P_{t-1}) * DISC \\ + \gamma_{6t} (DX_t / P_{t-1}) * DISC + \gamma_{7t} (OX_t / P_{t-1}) * DISC + v_t$$

Variable	Coefficient	on Variable	N = 295
Intercept	-.1852 (-8.179)***	-.1909 (-8.345)***	-.1922 (-7.694)***
X_t	.9275 (6.742)***		
FX_t		.7328 (2.028)**	.8137 (2.107)**
DX_t		.8633 (5.598)***	.7925 (4.918)***
OX_t		.0634 (.203)	-.0978 (-.265)
$DISC$			-.0182 (-.283)
$DISC * FX_t$			-.0310 (-.027)
$DISC * DX_t$			1.3490 (2.070)**
$DISC * OX_t$			2.2416 (2.070)**
Adj. R ²	.1314	.1565	.1600

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends prior to implementation of the FASB regulation (approximately 1974-1976).

X_t = annual accounting income per share before extraordinary items.

FX_t (DX_t) = foreign (domestic) earnings per share before extraordinary items as reported.

OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

$DISC$ = 1 if no disclosure of foreign earnings was made prior to the regulation;

0 if foreign earnings were voluntarily disclosed.

$DISC * FX_t$ ($DISC * DX_t$) = the interaction of disclosure and foreign (domestic) earnings as reported.

$DISC * OX_t$ = the interaction of disclosure and other earnings effects.

N = the number of observations in each regression.

The OLS t-statistics are shown parenthetically.

***(**)[*] Indicates significance of one-sided tests for p-values < .01 [(< .05)] [< .10].

Table 14

**Market-adjusted Security Returns Regressed on Deflated Earnings and on
Disaggregated Deflated Earnings After FASB Regulation
(1977-1979)**

Panel A: Basic Model: $R_t = \alpha_{0t} + \alpha_{1t} X_t / P_{t-1} + e_t$

	α_{0t}	α_{1t}	Adj. R ²	N
Voluntary Disclosers	-.2876 (-10.37)***	1.0754 (6.186)***	.1460	219
Non-Disclosers	-.2271 (-4.418)***	.9712 (3.144)***	.0823	100
All Firms	-.2672 (-10.61)***	1.0323 (6.628)***	.1190	319

Panel B: Disaggregated Earnings Model:

$$R_t = \beta_{0t} + \beta_{1t} FX_t / P_{t-1} + \beta_{2t} DX_t / P_{t-1} + \beta_{3t} OX_t / P_{t-1} + \varepsilon_t$$

	β_{0t}	β_{1t}	β_{2t}	β_{3t}	Adj. R ²	N	t-statistic
Voluntary Disclosers	-.2724 (-8.688)***	.7422 (2.683)***	1.0310 (5.568)***	.9876 (5.354)***	.1292	219	.425
Non-Disclosers	-.2234 (-4.081)***	1.9188 (2.533)**	.7316 (2.000)**	1.0099 (2.325)**	.0815	100	1.120
All Firms	-.2569 (-9.247)***	.8790 (3.214)***	.9816 (5.914)***	.9916 (5.543)***	.1059	319	

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends prior to implementation of the regulation.

X_t = annual accounting income per share before extraordinary items and discontinued operations.

FX_t = foreign earnings per share before extraordinary items and discontinued operations as reported.

DX_t = domestic earnings per share before extraordinary items and discontinued operations as reported.

OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

N = the number of observations in each regression.

The OLS t-statistics are shown parenthetically.

***/(**)/(*) Indicates significance of one-sided tests for p-values < .01 / (<.05) / (< .10).

t-statistic = the statistic obtained from the test of $\beta_1 = \beta_2$. Critical t-value for p < .05 is 1.96.

Table 15

**Market-adjusted Security Returns Regressed on Disaggregated Deflated Earnings before and after the FASB Regulation (1974-1979)
With Regulation and Interactive Dummy Variables**

Disaggregated Earnings Model with Regulation and Interactive Dummy Variables:

$$R_t = \delta_{0t} + \delta_{1t}FX_t / P_{t-1} + \delta_{2t}DX_t / P_{t-1} + \delta_{3t}OX_t / P_{t-1} + \delta_{4t}FAS + \delta_{5t}(FX_t / P_{t-1}) * FAS + \delta_{6t}(DX_t / P_{t-1}) * FAS + \delta_{7t}(OX_t / P_{t-1}) * FAS + v_t$$

Variable	Coefficient on Variable	
	Voluntary Disclosers	Non-Disclosers
Intercept	-.1922 (-8.342)***	-.2104 (-2.930)***
FX_t	.8137 (2.284)**	.7827 (.608)
DX_t	.7925 (5.332)***	2.1416 (2.803)***
OX_t	-.0978 (-.288)	2.1439 (1.740)*
FAS	-.0801 (-1.998)**	-.0129 (-.144)
$FAS * FX_t$	-.0715 (-.156)	1.1361 (.763)
$FAS * DX_t$	.2384 (.976)	-1.4100 (-1.669)*
$FAS * OX_t$	1.0853 (2.777)***	-1.1340 (-.869)
N	460	154
Adj. R^2	.1618	.1544

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends 1974-1979.

X_t = annual accounting income per share before extraordinary items and discontinued operations.

FX_t (DX_t) = foreign (domestic) earnings per share before extraordinary items and discontinued operations as reported.

OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

FAS = 0 prior to the regulation; 1 after implementation of the regulation.

$FAS * FX_t$ ($FAS * DX_t$) = the interaction of regulation and foreign (domestic) earnings as reported.

$FAS * OX_t$ = the interaction of regulation and other earnings effects.

N = the number of observations in each regression.

The OLS t-statistics are shown parenthetically.

***(**)[*] Indicates significance of one-sided tests for p-values < .01/(< .05)/(< .10).

Table 16

Market-adjusted Security Returns Regressed on Deflated Earnings and on Disaggregated Deflated Earnings After FASB Regulation for Non-Disclosers With and Without Retrospective Disclosure (1977-1979)

Panel A: Basic Model: $R_t = \alpha_{0t} + \alpha_{1t}X_t / P_{t-1} + e_t$

	α_{0t}	α_{1t}	Adj. R ²	N
Non-Disclosers (with Retrospective)	-.2271 (-4.418)***	.9712 (3.144)***	.0823	100
Non-Disclosers (no Retrospective)	-.1384 (-3.060)***	.5219 (1.793)*	.0168	131
All Non-Disclosers	-.1779 (-5.251)***	.7315 (3.459)***	.0455	231

Panel B: Disaggregated Earnings Model:

$$R_t = \beta_{0t} + \beta_{1t}FX_t / P_{t-1} + \beta_{2t}DX_t / P_{t-1} + \beta_{3t}OX_t / P_{t-1} + \varepsilon_t$$

	β_{0t}	β_{1t}	β_{2t}	β_{3t}	Adj. R ²	N
Non-Disclosers (with Retrospective)	-.2234 (-4.081)***	1.9188 (2.533)**	.7316 (2.000)**	1.0099 (2.325)**	.0815	100
Non-Disclosers (no Retrospective)	-.1184 (-2.284)**	.7894 (1.642)	.5326 (1.718)*	.7793 (2.022)**	.0118	131
All Non-Disclosers	-.1694 (-4.519)***	1.1636 (2.967)***	.6660 (2.906)***	.8847 (3.129)***	.0445	231

R_t = 12 month stock returns (month -9 through month +3 from fiscal year-end), adjusted using the CRSP equal-weighted index, for fiscal year-ends prior to implementation of the regulation.

X_t = annual accounting income per share before extraordinary items and discontinued operations.

FX_t = foreign earnings per share before extraordinary items and discontinued operations as reported.

DX_t = domestic earnings per share before extraordinary items and discontinued operations as reported.

OX_t = other earnings effects, the difference between total earnings and the sum of domestic and foreign earnings (usually consisting of unallocated expenses, interest, taxes).

P_{t-1} = beginning of period price per share (at month -9 from fiscal year-end).

N = the number of observations in each regression.

The OLS t-statistics are shown parenthetically.

***/(**)/(*) indicates significance of one-sided tests for p-values < .01 / (<.05)/(< .10).

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